United States
Department of
Interior

Bureau of Land
Management

United States
Department of
Agriculture

Forest Service

April 2010

Final Environmental Impact Statement

Gunnison Basin Federal Lands Travel Management

USDA Forest Service, Grand Mesa, Uncompahgre and Gunnison National Forest

USDI, Bureau of Land Management, Gunnison Field Office
Gunnison, Delta, Hinsdale, and Saguache Counties, Colorado

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Gunnison Basin Federal Lands Travel Management
Final Environmental Impact Statement
Gunnison, Delta, Hinsdale, and Saguache Counties, Colorado

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Abstract: This Final Environmental Impact Statement (FEIS) discloses the effects of modifying the current travel plan pertaining to motorized and mechanized vehicles for those federal lands managed by the Forest Service and Bureau of Land Management (BLM) in the upper Gunnison Basin. The purpose of changing the existing travel management plan is to complete the intended route by route assessments of existing roads and trails to determine which are needed to provide for a range of recreational users while balancing resource protection and access needs. This was a commitment made in the Gunnison Travel Interim Restrictions (April 2001) by both the Forest Service and the BLM. Additionally, the Forest Service, in order to comply with its 2005 Travel Management Rule mandates, shall decide which routes on the National Forest System lands are to be designated open to the public for motorized travel and prepare a Motor Vehicle Use Map (MVUM).

The existing conditions resulting from the Gunnison Travel Interim Restrictions (April 2001) are addressed in analysis of the No Action Alternative. Under this alternative, the current travel system is maintained. Each of the four action alternatives describe a variation and differing combination of route designations and mode of travel on approximately 3,730 miles of roads and about 1,050 miles of trails on federal lands in the upper Gunnison Basin. Under all the alternatives, cross-country travel by motorized and mechanized vehicles would continue to be prohibited and travel by these vehicles would be restricted to designated routes. This analysis of travel does not address over-snow travel, travel in Wilderness, or travel across private lands or on roads and highways under the jurisdiction of the state, county, or cities.

Comments received by the public and interested parties during the Draft EIS (DEIS) comment period were considered and evaluated during the process of completing the FEIS by revising, updating and adding the Preferred Alternative to the DEIS. The development of the FEIS included the inclusion of the Forest Service and BLM Preferred Alternative. That alternative was identified pursuant to NEPA (40 CFR 1502.2) for the Record of Decision (ROD). The public comments and responses to the comments are contained in an Appendix to the FEIS. The FEIS is open to public review for no less than 30 days before a ROD will be completed by the responsible officials for the Forest Service and BLM.

Reviewers have an obligation to structure their participation in the National Environmental Policy Act process so that it is meaningful and alerts the agency to the reviewers' position and contentions. Reviewers of the FEIS should send comments pertaining to the final document in during the 30-day review period to make their views known to the deciding officials (40 CFR 1506.10).

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Public review period: there is, at a minimum, a 30-day review period for the FEIS after the publication of the Notice of Availability in the Federal Register (40 CFR 1506.10 (b)(2)). After the 30-day review period the Forest Service and BLM will publish Record of Decision documents for both agencies. The RODs will describe the responsible officials final decision, identify all alternatives considered, which alternative was considered to be the environmentally preferable, discuss factors which were balanced by the agency in making the decision, and possible mitigation to be implemented.

Project Website: http://www.fs.fed.us/r2/gmug/policy/travel_mgmt

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SUMMARY

The purpose of Gunnison Basin Travel Management planning is to determine those roads and trails on federal lands that are needed to provide a sustainable transportation system that balances resource protection and public safety needs with recreation and access needs. The lands addressed in this analysis are the federal lands administered by the Forest Service on the Gunnison and Paonia Ranger Districts of the Gunnison, Uncompahgre, and Gunnison National Forest (GMUG) and Bureau of Land Management (BLM) for the Gunnison Field Office area.

The 2001 Interim Travel Restrictions directed the agencies to complete, at a later date, subsequent route-specific travel management analysis to evaluate the need for existing routes, as well as the vehicle type (i.e. mode of travel) appropriate for the routes retained. The Gunnison Travel planning process is now implementing this direction through specific route-by-route analysis, evaluations, and eventually a travel management decision.

Prior to the 2001 Interim Travel Restrictions, there were differing management directions regarding motorized travel for different areas on BLM lands and National Forest system lands. Some areas were open to cross-country travel, some areas restricted travel to existing routes, and some areas were closed to motorized travel. This management prescription led to enforcement problems and did not adequately prevent resource damage due to inappropriate motorized travel across federal lands. Also, during this period, the popularity of mountain bikes and all-terrain vehicles (ATV) increased significantly. The proliferation of user-created roads and trails became problematic for resource managers and there were public concerns because of increasing user conflicts in popular areas, impacts on hunting, and a changing recreational spectrum on public lands.

The Forest Service and BLM initiated a travel planning process in early 2000, to stop route proliferation, limit authorized travel to established roads and trails, and prohibit off-route, cross-country travel. These travel planning efforts leading up to the 2001 Gunnison Travel Interim Restrictions identified the need to keep travel by mountain bikes, motorcycles, ATVs, full-sized vehicles and other wheeled vehicles to existing and established routes because of impacts to soils, vegetation, and wildlife. After completing a joint Environmental Assessment (EA) that involved public input and review pursuant to the National Environmental Policy Act (NEPA), both agencies signed a Finding of No Significant Impact and Decision Notice that restricted all mechanized and motorized travel to existing, established routes. Those routes were based on a January 2001 inventory and depicted what has become to be known as the “green to yellow” map. Motorized and mechanized travel was to remain on those existing routes and creation of any new routes by users was unauthorized. Efforts have been made by both agencies to enforce the Interim Travel Restrictions with closures, signs, or barriers placed on routes created by users since January 12, 2001.

The concerns expressed by the public regarding travel management tend to be somewhat polarized with respect to desired conditions. There are those that have the perspective that there is too much motorized travel on federal lands. They expressed the need to preserve un-roaded, natural, quiet landscapes for non-motorized recreation and to protect wildlife and natural resources. Others contend that there are not enough opportunities on federal lands to provide for the growing demand for motorized and mechanized trail riding and that the current system of roads and trails need to be maintained to provide access to federal lands for other forms of recreations such as hunting, fishing, and camping. Many of these users believe that vehicle use, if properly managed with adequately maintained travel routes, does not adversely impact wildlife nor harm natural resources.

The agencies have the difficult task of balancing the need for access to the federal lands for a wide variety of uses with our mandate to manage for long-term sustainability of the federal lands and

natural resources on those lands. Toward that end, the BLM and Forest Service evaluated and analyzed the existing system of roads and trails outside of Wilderness areas to determine which routes were needed to provide for appropriate access and those that may not be needed for access or need to be closed to reduce resource damage. The agencies have completed a Draft environmental impact statement (DEIS) that evaluated the consequences of several travel system alternatives. After considering the public comments on the DEIS and re-evaluating the environmental consequences, the agencies have identified a Preferred Alternative in the FEIS that is believed to best define a transportation network of roads, motorized and non-motorized trails that is intended to provide for a sustainable system of roads and trails that meets the management objectives for federal lands while providing for recreational use, access, and resource protection.

The three alternatives evaluated in the DEIS attempted to cover the differing perspectives regarding travel needs. Considering the comments received from the public and other interested parties, updated information, and additional resource evaluations, the BLM and Forest Service further refined and modified the DEIS Proposed Action to define a fifth alternative. This new alternative evaluated in the Final EIS is the Preferred Alternative that the agencies believe would best meet the purpose and need for Gunnison Travel management

Existing modes of travel on the Forest Service and BLM lands include hiking; horseback riding; mountain bike riding (i.e. mechanized travel); motorcycle riding; ATV (i.e. off-highway vehicles, 50 inches or less in width) riding; full-sized, 4-wheel drive vehicle driving; and, passenger vehicle driving). In the Preferred Alternative and the four other alternatives evaluated, all modes of existing travel continue to be allowed and there are hundreds of miles of road and trail open to those modes of travel. The Preferred Alternative and the three action alternatives all reduce the number of miles of road open to the public for motorized travel. As much as possible, routes that provide essential access to federal lands and afford desirable recreation opportunities are to be left open to public travel. The roads closed to public use are generally those in poor locations, had impacts to sensitive resources, or were redundant travel routes. Often spur roads that did not lead to a particular recreational attraction or facility, or were determined to not be needed to complete travel between communities and other attractions, or were poorly located user-created routes were the routes most often planned for closure and to be dropped from the transportation system. Some of the miles of road were converted to other modes of travel (i.e. conversion) recognizing the need for recreational travel over commercial or access-based travel.

The Preferred Alternative would maintain about 2,334 miles of Forest Service and BLM managed road, 559 miles of motorized trail, and 409 miles of non-motorized trail outside of Wilderness open for public travel. About 68 percent of the non-motorized trails outside of Wilderness are open to mountain bike use.

The environmental effects of the Preferred Alternative, the DEIS Proposed Action and Alternatives 3 and 4 would generally be positive or beneficial based on analysis of effects at the landscape level. There would be adverse effects on some recreational opportunities. Motorized travel on full-sized roads would be reduced between 40 to 53 percent depending upon the alternative. Motorized trail riding opportunities would be reduced slightly (9 to 11 %) for the Preferred Alternative and the DEIS Proposed Action and improved with Alternative 4. The Preferred Alternative would increase opportunities for mountain bike trail riding over the DEIS Proposed Action. The effects on recreational do not reflect the quality of the recreational experience only the physical environment of opportunities (i.e. miles of route open). The transportation system effects would be positive with lower annual maintenance costs and lower long-term costs (10-year total) even when the costs of road closures are factored in. Air quality parameters improve under the Preferred Alternative, the DEIS Proposed Action and Alternatives 3 and 4.

Summary of Effects on Various Resources or Activities

Resources/Activity	Alt 1 No Action	Alt 2 DEIS Proposed Action	Alt 5 Preferred Alternative
Public Roads on Federal lands (miles)	5,411	4,072	4,014
Roads within the Scope of Analysis (managed by Forest Service and BLM) (miles)	3,731	2,392	2,334
Motorized trails (miles)	608	541	559
Non-motorized trails (miles)	439	440	409
Routes with Erosion Hazard (high to very high) (miles)	277	185	183
Routes within Alpine Areas (miles)	104	81	84
Average Road Density (mi/sq. mile)	1.13	23% reduction	24% reduction
Average Road Density within Water Influence zone (mi/sq-mi)	2.41	20% reduction	22% reduction
Motorized Routes crossing Streams (crossings/mile of stream)	0.80	24% reduction	24% reduction
Motorized Routes in Wetland Soil Types (miles)	293	24% reduction	21% reduction
Motorized Routes Crossing Streams with Colorado Cutthroat trout (crossings/stream mi.)	0.48	19% reduction	19% reduction
Motorized Routes Crossing Streams with Greenback Cutthroat trout (crossings/stream mi.)	0.48	13% reduction	15% reduction
Lynx Analysis Unit Adjusted Road Density (mi/sq-mi)(average)	0.81	16% reduction	14% reduction
Habitat Effectiveness rating (average)	0.69	2% improvement	1% improvement
Miles of Road 0.6 miles from Gunnison Sage grouse Leks (miles)	370	32% reduction	40% reduction
Roads open to full-sized vehicles	5,411 miles	25% reduction	26% reduction
Mountain Bike Trails (miles)	Existing conditions	179	279
New Road Closures (miles)	None	1,235	1,303
Roads converted to other modes of travel (miles)	None	100	91
Dispersed Camping	Existing Conditions	Minor Changes	More Restricted
Speed, Noise and Dust	Existing Conditions	41% reduction of Unpaved Roads	43% reduction of Unpaved Roads
Full Maintenance Costs roads (annual)	$2.6 M	$1.67 M	$1.63 M
Closure Costs (total)	$526,300	$1.96 M	$2.04 M
Ten Year Cost (total)	$28.5 M	$19.7M	$19.3 M

Resources/Activity	Alt 1 No Action	Alt 2 DEIS Proposed Action	Alt 5 Preferred Alternative
NOx (lbs/day)	287	194	191
Fugitive Dust (Tons PM_{25})	7.5	5.1	5.0

The decisions to be made by the Grand Mesa, Uncompahgre, and Gunnison National Forest Supervisor, Charles Richmond, and the BLM Gunnison Field Office Manager, Brian St. George will include; which routes will constitute the transportation system on federal lands, designation of routes open to public travel, the mode of travel for designated open routes, and specific restrictions regarding the season of use where appropriate. Both responsible officials will make decisions relative to the federal lands they have respective jurisdiction and responsibility to manage (i.e. BLM Public Lands and Forest Service System lands). These decisions do not cover over-snow winter travel nor do they address travel needs in Wilderness areas.

CHAPTER 1. PURPOSE OF AND NEED FOR ACTION

DOCUMENT STRUCTURE

The Forest Service and Bureau of Land Management (BLM) prepared this environmental impact statement (EIS) in compliance with the 1969 National Environmental Policy Act (NEPA), as amended, and other relevant federal and state laws and regulations. This Final EIS discloses the direct, indirect, and cumulative environmental impacts that would result from the Preferred Alternative, No Action, the Draft EIS Proposed Action and other alternatives. The document is organized into four chapters:

Chapter 1. Purpose of and Need for Action: The chapter includes information on the background and history of Gunnison Basin travel management, the purpose of and need for travel management, and the agency's proposal for achieving that purpose and need. This section also details how the Forest Service and the BLM informed the public of the proposal and how the public responded.

Chapter 2. Preferred Alternative, No Action, Draft EIS Proposed Action and other alternatives: This chapter provides a more detailed description of the agency's Preferred Alternative, and the original Draft EIS Proposed Action. These alternatives were identified pursuant to NEPA (40 CFR 1502.14 (e)) and were developed based on evaluation and consideration of public and other agency's comments on the Draft EIS. Finally, this section provides a summary table of the differing transportation system changes to the Draft EIS Proposed Action and other alternatives, comparing them with No Action.

Chapter 3. Affected Environment and Environmental Consequences: This chapter describes the environmental effects of implementing the Preferred Alternative as compared to the No Action alternative (existing conditions). Analysis of the environmental effects of implementing Draft EIS alternatives 2 (DEIS Proposed Action), Alternative 3, and 4 are essentially the same information and change little from the Draft EIS to the Final EIS but continue to be disclosed in this chapter. The analysis is organized by environmental component.

Chapter 4. Consultation and Coordination: This chapter provides a list of preparers and personnel consulted during the development of the environmental impact statement.

Index: The index is a cross-reference of key words.

Appendices: The appendices provide more detailed information on specific roads and trails, and seasonal closures to support the analyses presented in the environmental impact statement. They also contain the response to comments.

BACKGROUND

Gunnison Basin travel management planning is a joint effort by the U.S. Department of Agriculture (USDA), Forest Service (Forest Service), and U.S. Department of the Interior (USDI), Bureau of Land Management (BLM); the Forest Service and BLM are joint lead agencies (40 CFR 1501.5 (b)). Both are federal agencies with administrative responsibility to manage natural resources on federal lands within the Gunnison Basin and both are mandated to manage for multiple uses on these lands.

For the purposes of this environmental analysis, the BLM managed lands (BLM lands) and National Forest System (NFS) lands will be referred to collectively as federal lands. There are other public lands in the region; however, these lands are not within the scope of this analysis and are not part of the land base referred to as federal in this document.

Location of Project Area

The federal lands addressed in this analysis are the National Forest System (NFS) lands administered by the Forest Service on the Grand Mesa, Uncompahgre, and Gunnison National Forests (GMUG) that include the Gunnison and Paonia Ranger Districts and BLM Public Lands managed by the BLM's Gunnison Field Office.

Figure 1 is the vicinity map and Figure 2 portrays the area affected.

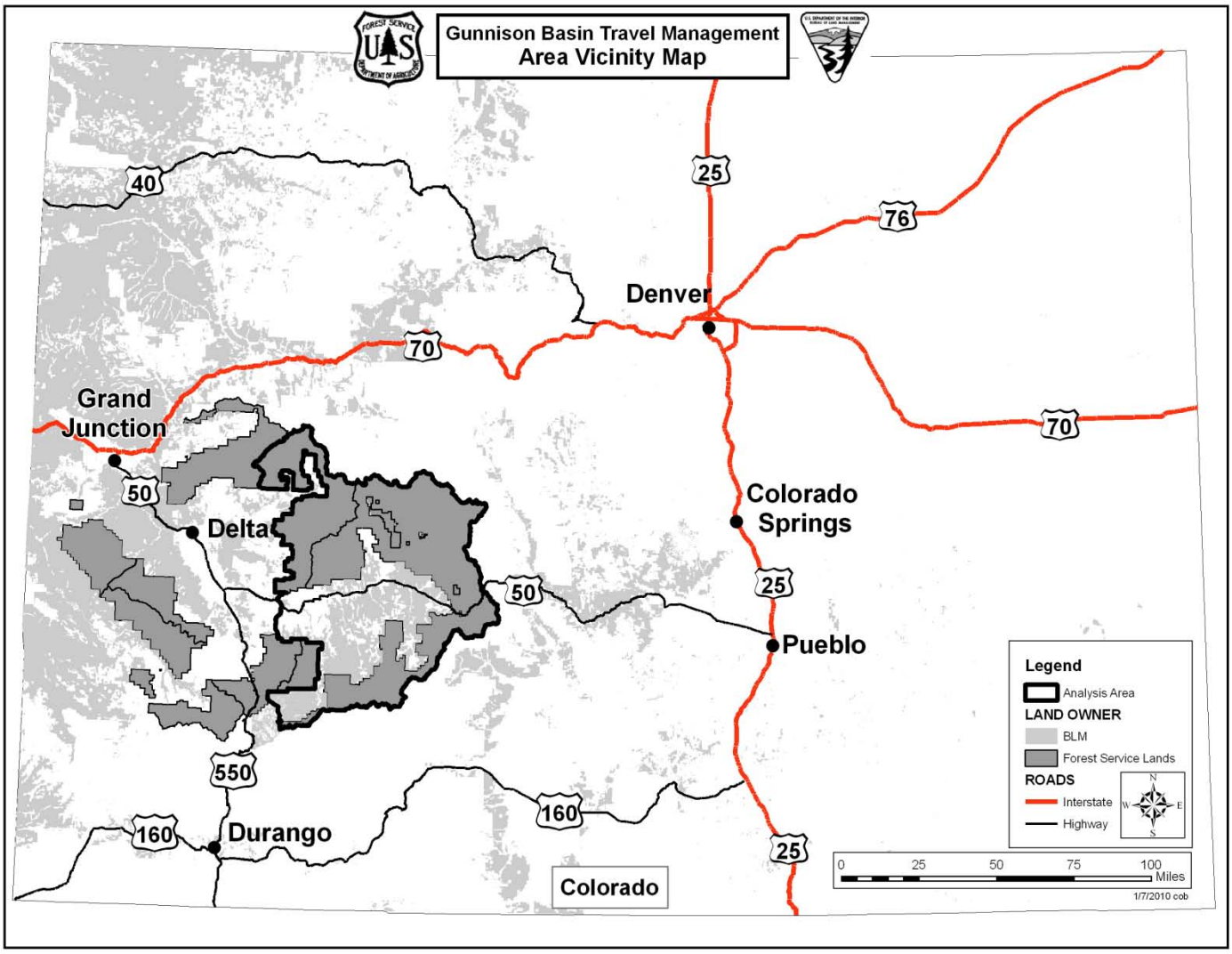

Figure 1. Vicinity Map of the Gunnison Basin Analysis Area in Colorado.

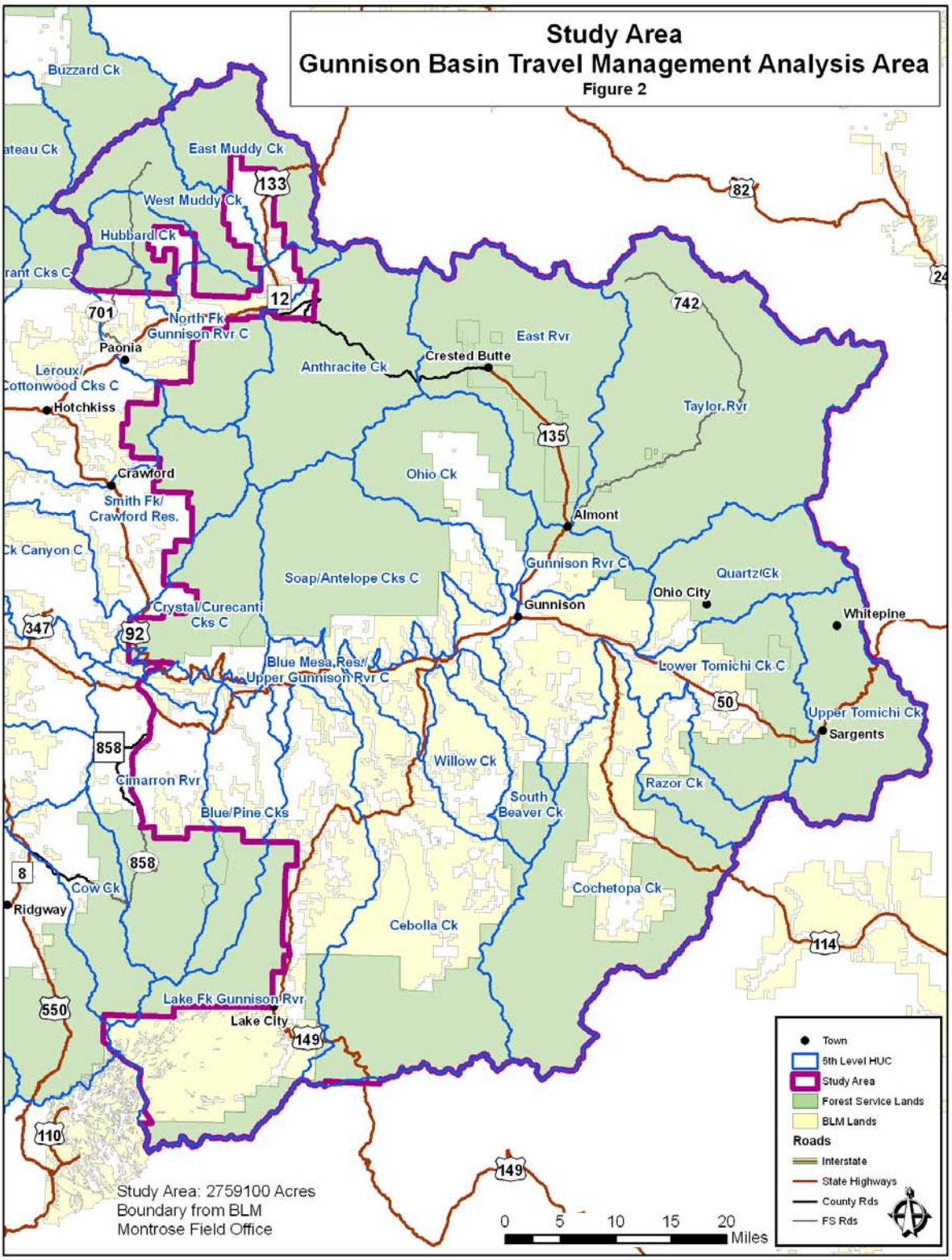

Figure 2. Map of the Gunnison Basin Travel Management Analysis Area.

Current Travel Management Direction

Currently, the regulations regarding motorized travel are guided by the BLM's Transportation Plan (1980) and the Forest Service and BLM's Gunnison Travel Interim Restrictions Decision Notice (April 2001).

The Forest Service and BLM initiated a travel planning process in the late 1990s that was expected to help stop unplanned, user-created route proliferation, limit authorized travel to established roads and trails, and prohibit off-route, cross-country travel. Scoping letters, pursuant to agency procedures under NEPA, were sent to interest groups and the public outlining a proposal to restrict motorized and mechanized travel to existing routes and to prohibit cross-country or off-route travel of motorized or mechanized vehicles. Following scoping, the Forest Service and BLM jointly prepared an environmental assessment (EA) (USDA Forest Service and USDI Bureau of Land Management, August 2000). The EA disclosed environmental consequences of the Proposed Action and alternatives and was released for public comment in August 2000.

The Gunnison Interim Travel Restriction Decision (Decision Notice, April 2001) restricted motorized and mechanized (wheeled-vehicles used for human transport) to established routes. Established routes are roads and trails recognized by the agencies as existing on the ground as of January 12, 2001 and receiving enough use to remain recognizable as a route. That restriction remains in place and is part of the existing conditions. Some unplanned, user-created routes were included in the inventory of existing routes in 2001. These user-created routes were tracked for management purposes to fund maintenance, if needed, to correct resource damage, but no decision was made about the need for or the appropriateness of their continued existence. Prior to the 2001 Interim Travel Decision, cross-country travel was allowed on many areas of federal land in the Gunnison Basin travel analysis area. The public could legally drive or ride motorized and mechanized vehicles cross-country, off established roads and trails. The only constraint was that such travel could not result in resource damage. Therefore, all most all of the user-created routes established prior to 2001 were not considered illegal or unauthorized.

The final decision resulting from the Gunnison Travel Interim Restrictions Environmental Assessment (EA) is documented in the Forest Service Finding of No Significant Impact (FONSI) and Decision Notice (April 2001) and the BLM FONSI and corresponding Decision Notice (April 2001). The EA and the Forest Service Decision are on the web at http://www.fs.fed.us/r2/gmug/policy/, under "Travel Management," then "Gunnison." The BLM decision is available on request.

The 2001 Gunnison Interim Travel Restriction Decision also made a commitment that the agencies would complete, at a later date, route-specific travel management analysis to evaluate which routes should be carried forward to become a federal system of designated roads and trails, as well as what vehicle type (i.e., mode of travel) would be appropriate for the routes retained. The proposed Gunnison Basin travel management planning effort will fulfill this commitment. This travel management planning will also fulfill a requirement for the Forest Service to designate which routes on NFS lands are open to the public for motorized travel pursuant to direction and guidance contained in the 2005 regulations titled "Travel Management: Designated Routes and Areas for Motor Vehicle Use."

Since January 12, 2001, both agencies have made an effort to enforce the Gunnison Travel Interim Restrictions through education, closure signs, barriers placed on user-created routes, and law enforcement actions. Both agencies have continued to inventory routes on the ground and analyze routes shown on aerial photography. The public has identified several routes that were not included in the 2001 Decision and the agencies have investigated these routes to determine if they could have been in existence prior to January 2001 but not recorded in the inventories. Subsequently, some of these routes have been included as part of the "existing condition" (depicted in the No Action Alternative). Also included as part of the No Action Alternative are several routes with a status

change since the 2001 route inventory and travel decision. The status change was a result of other site-specific project level, NEPA-compliant decisions.

Why Replace the Current Travel Management Direction?

Both the Forest Service and BLM have seen an increase in the amount of motorized and mechanized use on federal lands. Both agencies have taken steps at the local level and at the national level to address this change and have developed rules, regulations, directives, and policies to help with the planning and management of motorized travel and mountain bike use.

BLM Travel Management Direction

The National Management Strategy for Motorized OHV Use on Public Lands (2001) and Colorado's Final Recreation Guidelines for Managing Recreation to Meet Public Land Health Standards (2000) provide direction and outline a variety of management goals to provide opportunities for recreation activities while reducing the potential impacts of motorized and mechanized uses on other resources. These include:

- Eliminating or minimizing routes in wetland areas, riparian areas, and areas with erosive soils;
- Reducing stream crossings to the minimal number dictated by the topography in order to reduce sedimentation;
- Managing to promote the survival and health of native plants and animals, especially species that are endangered, threatened, or sensitive;
- Trying to protect against the establishment or spread of noxious weeds;
- Abandoning routes that are duplicative or unneeded;
- Identifying a system that is within the agency’s ability to manage and maintain;
- Educating the public on how to operate vehicles on public land in a way that minimizes impacts to other resources;
- Building collaborative partnerships with individuals, groups, and other stakeholders to assist with education, management, and maintenance; and
- Utilizing regulations, designations, and seasonal closures as necessary to achieve these management goals.

The intent of the current BLM travel management planning effort is to move toward the management goals outlined above. The need to evaluate existing routes and decide which routes would best comprise a defined and manageable system of designated routes on BLM lands is recognized as necessary to meet the BLM management goals for travel.

Forest Service Travel Management Direction

The Forest Service Chief identified unmanaged recreation as one of four threats to NFS lands in 2003. One component of unmanaged recreation was the expanding use of off-highway vehicles (OHVs). Previous Forest Service regulations (36 CFR 295) addressed motor-vehicle travel at a time when fewer OHVs were in use and those in use were less capable of cross-country travel. The growing popularity and changing capabilities of OHVs are important factors contributing to the need for new motorized travel regulations (36 CFR 212) to sustain the resource functions of federal lands and provide motorized recreational opportunities. Forest Service national regulations, titled “Travel Management: Designated Routes and Areas for Motor Vehicle Use” are generally referred to as the 2005 Travel Rule.

The 2005 Travel Rule requires national forest units to designate roads, trails, or areas open for motorized travel by vehicle class and, if appropriate, by time of year. Travel is generally categorized and managed based on the mode of travel, either non-motorized or motorized, which is then further managed by vehicle type or class. Non-motorized travel includes mountain bike riding as well as hiking and horseback riding (Holtrop, 2008). For the Gunnison Basin travel management analysis, the Forest Service and BLM categorize land travel by the following modes: hiker, horseback, mechanized (e.g., mountain bikes), single-track motorized (e.g., motorcycles), OHVs 50 inches or less in width that are commonly referred to as all terrain vehicles (ATVs), OHVs greater than 50 inches in width (e.g., utility terrain vehicles [UTVs] or four-wheel-drive trucks and sport utility vehicles [SUVs]), and full-sized passenger vehicles (e.g., two-wheel-drive passenger cars, trucks, and SUVs). Route evaluations and management decisions regarding modes of travel consider average or expected travel distances traversed in a day or during a particular excursion, user safety, recreation opportunities, travel surface requirements, and overall transportation objectives. As part of this travel management planning process, the agencies will also designate, where appropriate and necessary, opportunities and restrictions for non-motorized travel (e.g., mountain bikes, horseback riders, and hikers).

The 2005 Travel Rule (36 CFR 212.55) specifies that the general criteria for designation of roads, trails, and areas for motorized vehicle use shall consider effects on natural and cultural resources, public safety, recreational opportunities, access needs, and the maintenance of those travel routes. As a result of implementing the Rule, route designations would minimize harassment of wildlife and impacts to wildlife habitat; minimize damage to soil, watersheds, and vegetation; and reduce conflicts between different classes of motor vehicle users as well as conflicts between motorized and other recreational uses. The process to evaluate and designate routes requires consultation with federally recognized tribal governments, public involvement, and coordination with other federal, state, county, and local governmental entities. The 2005 Travel Rule also requires roads, trails, and areas designated open for motorized uses on NFS lands to be illustrated on motor vehicle use maps (MVUMs) available free of charge to the public.

TRAVEL ANALYSIS

Existing Transportation System: The re-initiation of the Gunnison travel management planning process (2006–2009) began with developing a “starting point” of analysis of the existing transportation system. These include main system routes open to the public and routes that are inventoried and maintained by the agencies for motor and mechanized vehicle use.

There are existing routes on BLM and Forest Service lands that are not part of this travel decision. These routes are state highways, county roads, or administrative roads or trails. Where these routes cross federal lands, they are shown on the transportation system maps and labeled to identify their status. Routes authorized for administrative uses are generally managed for a single purpose (e.g., access to a private residence, irrigation ditch, or oil and gas well). The status of the state and county routes will not change with this travel analysis. This travel management planning effort proposes to convert some routes currently open to the public to administrative roads or trails as well as open some current administrative routes for public use.

Based on concerns about cross-country travel by motorized and mechanized vehicles on federal lands and directives of the 2005 Travel Rule, the current prohibition for cross-country or off-route travel (Decision Notice, April 2001) will be retained (36 CFR 212.50 (b)). For NFS lands, 36 CFR 212.50 (a) further requires the national management direction to “…provide for a system of National Forest System roads, National Forest System trails, and areas on National Forest System lands that are designated for motor vehicle use. After these roads, trails, and areas are designated, motor vehicle use, including the class of vehicle and time of year, not in accordance with these designations is prohibited by 36 CFR 261.13.” The travel analysis process gave consideration to the conversion of

existing roads and trails to non-motorized uses. Although this was not the primary purpose of the travel analysis or the travel management objectives under the 2005 Travel Rule, this planning effort has included evaluations and alternatives that address many of the non-motorized trails.

Resource and Social Data: Public comments on the existing transportation system, received from June to October 2006, were analyzed and grouped by route and concern. The BLM and Forest Service combined this data with existing mapped data (collected from the mid-1980s to the present on NFS lands and from 1998 to the present on BLM lands) to assemble a reasonably complete inventory of known existing routes, use areas, and use patterns.

In early 2007, agency personnel and resource specialists formed an interdisciplinary (ID) team and held a series of meetings to evaluate each route and area in the Gunnison Basin travel analysis area (analysis area). These were analyzed route-by-route to the extent possible using aerial photos, geographic information system (GIS) resource layers, mapped routes, professional experience, best available science, and the "on-the-ground" knowledge of the ID team. During travel analysis discussions, the following were considered:

Public safety;

Recreation opportunities;

Access needs;

Resource management needs (e.g., fire, fuels reduction);

Maintenance and administration of roads;

Sensitive soils;

Fish, wildlife, and related habitat protection;

Watershed concerns;

Cultural resources;

Purpose of route (single purpose or multi-purpose and if a route is needed for a public purpose or a private or management purpose);

Duplicative routes to same destination;

Route density;

User conflicts on routes with mixed motorized uses;

Ability to maintain route in its current status (i.e., route integrity);

Potential for installation of enforcement constraints (e.g., barriers and gates);

Seasons of use due to wildlife, climatic, or other resource protection reasons;

Dispersed recreational opportunities (camping, hunting, fishing, and scenery viewing);

Quality of recreation experience (modes of travel);

Consistency of route designations with surrounding jurisdictional areas; and

Compliance and compatibility with land and resource management plans.

Information from the following sources was also considered in the route evaluations:

Land management direction (prescriptions or management areas) from the Grand Mesa, Uncompahgre, and Gunnison National Forests Land and Resource Management Plan (GMUG Forest Plan), (1983, as amended);

Land management direction from BLM's Resource Management Plan (RMP), (1983, as amended);

Roads Analysis Report (FS-643) completed by the GMUG National Forests in July 2005. This report compiled information on forest roads managed for passenger cars or all-season use (maintenance level 3–5) such as safety, public transportation needs, management objectives, ecological effects, and funding. The Roads Analysis Report made no decisions or recommendations regarding which roads contribute to the management goals on the GMUG National Forests; it only provided supplemental information that was considered in route evaluations. It did not address high-clearance roads (maintenance level 2) and motorized trails. The Roads Analysis Report included the following components:

Public demands for transportation,

An assessment of infrastructure issues and strategies to better manage road maintenance funding on the GMUG National Forests,

Opportunities to better manage roads from a maintenance funding perspective, and

Environmental impacts caused by roads and road maintenance.

Forest Service scenery management system (SMS) inventory (completed for forest plan revisions) and the BLM visual resource management designations;

The National Visitor Use Monitoring (NVUM) report and other visitor preference surveys conducted in the analysis area;

The National Survey on Recreation and the Environment (NSRE);

Off-highway Vehicle Recreation in the United States, Regions, and States: a National Report from the National Survey on Recreation and the Environment (NSRE 2005);

NSRE Uses and Values of Wildlife and Wilderness in the United States (NSRE 2005); and

The Forest Service Region 2 Watershed Conservation Practices Handbook.

In the DEIS, both agencies attempted to present a transportation system that would serve future multiple-use management needs, public use, and public access. The primary components used to develop the preliminary Proposed Action were pre-scoping comments from the public, input from resource specialists (i.e., travel analysis), management and policy direction, and a set of screening tools (below).

A variety of route screening tools were used by the agency ID teams to evaluate various routes or areas and develop the Proposed Action. During the individual route evaluation process, areas with multiple resource or societal concerns were sometimes considered for closure, and areas with a potential for more motorized recreation opportunities were considered for expansion (e.g., the creation of looped routes or creating separate routes where uses were conflicting).

Route screening tools used to develop the DEIS Proposed Action and Preferred Alternative included the following:

Recreation niche[1] of the analysis area, which may include hunting, dispersed camping, motorized vehicle travel, mountain biking, hiking, or horse riding. Some of the recreation opportunities are evident in the type of transport used (e.g., motorcycle riding); however, sometimes use of the

[1] *Niche is a place, status, or activity for which a person or thing is best suited; Recreation niche is the specific recreation focus of a forest incorporating public expectations (demand) with the unique social and ecological features of the land (supply).*

transportation system is in conjunction with other recreational pursuits such as hunting, sightseeing, or camping. Some users desire recreation opportunities commensurate with their skill and experience (i.e., a beginning rider may want an easier, less technical route than an experienced rider).

The GMUG Forest Plan and the BLM RMP set forth management objectives and guidelines for recreation. Recreation opportunities presented in the Proposed Action are a result of travel analysis and correspond with objectives of the GMUG Forest Plan and the BLM RMP.

User demand and desire for specific types of experiences are expected to increase in the future based on increased population and increased population densities near federal lands in the analysis area. The agencies' goal for travel management is to provide for these varied experiences, where appropriate, while still providing multiple-use, sustainable resource management.

Motorized mixed-use analysis was considered for all full-sized passenger vehicle roads open to the public as a method to help determine the appropriateness of OHVs on certain full-sized vehicle routes. Motorized mixed use is the travel situation where licensed vehicles (typically full-sized vehicles) share the road with un-licensed motorized vehicles such as ATVs and motorcycles. In general, on smoother roads (i.e., higher maintenance level) such as paved or improved gravel roads, travel tends to be at higher speeds. Consequently, there is a greater likelihood and severity of accidents between different types of vehicles using the same route (e.g., ATVs and automobiles). Use of OHVs 50 inches or less in width on roads (mixed-use) is generally better suited on routes with lower traffic levels, adequate sight distance, and slower speeds.

Public access across adjacent private lands is determined by the land owner. When there is there is a legal mechanism in place such as an easement or right-of-way the land owner has provided for that public access. The Forest Service and BLM would authorize public travel across private lands as part of the transportation system when there is a legal instrument in place that would provide for public access across private land. Those routes that enter public lands by crossing private lands with no recorded legal authorization are not considered part of the federal public transportation system.. Likewise, if the purpose of a route through public land is for the sole access of private lands, reasonable administrative access should be granted per 16 U.S.C. §§ 3101-3233. Such access would need to be authorized by a Forest Service special use permit or a BLM right-of-way if the route is not part of the public transportation system. A Forest Service or BLM authorization would also be needed for any private property owner who needs to maintain and/or improve an access route crossing federal lands or who makes more frequent use of the route beyond what is defined as casual use. Additionally, private property ownership should not afford an individual or group exclusive access to public land. Access agreements, easements, and rights-of-way proceedings are expected to be a continuing effort for both agencies, and actions regarding private land access may occur subsequent to this travel management planning.

Sustainability of a transportation system can have several interpretations. Considerable consideration was given during this travel analysis to developing a sustainable transportation system. Lacking a specific definition for sustainable transportation system in agency policy, regulation, or law the ID team evaluated several interpretations. One interpretation of a "sustainable" system would be a system that is kept open for travel and has not deteriorated to a level at which the intended use is no longer possible (i.e., kept from falling apart) or a system that is maintained at a level that prevents adverse or inappropriate impacts to other resources such as soils, vegetation, and water. Another interpretation implies fiscal responsibility, with adequate funding allocated to maintain the transportation system at a predetermined level of quality and use. An internationally recognized definition of a sustainable transportation system comes from the Canadian Centre for Sustainable Transportation (2002) that states "A sustainable transportation system is one that:

- Allows the basic access needs of individuals and societies to be met safely and in a manner consistent with human and ecosystem health, and with equity within and between generations.
- Is affordable, operates efficiently, offers choice of transportation mode and supports a vibrant economy.
- Limits emissions and waste within the planet's ability to absorb them, minimizes consumption of non-renewable resources, limits consumption of renewable resources to the sustainable yield level, reuses and recycles its components, and minimizes the use of the land and production of noise.

The travel analysis did take into account many of the considerations that define a sustainable transportation system and the development of the DEIS Proposed Action the Preferred Alternative defined in this document are considered to be sustainable based on the following factors: the roads and trails that are to remain open are ecologically sustainable in that they are not deteriorating to a level where there is adverse environmental damage; the open routes meet societal needs (private and public access, recreational opportunity); achieves multiple-use resource management objectives of the federal land management plans (e.g. Forest Plan or RMP); accounts for the funding available to maintain and repair the transportation system; reduces miles of motorized road and trail with an expectation that in so doing, emissions and the consumption of non-renewable resources would indirectly be reduced; and, continues to offer various choices with regard to the mode of travel on the federal lands. This travel analysis process involved balancing factors related to land management and recreational needs, environmental concerns, road and trail system operations, long-term funding expectations, public input, and the best available science related to natural resource management. Therefore this route-by-route travel analysis yielded a viable and sustainable transportation system of roads and trails that is defined as a minimum road system (36 CFR 212.5(b)).

The frequency and extent of maintenance necessary to keep the transportation system at a sustainable level varies depending on physical features (e.g. slope, soils, construction methods), use and climate. Approximately 280 miles or road in the analysis area are maintained to design standards in any given year, meaning there are no deferred maintenance costs incurred. While this only addresses maintenance on about one-tenth of the entire transportation system in any given year, the maintenance intervals for the majority of roads on federal land is not an annual requirement. Therefore, maintenance and repair may occur every 10 years which is generally adequate to keep the roads from deteriorating to a level where there is unacceptable resource impacts or to a level that impedes public travel on the road. Where there is unexpected damage to a road or trail from unforeseen natural events remediation repair or maintenance may be required sooner than the regular and planned maintenance interval. A sustainable transportation system is not necessarily a system with the least-cost maintenance schedule. Downsizing transportation systems, while an attractive option when considering maintenance funding obligations, the closing of roads and trails requires funding to implement and even more to decommission the routes. While often overlooked, road and trail closure costs are high and require substantial up-front funding, especially if additional NEPA activities, cultural evaluations, signing, enforcement, or earthwork is needed.

Minimum Road System (36 CFR 212.5(b)) is identified by the Preferred Alternative as a result of this travel analysis process based on the reasons stated above. The Preferred Alternative defines a sustainable transportation system that supports safe and efficient travel that provides for the administration, utilization, and protection of federal land. The ability to maintain this transportation system while protecting natural resources from unacceptable impacts is the cornerstone of its sustainability.

DRAFT EIS PROPOSED ACTION

Based on the travel analysis process described above and public and agency comments, the Forest Service and BLM managers, assisted by teams of resource specialists and planners, developed a Proposed Action in the DEIS that would designate roads and trails to remain open to the public for motorized travel as well as trails that would be managed for non-motorized travel. The process of refining and modifying the original Proposed Action proposal from the DEIS into the Preferred Alternative for the FEIS results in a proposal that both agencies believe will provide a sustainable transportation system on federal lands that provides for recreational needs, resource protection, and public access.

PURPOSE OF AND NEED FOR ACTION

This travel management planning process pertains to federal lands managed by the Forest Service and BLM in the upper Gunnison Basin and North Fork Valley. The purpose of the planning process is to determine the location and management of roads and trails needed for a transportation system that provides for resource protection, public safety, and recreation opportunities, meets access needs, and is within the ability of the agencies to manage and maintain.

The existing condition of the travel management system is not conducive to adequately protecting natural resources. The system cannot be adequately managed and maintained by the Forest Service and BLM and in some cases compromises public safety. Both the BLM and Forest Service believe there are more motorized routes open to public travel than are needed (Decision Notice, April 2001). There is a need to reduce motorized route miles within the federal system of roads and trails in an effort to provide for a more sustainable transportation system. The need to reduce maintenance obligations while keeping a transportation system open to the public is understood, but the existing situation requires more maintenance funding than has traditionally been available or is expected to be available to the federal agencies through their allocated budgets. Although volunteer assistance has extended the federal maintenance efforts on roads and trails, it has not enabled either agency to meet maintenance level targets on all routes on federal lands.

The Gunnison Basin travel management strategies are needed to provide recreational experiences for motorized and non-motorized travelers that balance recreational use demands with public safety and management objectives for natural resources such as wildlife populations, wildlife habitat, plants, water, fish, aquatic habitats, timber, vegetative ecosystems, cultural resources, and air.

There is a need to designate a transportation system on federal lands that can remain functional and not cause unacceptable resource damage given existing and expected maintenance funding and partnership support. The designated travel system needs to provide access to federal lands for the public as well as commercial operators that are entitled to regular and necessary travel across federal lands. Some parts of the analysis area do not need motorized or mechanized vehicle access to meet land management or recreation objectives, and in those areas motorized or mechanized travel may be inappropriate because of inherent natural resource conditions.

PROCEDURAL REQUIREMENTS AND NEEDS

Gunnison Basin travel management planning is necessary for travel decisions that were not addressed in the Gunnison Travel Interim Restrictions (April 2001). The 2001 Travel Decision was limited in scope and intended for short-term applicability. The Decision Notice did not evaluate whether existing routes (i.e., roads and trails) identified as open for wheeled and motorized travel were needed for public travel or provided a sustainable transportation system. Nor did it address desired or suitable modes of travel (e.g., full-sized vehicles, OHV, motorcycle, or mountain bikes) for those open routes

on a route-by-route basis. The 2001 Travel Decision was an interim plan implemented with commitment from the agencies to subsequently develop route-specific travel management analysis and make long-term route decisions balancing resource protection, recreation, and access needs.

Additionally, completion of travel management planning on the GMUG National Forests is required by the 2005 Travel Management Rule (36 CFR 212). One of the requirements of the 2005 Travel Rule is for all national forest units to designate those routes open to motorized travel and publish an MVUM depicting those open routes in a standard, readily available format.

The travel analysis and NEPA environmental analysis will inform decision makers about recreation and transportation needs and guide decisions to designate roads and trails open to motorized travel[2]. Decision makers will consider actions that provide for public travel, recreation, and resource protection, but they recognize that there will be compromises between recreation demand and resource protection concerns.

SCOPE OF THE PROJECT AND ANALYSIS

The geographic scope of the analysis area is roughly the same area as in the 2001 Gunnison Travel Interim Restrictions, and includes only federal lands outside of Wilderness on the GMUG Gunnison and Paonia Ranger Districts and on the BLM lands in the upper Gunnison Basin (Figure 2).

The scope of analysis is to evaluate specific routes to be designated as “open for public travel using wheeled-vehicles,” and determine vehicle class and season of use. Those routes that are designated as open to the public for motorized travel will ultimately be displayed on an MVUM. In order to provide an area-wide, physically sustainable transportation system that balances resource protection, public safety, recreational use, and access needs, the Forest Service and BLM decided also to evaluate and make determinations regarding non-motorized modes of travel (e.g., mountain bikes, horses, and hikers) on routes outside of Wilderness in the analysis area, where necessary. Further, the Forest Service believes that upon completion of the route-by-route Travel Analysis and the environmental compliance process required under NEPA, the final preferred alternative would provide the minimum transportation system required to manage NFS lands.

Decisions made by the Forest Service and BLM for other resource management activities or special-use authorizations that provide for new routes or change the mode of travel on an existing route would require project or site-specific environmental analysis, public review, and a decision before route changes or additions could be approved, implemented, or constructed. Once these decisions become final, the Gunnison travel management decision and maps (e.g., MVUM) could be modified or changed. Such changes would only apply to those routes specifically addressed by the subsequent environmental analysis and decision document.

Motorized over-snow travel by tracked vehicles will not be addressed in this travel management analysis. Determinations regarding routes open to motorized and non-motorized over-snow travel are outside the scope of this planning effort. Possible new decisions regarding over-snow travel will be made in the future based on a separate planning and NEPA analysis effort. Public use of motorized-tracked vehicles (e.g., ATVs and four-wheel-drive trucks or SUVs outfitted with tracks) during the spring, summer, and fall periods (i.e., not over-snow vehicles) will not be analyzed as a mode of travel in this impact assessment. These types of vehicles are not common modes of public travel for the analysis area. For these reasons, at this time, their use would be allowed only with special authorization for a specific purpose (e.g., maintenance, repair, or construction).

[2] *Motorized travel includes wheeled vehicles such as automobiles, trucks, sport utility vehicles, Jeeps™, off-highway vehicles (e.g., OHV/ATVs), and motorcycles.*

As part of the planning process, the agencies will also designate, where appropriate and necessary, opportunities and restrictions for non-motorized travel (e.g., mountain bikes, hikers, and horseback riders). Designations do not include tracked vehicles, over-snow vehicles, hovercraft, aircraft, or emergency vehicles in the performance of their intended purpose. Other forms of motorized or mechanical transport that may be developed in the future that could facilitate human travel not addressed in this analysis would be required to travel on designated routes unless specifically authorized otherwise.

Decisions regarding road and trail maintenance procedures and priorities are not within the scope of this planning process. Many of those procedures are standard operating procedures covered by agency manuals, directives, and handbooks (e.g., Watershed Conservation Practices Handbook, best management practices), which the agencies follow on a routine basis. Priorities for maintenance are typically determined several ways and include factors such as resource damage, user safety, funding sources (i.e., earmarked funds), maintenance cycle, and user comfort. These priorities can change from year to year.

There are important aspects of wheeled-vehicle travel on federal lands that may indirectly affect the public, private landowners, and other governmental entities that cannot be evaluated in this travel management analysis. These aspects are either not within the jurisdiction or authority of the BLM or Forest Service or they are outside the scope of the decisions to be made. Aspects that are not within the scope of analysis are:

State and federal highway speed limits,

Vehicle registrations and licenses (state/local governmental jurisdiction),

Driver licensing (state/local governmental jurisdiction),

Vehicle noise standards,

Forest Service and BLM law enforcement procedures and policies, and

Commercial or private road-use permits.

For the majority of the above, the jurisdiction and decision-making authority is held by state or local government. The exceptions are for commercial or private use of roads on federal lands authorized by permit. Such permitting is under the authority of the Forest Service or BLM and is generally related to a specific need or user. These road uses will be handled on a case-by-case basis, following agency rules and regulations, are considered separate and unrelated actions to this travel management effort, and would require additional federal decision-making.

Travel on routes under the jurisdiction of the state or county government or crossing private property are outside the scope of this project. The entities with ownership or jurisdictional control over those routes or segments of routes will determine whether they are open to the public independent of this planning effort. The exceptions are routes where the BLM or Forest Service has been granted an easement or right-of-way for public use and access. Routes crossing private lands that are currently open to the public will be depicted on maps with different symbols/colors to the best of the agencies' abilities so that readers will understand how those routes on private lands connect with other routes on federal lands. Their depiction on the maps for the alternatives considered in detail does not constitute legal access by the public, nor does it imply a decision by the Forest Service or BLM with regard to those routes.

DECISIONS TO BE MADE

Given the purpose and need and the scope of the analysis, the Responsible Officials (see Responsible Officials section) will review the comments received on the FEIS as well as previous comments on

the DEIS Proposed Action, the other alternatives, and the environmental consequences in order to make the following decisions:

Route Designation: In compliance with the intent of the 2001 Decision, route-by-route decisions will be made as to the need and appropriateness of each existing route in the inventory. In some cases, existing routes may be identified as not needed because they cause irreparable resource damage, are inconsistent with recreation experience and opportunity objectives, or serve no transportation or resource management purpose.

Modes of Travel: The physical character of travel route surfaces, particularly the resource setting, width, grade, distance, and roughness, are important features in determining the most appropriate or desired mode of travel. For example, a wide, smooth travel surface can accommodate a wider range of travel modes than a narrow, winding route through a forested landscape. The decisions will adhere to a standard hierarchy currently in use for modes of travel on both the Grand Mesa and the Uncompahgre National Forests of the GMUG. That hierarchy is:

Full-sized vehicles

High clearance, specialized four-wheel drive (4-WD)

ATVs and UTVs (off-highway vehicles 50 inches or less in width)

Motorcycles

Mountain bikes

Horse (includes pack animals, i.e., mules, llamas, goats)

Foot

This hierarchy for the mode of travel is based on an understanding that where full-sized vehicles are designated, all of the other modes of travel that follow are allowed as well, although they may not be appropriate. For example, all other modes of travel would be allowed on routes open to full-sized vehicles unless restricted for public safety as determined through mixed-use analysis. Consider, however, that the quality of experience or level of challenge on the wider, smoother travel routes may be diminished for a trail motorcycle or lower mode of travel. Conversely, when the travel surface is rocky and narrow (e.g., 24 inches), the mode of travel for that route might be appropriate for trail motorcycles or below based on the hierarchy. Designation as motorcycle trail would allow mountain bike users, horseback riders, pack animals, and hikers, but would not allow ATVs and larger OHVs (greater than 50 inches in width). With decisions on the mode of travel comes a designation as to whether the authorized use is motorized or non-motorized. Mountain bike riding is a non-motorized mode of travel, as is horseback riding, horse packing, and hiking. As such, they may have different trail use objectives and design criteria.

Season of Use: Decisions that limit the season of use on some roads and trails during specific times of the year may be appropriate. For example, the season of use may be restricted:

To avoid vehicular travel during periods (i.e., seasons) when roads are wet and soft in order to reduce the potential for road damage or increased erosion, or

To protect wildlife during critical periods of their life cycles (e.g., lambing, calving, winter range, migration).

A majority of roads and trails become impassable to wheeled vehicles in the winter due to snowpack. Such natural impediments to wheeled travel are not considered season of use decisions.

PREFERRED ALTERNATIVE

Using the analysis of environmental and social impacts attributed to the DEIS Proposed Action and action alternatives, public comments received, and additional information, the Forest Service and BLM have developed a FEIS Preferred Alternative. The FEIS Preferred Alternative is the plan to designate roads and trails to remain open to the public for motorized travel as well as trails that would be managed for non-motorized travel. This Preferred Alternative would provide a viable travel management plan to ensure a sustainable transportation system on federal lands while fulfilling some of the recreational travel demands and meeting resource protection needs.

This Preferred Alternative would designate 2,334 miles of road and would maintain 559 miles of trail open to the public for motorized travel (see Alternative 5, Preferred Alternative, Figure 4a, b, and c). The types of motorized vehicles allowed to travel on these open routes depends upon the design, width, and optimal recreation opportunity attributed to these trails and roads. The range of motorized vehicle types include full-sized licensed highway vehicles, OHVs greater than 50 inches in width, ATVs, OHVs 50 inches or less in width, and single track motorcycles. Non-motorized vehicles (mechanized travel) would also be allowed on these open routes designated for motorized travel. More detailed breakdowns of miles of motorized travel by the different modes of travel are contained in Chapter 2, Preferred Alternative (5).

Under the Preferred Alternative, there would be about 919 miles of non-motorized trail maintained by the federal agencies. About 510 miles of these trails are in designated Wilderness areas; 409 miles are outside of Wilderness. Mountain bike use would not be permitted on approximately 130 miles (30 percent) of trail outside of Wilderness. Restrictions on mountain bike use occur for various reasons related to the management objectives, compatibility with trail destination, traditional use patterns, and resource protection needs.

Some roads would be managed for administrative purposes (e.g., agency use, timber sales, energy exploration, mining, and private land access) and would not be open to public travel. There are about 305 miles designated as non-public roads on federal lands within the analysis area.

In this Preferred Alternative, the Forest Service and BLM would have slightly different plans for motor vehicle access relating to dispersed camping. The BLM would allow motorized travel for up to 300 feet off of designated roads, but only on existing routes (i.e., a recognizable travel footprint or “two tracks”), for the purposes of dispersed camping, general recreation, and wood cutting. Creation of any new routes off of designated roads for dispersed camping would not be allowed.

The Forest Service would allow motorized travel for the purposes of dispersed camping within 300-feet, either side of designated roads, as an exemption to the 2005 Travel Rule, which restricts all motorized travel to designated routes. The Forest Service would restrict motorized travel for the purposes of dispersed camping to designated routes (i.e. spurs) along 12 road corridors. Along these 12 road corridors, the Forest Service would, over time, eliminate the 300-foot off-road travel exemption for dispersed camping access and only allow travel on designated roads (spurs). Additional inventory, mapping, and field evaluations are necessary before these access roads (spurs) can be designated on the MVUM and the 300-foot access exemption eliminated on those 12 road corridors.

Legal Foundation for Decision Making

For the Forest Service, decisions will comply with the requirements of the 2005 Travel Management Rule (36 CFR 212) for motorized travel. Additional direction for travel management and development of forest transportation systems is found in the National Forest Roads and Trails Act of October 13, 1964, as amended (16 USC 532-538, P.L. 88-657), the Highway Safety Act of 1966 (23 USC 1241-1249, P.L.90-543), the Surface Transportation Assistance Act of 1978, as amended (23 USC 101a, 201-205, P.L. 95-599 and 97-424), and policy and direction found in Forest Service Manuals 2300 and 2700.

For the BLM, decisions will be guided by the authority provided in the Code of Federal Regulations (43 CFR – 8342) as well as the Federal Land Policy and Management Act of 1976 (43 U.S.C. 1701 *et seq.*); the Taylor Grazing Act (43 U.S.C. 315a); the Endangered Species Act (16 U.S.C. 1531 *et seq.*); the Act of September 15, 1960, as amended (16 U.S.C. 670 *et seq.*); the Land and Water Conservation Fund Act (16 U.S.C. 460 l–6a); the National Trails System Act (16 U.S.C. 1241 *et seq.*) and E.O. 11644 (Use of Off-Road Vehicles on the Public Lands), 37 FR 2877, 3 CFR part 74, 332, as amended by E.O. 11989 42 FR 26959 (May 25, 1977).

Responsible Officials

The Forest Service and BLM are joint lead agencies (CEQ § 1506.2) in the preparation of this document. The GMUG National Forests supervisor is the responsible official for travel management decisions related to affected NFS lands on the GMUG National Forests.

The BLM Gunnison Field Office manager is the responsible official for travel management decisions related to BLM lands in the Gunnison Area.

Because there are differing authorities (see Legal Foundation for Decision Making) for travel restrictions and route designations between the two federal agencies, there will be two separate Record of Decision (ROD) documents for this FEIS. The Forest Service will release a ROD for Gunnison Travel Management covering NFS lands and the BLM will release a separate ROD for Gunnison Travel Management covering BLM lands.

This EIS addresses the consequences of travel management planning on federal lands administered by both agencies in an effort to eliminate duplication and to combine documents (CEQ § 1506.4). Often, travel routes that start on BLM lands end on NFS lands or vice versa. Such combined travel management planning and environmental analysis are appropriate because the purpose and need for action by both agencies is similar in nature and affect the same geographic area.

Relationship to Other Plans, Decision Documents, and Regulatory Authority

The 1983 Grand Mesa, Uncompahgre, and Gunnison National Forests Land Management Plan (GMUG Forest Plan), as amended in 1991 and 1993, is the existing land management plan required by the National Forest Management Act of 1976. This plan provides management direction and guidelines for resource management and land use on National Forest System lands within the GMUG. The 1983 GMUG Forest Plan remains in effect and is referenced in this travel management planning effort for the Forest Service.

The 1983 Resource Management Plan for the Gunnison Resource Area (RMP), as amended in 2001, is the existing plan providing general management direction for BLM lands in the upper Gunnison River Basin. Among other objectives, this plan identified the need to work with the Forest Service to do route by route analysis of our existing transportation system and update our

transportation plan for all the lands managed by the Gunnison Resource Area (Gunnison Field Office).

The 2001 Gunnison Travel Interim Restrictions are the basis of the existing route designations for much of the analysis area for the BLM and Forest Service and continue to manage travel. Routes open under the Interim Travel Restrictions form the foundation of the No Action Alternative for this travel management planning. A decision to adopt the No Action Alternative by either the Forest Service or the BLM would essentially designate the Interim Travel Restrictions inventory of existing routes as open to the public.

Travel by motorized vehicles and non-motorized wheeled vehicles facilitating the transport of humans (e.g., mountain bikes) off established or existing roads or trails is not allowed (2001 Interim Travel Restrictions). Exempted from that prohibition are: emergency, fire fighting, and law enforcement vehicles responding to emergency situations or violations of the law; military combat or combat support vehicles used in national defense; and other emergency, military, or law enforcement vehicles that travel over snow, on water, or in the air. These exemptions are continued under the 2005 Travel Rule (36 CFR 212.51).

Regulations for Motor Vehicle Operation on Federal Lands:

General regulations for motor vehicle operation and use on federal lands for each of the agencies are contained in the Code of Federal Regulations (CFR). The BLM (43 CFR 8341) and Forest Service (36 CFR 261.15, 36 CFR 212.5) regulations are similar and prohibit the operation of motor vehicles on federal lands in violation of state, county, or local government law, regulation, and/or ordinance. The Forest Service regulations provide that designations for mode of travel and season of use established in 36 CFR 212 Subpart B take precedence when in conflict with state law. The existing provisions require a valid state operator's license or learners permit to operate a motorized vehicle; compliance with state laws for licensing, inspection, and operation of motorized vehicles; compliance with EPA noise standards; and proper installation of spark arrestors on motorized vehicles. Additionally, the regulations prohibit vehicle operators from:

- Operating motor vehicles in a reckless, careless, or negligent manner or causing significant or undue damage to natural resources (e.g., soil, vegetation, wildlife, wildlife habitat, cultural resources) or governmental infrastructure;
- Operating OHV or other motor vehicles in excess of established speed limits or under the influence of alcohol or drugs;
- Operating motorized vehicles in possession of or consumption of alcoholic beverages or possessing or transporting controlled substances while operating a motor vehicle; and
- Discharging fireworks from motor vehicles.

Roadless Rules: The proposed Colorado Roadless Rule is a regulation specific to Colorado that provides management direction for approximately four million roadless acres of National Forest System lands in Colorado. A roadless area is generally undeveloped land that is at least 5,000 acres in size or is adjacent to congressionally–designated Wilderness. The proposed rule does two things: 1) establishes Colorado roadless areas by identifying areas with roadless character and 2) provides prohibitions on road construction and tree cutting in those roadless areas.

The 2001 Roadless Rule, which the Colorado Roadless Rule is designed to replace, has been the subject of litigation since its promulgation. That Rule was in effect for a few months in 2003 and was subsequently enjoined by a court ruling. The 2001 Rule was replaced by a 2005 Federal State Petitions Rule that provided states an opportunity to petition the Secretary of Agriculture concerning roadless area management. In September 2006, a federal judge enjoined the 2005 Roadless Rule and reinstated the original 2001 Roadless Rule. Subsequently, on August 12, 2008, Judge Clarence

Brimmer of the Wyoming District Court issued a decision that once again enjoined the 2001 Roadless Rule.

For the purposes of this analysis of roadless area impacts, the 2008 roadless inventory, as identified in the Colorado Roadless Rule DEIS, is the roadless area inventory used to evaluate each of the Gunnison travel management planning alternatives. The analysis of travel management effects on roadless areas is contained in this document in Chapter 3, Roadless Areas.

Wilderness Designation: Motorized and mechanized travel designations in this document regarding public travel do not address routes within Wilderness. Motorized, non-motorized, and wheeled vehicles (e.g., mountain bikes) are not allowed in Wilderness pursuant to the enabling legislation designating those areas as Wilderness.

Hartman Rocks and Fossil Ridge Recreation Area Management Plans: The established travel management decisions for open roads and trails as well as the existing mode of travel for the Hartman Rocks Recreation Area and the Fossil Ridge Recreation Management Area have been made in previous travel decisions that were developed through public review and environmental analysis (i.e., with NEPA compliance). These travel decisions are common to all alternatives and will not be subject to modification as a result of this planning effort.

Alpine Triangle Special Recreation Area Management Plan: The BLM is preparing a recreation area management plan (RAMP) for the Alpine Triangle Special Recreation Area encompassing federal land near Lake City, Colorado. Specific transportation-related decisions will be addressed in the RAMP and are therefore not addressed in this travel management planning and decision.

Mixed Use Determinations: ***Motorized mixed-use analysis*** was considered as part of the travel analysis for travel management planning. It is done for the purposes of determining which routes to propose as open or closed for mixed use (e.g., OHVs on improved roads). ***Motorized mixed-use determinations***, however, are separate decisions independent of this travel management planning process that are based upon safety issues and are determined by the agencies' engineers. This process can take place at any time and affect roads (restrictions, elimination of particular uses, mitigation, signing) that already have mixed-use concerns at the federal land manager's discretion. For example, a mixed-use determination may be brought forward to prevent future accidents following a fatality or severe accident in which different types of vehicles were involved.

PUBLIC INVOLVEMENT

The Forest Service and BLM began public participation in the planning process for the revisions to the 2001 Interim Travel Restrictions in June 2006. That process has been ongoing with some specific periods identified requesting public feedback and comments on various aspects of the travel management planning. Listed below are some of those key dates and associated comment periods.

June 2006 — Forest Service and BLM announced plans to revisit the 2001 Gunnison Travel Interim Restrictions. A series of public workshops was held to provide maps of the existing travel route inventory and request the public and interested parties to review the maps and determine which existing routes were used and needed for public travel. Comments were requested by October 2006, giving the public about 120 days to respond. The public responded with approximately 1,000 letters and emails commenting on routes and preferences for travel.

May 2007 — The joint Notice of Intent to prepare an EIS for Gunnison Travel Management was published in the Federal Register. The Forest Service and BLM sent out over 1,800 notices to interested parties and individuals announcing the availability of maps depicting a preliminary proposed action with a system of roads and trails that would potentially remain open for public travel. The agencies began the formal scoping period with public workshops/meetings requesting

stakeholders to provide comments on the scope of analysis, issues, and possible effects the proposed system of routes would have on the environment or public use. Scoping comments were to be received by August 31, 2007, thereby ending formal scoping. Again, the public was afforded 120 days to review the federal proposal for managing public travel and submit comments. The agencies received about 928 comments from the public, special interest groups, and other government agencies. About 30 percent of the individual letters or emails were form letters. From these comments, the Forest Service and BLM were able to develop a list of issues to address in the DEIS (see Issues below).

March 2009 — The DEIS was made available for public review on March 6, 2009 with a 90-day comment period that ended on June 4, 2009. The Forest Service and BLM conducted public workshops/meetings at the beginning of the comment period at several locations. There were approximately 1,302 comments received from various individuals, organizations, and agencies at the end of the comment period. The comments were mostly one-page documents, but some agencies and special interest groups submitted multi-page documents with maps. Most comments were from individuals with no identified affiliations to special interest groups or organizations, but slightly over half of the comments received were form-type letters or modified form letters. Form-type letters are defined as five or more responses received separately but containing identical text.

FEIS — After the Notice of Availability is published in the Federal Register, there will be a public review period of no less than 30 days. The public will be afforded to opportunity to review the FEIS and may provide comments to the Forest Service and BLM managers before they document their rationale and decisions in a Record of Decision. Notice of the Record of Decision will be published in local newspapers as a legal notice by the BLM and Forest Service.

SCOPING ISSUES

An issue is a concern, dispute, or debate about the environmental effect of an action. Issues were identified through the scoping process and internal review. The Forest Service and BLM separated the issues into two groups: significant and non-significant issues. Significant issues were defined as those directly or indirectly caused by implementing the Proposed Action. Non-significant issues were identified as those: 1) outside the scope of the Proposed Action; 2) already decided by law, regulation, Forest Plan, or other higher level decision; 3) irrelevant to the decision to be made; or 4) conjectural and not supported by scientific or factual evidence. The Council on Environmental Quality (CEQ) NEPA regulations explain this delineation in Sec. 1501.7, "…identify and eliminate from detailed study the issues which are not significant or which have been covered by prior environmental review (Sec. 1506.3)…"

There were many non-significant issues raised during scoping and internal review. All comments received during scoping are part of the project record.

The Forest Service and BLM received 928 comments from interested parties, special interest groups (i.e., groups, clubs or organizations whose members are generally aligned to a specific use on public lands or particular point of view regarding public land use) and other governmental entities. Approximately 275 of these comments (30 percent) came as form letters (i.e., same comments, issues, or concerns identified but signed by different individuals). Many comments were received as email messages, which, for the purposes of this document, are also referred to as letters.

Several special interest groups provided maps highlighting certain routes with specific recommendations for the routes regarding the modes of travel, possible alternatives to the Proposed Action, or new routes to be incorporated into the travel system.

Most of the comments were specific to routes or modes of travel. General comments referred to the overall scope of the Proposed Action and changes proposed to the 2001 Gunnison Interim Travel

Restrictions. Other comments presented opposing perspectives regarding travel management with statements in support of more open travel as well as statements requesting more restrictive travel management on public lands. Some comments questioned why there was no justification or rationale for the Proposed Action. Many motorized users wanted future demands factored into the travel plan.

The following is a sampling of paraphrased general comments from the public related to the Proposed Action:

> Support for the Proposed Action because it protects natural landscapes, protects quiet uses, constrains motorized use, eliminates duplicate trails, concentrates motorized use away from quiet areas, and protects wildlife.
>
> The Proposed Action does not address future ATV and OHV needs.
>
> There is no justification for the number of single-track trails that will be closed under the Proposed Action.
>
> The Proposed Action makes the national forest lands less accessible to the public.
>
> The Proposed Action could not recommend that amount of motorized use and claim to place any value on wildlife habitat.
>
> There is little reason to propose to close a trail other than personal bias.
>
> While we support the Proposed Action, it allocates way too much land and miles to OHV use. Acres of area or miles of routes on federal land should be allocated in proportion to the number of users. Users driving highway-licensed vehicles constitute the majority of public land users compared to OHV and ATV riders.
>
> We support having mountain bike use regulated; they have gone everywhere, and new bike paths are established and damage the land.
>
> Stand by what you propose and enforce the rules you make.
>
> The Proposed Action presented for scoping should have included a travel analysis as required by the 2005 Travel Rule prior to public comment period.
>
> The Proposed Action appears to isolate OHV recreation into a few areas.
>
> The Proposed Action is setting up (pre-determination) areas to become Wilderness.

The Forest Service and BLM have reviewed the content of the public comments to identify significant issues or concerns. These issues and concerns further refined the Proposed Action and contributed to the formation of alternatives.

A broad range of topics emerged as issues from public comment content analysis and ID team discussions. In an effort to address comments and concerns, they have been summarized and sorted into several significant issues that will be tracked in the environmental impact analysis for the Proposed Action and the alternatives.

The following significant issues were identified by the agencies during scoping:

Issue 1: Scope of Draft EIS Analysis

Many suggested that the environmental analysis of routes open to the public (i.e., environmental consequences of roads) should include new routes, planned routes, existing administrative roads (authorized for use but not open to public travel), and other routes not identified as existing during the Gunnison Interim Travel Restrictions 2001 inventory. There were comments indicating that the environmental analysis should compare road densities on federal lands to other adjacent BLM units or

national forests to determine if Gunnison Basin travel planning is allowing too much motorized travel compared to other areas.

Issue 2: Recreational Experience and Opportunity

There were recommendations that the recreation opportunities related to wheeled travel on federal lands be maintained at existing levels or expanded because of the continuing growth and unmet demand for motorized and mechanized recreational use. Some described the trail riding experience on Gunnison Basin federal lands as unique and want the experience to be retained for future generations. Looped trails were desired for all types of trail users with the length and configuration adjusted for the mode of travel. Many suggested an equal balance between motorized and non-motorized use in the spectrum of recreational travel of the travel plan.

Full-sized Vehicles – Some of those who commented emphasized the continuing demand for rough, high-clearance routes over high altitude passes, traditionally open to motorized travel. There is a desire to retain Jeep™[3] trails to historic mining locations where road maintenance is minimal. Many recommended retaining all existing roads open to the public to facilitate vehicular access to backcountry areas for hunting and camping.

ATV[4] – Those users who commented on ATV access desired longer loops (50–80 miles) and wanted to convert dead-end routes to more desirable loops by creating connecting trails. They suggested conversion of single-track trails to accommodate ATV/UTV (50 inches or less in width) use should be considered to address the growing demand for ATV trail riding experiences.

Motorcycles – These users commented that they desired looped routes with 50–80 mile travel distances and do not favor dead-end routes. There was a concern that increased demand for motorized travel by ATVs will result in a loss of the single-track motorized trail experience that has traditionally been available in the Gunnison Basin. These users want to maintain the existing single-track experience and desire motorcycle trail riding where there are few encounters with other users.

Mountain Bikes – Those users who commented desired looped routes where mountain bikers can ride for varying distances (5–25 miles) on trails rather than roads. There is concern that the travel planning process characterizes mountain bikes similarly as motorized travel. These users generally want mountain bikes addressed as a unique recreational activity separate from motorized trail riding, and more similar to traditional non-motorized travel. These users also contend mountain bikes do not have the same adverse impacts on soils, wildlife, and primitive recreational settings as other forms of travel. Others contend mountain bikes are not similar to hiker/horse travelers, can traverse more terrain, cause more adverse resource impacts, and trespass into Wilderness in some locations.

Hiker and Horseback – Many commented that there are inadequate opportunities for hiking on trails adjacent to residential areas and that more non-motorized trails are needed in several key areas adjacent to towns of Crested Butte and Gunnison. These users are concerned that increasing motorized use has and will continue to degrade the hiking and horseback riding experience due to the loss of quiet zones and semi-primitive recreational settings.

Issue 3: Route Integrity

There are concerns that ATV and UTV users widen trails designated for motorcycles or mountain bikes, thereby changing the recreational experience as well as creating user conflicts. Extensive use of

[3] *The use of trade or firm names in this document is for reader information and does not imply endorsement by the U.S. Department of Agriculture of any product or service. Routes designated for OHV's greater than 50 inches in width and that are rough and steep are generally referred to as "Jeep trails" in this document.*

[4] *These four-wheeled, off-highway vehicles commonly referred to as ATVs are more accurately defined as "OHVs 50 inches or less in width" based on standard modes of travel shown on a Forest Service MVUM.*

some trails by motorcycles has resulted in down-cutting and surface rutting to the extent that mountain bikers and hikers cannot comfortably use them. Some commented that many trails are so damaged that they can no longer be maintained and require complete relocation or reconstruction. Wet-season use of trails by motorized users and horseback riders cause the surface of the trails to become rough or rutted and unusable by hikers and mountain bikers when these trails become dry.

Issue 4: Resource Protection

Many commented that the travel system on federal lands should only meet minimum transportation requirements in order to ensure the health of forests for future generations. There are concerns that road densities (i.e., miles of road per unit area) are too high, adversely affecting wildlife, fragmenting wildlife habitat, and impacting watershed conditions. Road densities and roads crossing streams cause erosion, increased sedimentation, and stream flow changes. There are concerns that roads and motorized travel provide conduits for invasive species.

Many commented that the Proposed Action did not reduce road densities enough or restrict travel in sensitive wildlife areas or on erosive soils. Others commented that closures of existing routes did little to improve wildlife habitat and are just efforts to create more Wilderness and roadless areas.

Regular road maintenance was identified as a way to control runoff and reduce erosion. There are concerns that road closures did not provide adequate restoration to damaged areas, and more extensive rehabilitation and erosion control would be needed on some routes. There are concerns that motorcycle use causes more resource damage than other forms of travel because of the powerful single wheels used for traction. Others expressed concern about motorcycle riders often traveling in larger groups, creating more visual and noise disturbance for wildlife and non-motorized recreationists. Some who commented expressed concern that the Proposed Action increases motorized travel, which would increase carbon emissions that contribute to global warming.

Issue 5: Access

Many commented that in the Proposed Action, federal lands are less accessible to the public in many areas. There are concerns about routes being closed to the public where there is no legal access across private lands. Some routes with no dedicated public right-of-way are shown on the Proposed Action maps, which could lead to public trespass. Landowners expressed concern that routes shown on the maps as open to the public that dead-end at their private land boundary could lead to trespass and landowner-user conflicts. Some commented that the Forest Service and BLM should acquire access through private parcels to facilitate looped routes on federal lands. There are recommendations that the Forest Service and BLM use the travel planning process to better address access needs to private parcels surrounded by federal lands.

Issue 6: Compatibility and Safety

Concerns regarding safety on roads and trails most often relate to vehicle speed. Some suggested that the Forest Service and BLM need to evaluate motorized mixed-use compatibility (i.e., OHVs on improved roads) on several of the more well-traveled roads where vehicles travel at higher speeds. Some commented that single-purpose trails (e.g., motorcycle only or ATV oriented trails) are a way to avoid user conflicts. Many people indicated that there is a need to balance the availability of motorized and non-motorized trails in order to avoid conflicts between hikers or horseback riders and motorcycles and ATVs. Many who commented indicated that noise and speed are important aspects to consider when evaluating the compatibility of modes of travel on roads and trails.

Issue 7: Maintenance and Funding

Many who commented indicated that maintenance funding should not be a criterion used to limit motorized travel on federal lands; special interest groups representing specific modes of travel are willing to maintain the routes they use, and their groups would be key in obtaining funding for such work. Many commented that more routes open to motorized travel create more resource damage and subsequently require more funds for maintenance and resource protection. Many recommended that miles of roads and trails open to public travel should be based on the agencies' ability to fund the maintenance of those routes (i.e., fiscally sustainable); the agencies' should seek more grant funding to maintain and improve trails and consider the option of user fees for those user groups creating the most damage to routes. Rather than continually funding the maintenance of routes with repeated resource damage, it is suggested that these routes be closed or re-aligned to resolve resource damage, and it is suggested that limited agency funding should be spent constructing new, better aligned routes, acquiring access easements, or addressing other aspects of travel management.

Issue 8: Enforcement and Education

Many people commented that neither the Forest Service nor the BLM have the ability to adequately enforce the existing travel restrictions, and more road closures or restrictions will be ineffective without additional law enforcement. There were recommendations that no new motorized routes should be considered without increased law enforcement personnel. People commented that signage (i.e., placement of signs) is critical for the enforcement of travel restrictions and that increased signage would assure better voluntary compliance with travel restrictions. Several special interest groups recommended education efforts as a way to achieve compliance with travel restrictions and reduce user conflicts. There were comments that the format of the MVUM is difficult to use or interpret, and that the public cannot accurately locate routes open to motorized travel; consequently, the MVUM is an ineffective enforcement tool.

Issue 9: Societal Issues

Noise, dust, and speed relating to motorized travel are areas of concern identified by the public. There were recommendations that the agencies address impacts relating to noise, dust, and speed and use these impacts as criteria for evaluating routes to remain open to motorized use. There is a concern that reducing motorized routes may have economic consequences to local communities. Many who commented contend that ATV and motorcycle riders spend more money at local businesses than other recreational user groups. Some of those who submitted comments requested that the agencies address the potentially adverse economic effects of reducing motorized opportunities.

Issue 10: Future Demands

There were comments suggesting the Forest Service and BLM are not planning for the future, but are only addressing management of the existing situation. Some contend there is no justification for limiting motorized travel because it is a growing recreational use; in addition, more motorized opportunities should be provided to meet increasing public demands. Others expressed concerns that closing motorized routes in one area will increase motorized use in other areas, resulting in overcrowding and user conflicts. Some people commented that travel restrictions on other national forests and BLM lands are increasing the use and demand for motorized recreation on the Gunnison Basin federal lands. There is a general concern for retaining motorized recreational opportunities on federal lands for future generations, and in particular preserving motorized opportunities in more primitive settings. Some suggest that once primitive, backcountry settings are lost, they will be extremely difficult to restore or replace. Others commented that the Proposed Action did not adequately address the needs of the land and instead focused solely on the needs of the public.

Issue 11: Continental Divide National Scenic Trail and Monarch Crest Trail

There were concerns regarding motorized travel on the Continental Divide National Scenic Trail (CDNST), in particular on the Monarch Crest segment. Some of the comments opposed changing the existing modes of travel (mountain bikes and motorcycles) to non-mechanized (i.e., hiker/horseback) travel only. Others recommended that only hikers and horseback riders on the CDNST would be consistent with the enabling legislation.

Those who submitted comments either supported or opposed the concept of parallel trails along the Continental Divide to accommodate motorized and mechanized travel on one trail and hikers and horseback riders on a parallel trail.

The CDNST received a significant amount of public attention during the Gunnison Basin travel scoping period. This was partially the result of the publication in the Federal Register (June 12, 2007) of a Notice to Comment on proposed directives for managing the entire CDNST, not just the portion on the Gunnison Ranger District. The Forest Service was seeking comments on the agency's directives addressing the nature and purpose of the CDNST. Many of the public comments on the proposed directives for the CDNST were sent to the Gunnison travel planning team, and forwarded on to the Forest Service Regional Office.

Forest Service Manual direction regarding management of the CDNST was recently updated (FSM 2300, Ch. 2350, effective 11/4/09) to address mechanized and motorized use on the CDNST:

> 10. Bicycle use may be allowed on the CDNST (16 U.S.C. 1246(c)), using the appropriate trail design standards, if the use is consistent with the applicable CDNST unit plan and will not substantially interfere with the nature and purposes of the CDNST (FSM 2353.42).
>
> 11. Motor vehicle use by the general public is prohibited on the CDNST, unless that use is consistent with the applicable CDNST unit plan and:
>
> a. Is necessary to meet emergencies;
>
> b. Is necessary to enable adjacent landowners or those with valid outstanding rights to have reasonable access to their lands or rights;
>
> c. Is for the purpose of allowing private landowners who have agreed to include their lands in the CDNST by cooperative agreement to use or cross those lands or adjacent lands from time to time in accordance with Forest Service regulations;
>
> d. Is on a motor vehicle route that crosses the CDNST, as long as that use will not substantially interfere with the nature and purposes of the CDNST (FSM 2353.42);
>
> e. Is designated in accordance with 36 CFR Part 212, Subpart B, and:
>
> (1) The designated vehicle class and width were allowed on that segment of the CDNST prior to November 10, 1978, and the use will not substantially interfere with the nature and purposes of the CDNST (FSM 2353.42) or
>
> (2) The designated segment was constructed as a road prior to November 10, 1978.

PUBLIC COMMENTS ON DRAFT EIS

Public comments, letters or emails, received on the DEIS totaled 1,302. Some of these were simple statements of preference for an alternative in the DEIS, a specific mode of travel, or a specific route. There were some comment letters (about 65) that were multi-paged documents outlining a range of comments from policy and analysis questions to route-by-route comments.

Coloradoans submitted the greatest number of letter comments with identifiable return addresses (about 80 percent); comments were also received by residents of California, Arizona, Oklahoma,

Texas, Missouri, and Kansas. Many comments were submitted via email—the origins or residences of individuals that submitted comments via email are not known.

Although the Forest Service and BLM capture and track demographic information, it is important to note that the consideration of public comment is not a vote-counting process. All comments and suggestions have value, whether expressed by a single individual, hundreds of respondents, or an organization representing thousands of members. All input has been considered.

The public is clearly divided on how motorized travel should be managed on federal lands. This was evident during the scoping process and again in response to the DEIS. In responding to the alternatives in the DEIS, few comments were received in support of the Proposed Action. Depending on an individual's perspective and interests, comments specific to alternatives indicated a preference for those that offered the most miles of motorized routes (No Action or Alternative 4) or a preference for the alternative that would result in the fewest miles of motorized use and potentially the most resource protection (Alternative 3).

Most of the comments expressed a consistent division of perspectives on travel management issues. Some who commented acknowledged a desire for federal lands to provide opportunities to meet the growing demand for motorized recreation, while others expressed concern that non-motorized recreational uses and other resource management needs on federal lands were jeopardized and adversely impacted by increased motorized recreation. Some comments indicated support for all forms of public recreational use, with no specific preference for motorized or non-motorized uses. Many of these respondents did have specific preferences for individual routes or areas.

Approximately 45 specific routes were identified in comments that expressed a preference for a route to be open to use or a desire for a particular mode of travel. Some of these routes received numerous comments, while others received only one or two specific comments.

Comments also included areas of use, primarily around the town of Crested Butte and adjacent areas. In general, these comments expressed either a preference for non-motorized recreation or support for continued motorized use on existing trails. Specific areas where respondents expressed a preference for types of recreational use on a larger scale or area-wide perspective include the Texas Creek/Taylor Park area, the Lake City area east of Gunnison, and the Sawtooth Mountain area. Again, consideration of this input and all comments received were not based on a vote-counting process but were considered for content and additional information.

Comments received within the comment period that addressed issues or concerns within the scope of the travel management analysis are located in Appendix X. Responses to those comments are also contained in Appendix X. Comments addressing the same or similar concerns were summarized by topic headings and a single response is provided to address several comments. Specific comments have specific responses. Many public responses to the DEIS are essentially comments in support of a specific alternative or a use preference for a specific route or area. There are no specific responses for those types of comments; however, the agencies considered this input when developing the Preferred Alternative.

CHAPTER 2. ALTERNATIVES, INCLUDING THE PROPOSED ACTION AND PREFERRED ALTERNATIVE

INTRODUCTION

This chapter describes the No Action Alternative, the Proposed Action, the Preferred Alternative, and the other alternatives considered for the Gunnison Basin federal lands travel management planning in this Final EIS (FEIS). It includes a description of the alternatives evaluated and a summary of the alternatives in a comparative format (Table 2-6). The existing routes (No Action) are depicted in Figure 3, and routes to be designated open for public travel under the Preferred Alternative (Alternative 5) are shown in Figure 4 A, B, and C. Most of the information used to compare the alternatives is based upon landscape level analysis such as miles of road by square mile of land for a watershed or lynx analysis unit, or miles of road crossing unique land forms (e.g., alpine soils, riparian zones, or streams). The most common comparison of the alternatives is miles of road or trail for the proposed mode of travel based on the existing hierarchy of travel (see Chapter 1). This provides one of the few quantitative measures used to compare the differences between alternatives. Table 2-6 is a summary of impacts by alternative explained in detail in the full effects analysis in Chapter 3.

ALTERNATIVE DEVELOPMENT

Initially, the agencies' ID team utilized the framework and guidance provided in the Motor Vehicle Route and Area Designation Guide (USFS, 2005) to evaluate the existing Gunnison Basin travel system. In evaluating route designations, the planning team considered recreational use, environmental constraints, transportation system requirements, public travel needs, appropriate and suitable modes of travel for various routes and possible seasonal restrictions to protect natural resources. Additional screening tools are described in Chapter 1, Travel Analysis.

The issues and concerns raised by the public and ID team during scoping are addressed in the Draft EIS (DEIS); however, not all of them are resolved by the action alternatives (see Alternatives Considered but Eliminated from Detailed Study, this chapter). In the DEIS, two action alternatives in addition to the Proposed Action were developed. In the FEIS, a Preferred Alternative was developed as a modification to the DEIS Proposed Action. Through these alternatives, the agencies addressed most of the issues and concerns expressed by the public, stakeholders, and resource specialists during scoping and the DEIS comment period. These alternatives provide a reasonable and feasible range of travel strategies. One alternative recognizes a greater demand for motorized and mechanized recreation opportunities than may have been provided to the public in the DEIS Proposed Action. The other alternative, the environmentally preferable alternative, identifies fewer routes open to travel and less motorized travel in an effort to further benefit wildlife, further reduce cumulative impacts to watersheds, and further protect sensitive resource areas from human intrusion. The Preferred Alternative is a modification of the DEIS Proposed Action. The Preferred Alternative incorporates various travel options presented in the No Action and action alternatives that meet the agencies' purpose and need while addressing many of the comments and additional information received during the DEIS comment period. Additionally, the No Action Alternative is carried forward into the FEIS. The No Action Alternative may not necessarily meet the purpose and need identified for Gunnison travel management but it does address NEPA requirements to analyze and compare the environmental effects of a range of alternatives.

During the development of the alternatives, the ID team attempted to achieve a set of objectives for a system of roads and trails to remain open for public use. In some areas where objectives were conflicting, the Forest Service and BLM made compromises in order to balance recreation, access, and resource protection objectives. The alternatives presented here are differentiated according to variations in those compromises.. Management objectives for resource protection and recreational opportunity include the following:

Reduce road densities in sensitive watersheds or in important wildlife habitat areas;

Close roads and trails with limited or single purpose use that also cross streams and riparian areas;

Reduce motorized traffic on routes by designating use for administrative purposes only;

In areas where the primary resource management objective is forest health, reduce motorized traffic by changing the use on some trails to non-motorized;

Preserve or expand wildlife integrity zones (e.g., reduce fragmented habitats, avoid critical life cycle habitats) by eliminating or restricting travel;

Preserve fragile ecotypes (e.g., alpine soils, wetlands, fens, meadows) by limiting travel to these areas;

Protect erodible soils from wheeled-vehicle travel by shifting use to other routes that provide access to the area or point of interest;

Protect wilderness values by closing roads or motorized trails that may be inside wilderness boundaries;

Create loops for OHVs, motorcycles, and mountain bikes by utilizing existing roads and trails or by identifying and proposing new connector routes;

Provide hiker/horse trails near residential areas;

Manage non-motorized trails for mountain bike use and create varied-length loops adjacent to the residential areas of Crested Butte and Gunnison;

Provide for OHV travel on parallel or other trails to avoid roads where mixed use with full-sized vehicles is a safety concern or impacts the OHV riding experience and/or where OHVs are prohibited from riding on roads due to other jurisdictional restrictions;

Maintain traditional use patterns and user expectations for travel along the Continental Divide National Scenic Trail (CDNST);

Identify and manage several rough, rocky, and steep roads as Jeep trails to accommodate the demand for more challenging full-sized vehicle recreational use; and,

CONDITIONS COMMON TO ALL ALTERNATIVES

Existing seasonal closures or resource protection closures (e.g., saturated soil conditions, mud season, wildlife winter range, breeding/rearing habitat, etc.) will continue unless otherwise noted under the alternatives considered. These seasonal closures and restrictions are currently in place by special order. Under all alternatives, existing seasonal closures and restrictions along with new proposed seasonal closures and restrictions identified in the Preferred Alternative would become part of the route designation (36 CFR 212.51) decision to be made. The complete list of seasonal restrictions and closures are included in Appendices G and H and seasonal motorized closures will be documented on the MVUM.

Under all alternatives, there are about 510 miles of system or managed trail for horseback riders, pack animals, and hikers in Wilderness within the analysis area boundaries.

Under all alternatives, there would be approximately 1,680 miles of roads managed by other government entities (federal, state, or county highways) that are open to full-sized vehicles. These roads are not within the scope of the travel management analysis; they are managed and maintained by other entities through existing agreements, easements, or rights-of-way. In addition to these publicly maintained roads, there are approximately 1,340 miles of road located on private lands within the analysis area that are not within the scope of this travel management planning. Some of these roads on private lands have public access and are currently open for public use, but many are not. Actions by private landowners regarding public access change over time and are not within the jurisdiction of the BLM and Forest Service.

Permitted activities on federal land are subject to special-use authorizations by the Forest Service or BLM, which could include authorization to travel off of "designated open routes" for specific purposes (e.g., energy transmissions facilities, communication tower installations). Because of the scale of most commercial operations, authorizations for those activities provide specific detail on the type, timing, and extent of motorized travel. Other permitted activities may include: firewood cutting and gathering, rock collecting, post and pole cutting, and commercial collecting and harvesting activities (e.g., timber sales). Christmas tree cutting permits issued to the general public restrict motorized travel by wheeled vehicles to designated open routes. Livestock operators operating on federal land under permit may be allowed limited cross-country or off-route travel with motorized vehicles for the purpose of managing their livestock (i.e., placement of salt or other feeding supplements, fence repair, retrieval of injured or dead livestock, maintenance or repair of watering facilities). Such off-route travel would have to be specifically approved and documented in the livestock operator's grazing permit. Under all alternatives, the existing restrictions on off-route travel or cross-country travel by motorized vehicles to retrieve downed big game will continue to be enforced.

The authority and responsibility for maintaining designated open routes is held by the federal land managing agency whose lands the route crosses. The Forest Service characterizes these designated open routes as part of National Forest System (NFS) roads and trails. Both the BLM and Forest Service, under existing authorities, may have other governmental entities provide maintenance on routes crossing federal lands by agreement or contact.

Routes designated as administrative roads or trails are not open to the public; however, they are part of the transportation system. Some of these roads and trails are authorized for use by permit or documented authorization for a specific activity (e.g., oil and gas exploration roads, communication site access, private in-holding access). Other administrative roads are intended for future use related to resource management (i.e., timber roads or fire roads) by the federal land managing agencies and may not be actively maintained until they are in use.

ALTERNATIVES CONSIDERED IN DETAIL

The BLM and Forest Service, with the inclusion of the Preferred Alternative, have now developed five alternatives. These include the No Action Alternative, which considers the existing conditions, two action alternatives, the DEIS Proposed Action, and the Preferred Alternative (Alternative 5). The DEIS evaluated four alternatives. The FEIS includes the analysis of potential impacts and consequences associated with the Preferred Alternative (fifth alternative considered). The Preferred Alternative was developed in response to comments and additional information submitted by the public during the DEIS comment period. Of all the alternatives considered, Alternative 3 causes the fewest impacts to the biological and physical environment and would best preserve cultural and natural resources.

For a listing of route-by-route designations (e.g., open for public travel, administrative use, closure, and mode of travel) for all alternatives evaluated, refer to Appendix A for NFS roads and Appendix B for NFS trails. For BLM roads refer to Appendix C and Appendix D for BLM trails. Map figures for Alternative5 graphically and spatially depict those route-by-route designations.

ALTERNATIVE 1 — NO ACTION

Under the No Action Alternative, roads and trails currently open would continue to be managed by the Forest Service and BLM as designated open to motorized travel (Figure 3A, B, and C). The No Action Alternative essentially represents the existing routes authorized by the 2001 Gunnison Travel Interim Restrictions. Figures 3A, B, and C are updated and revised version of the "green to yellow" map. The inventory of routes used to create the "green to yellow" map was updated using aerial photography, field inspections, user data, and resource specialist knowledge of routes. Several routes that existed prior to January 2001 that were previously over looked were added to the inventory.

Motorized Travel

Under the No Action Alternative, about 3,731 miles of road on public land under the jurisdiction of the Forest Service and BLM are within the scope of this travel management planning effort and would be open to motorized travel by the public. Of these road miles, about 85 percent are dirt roads better suited to higher-clearance vehicles (e.g., SUVs, four-wheel drives, and trucks) than passenger cars. There are an additional 212 miles of trail used by ATVs and OHVs[5] 50 inches or less in width and 396 miles of single-track trail[6] predominately used by motorcycles.

There are about 1,680 miles of road on federal lands managed and maintained by other governmental entities and not within the scope of this travel management planning. These are expected to remain open to motorized travel by the public.

Non-motorized Travel

Under existing conditions, based on the 2001 "green to yellow" inventory, there are about 1,105 miles of non-motorized trail. Some of the "green to yellow" trails are not maintained (e.g., drainage control, tree removal) or managed (i.e., signs, depicted on visitor use maps) by the Forest Service or BLM. Under this alternative, approximately 949 miles of trail would be managed for non-motorized use, with about 439 miles of trail outside of Wilderness and 510 miles within Wilderness. Based on the 2001 Gunnison Interim travel restrictions, almost all of these non-motorized trails outside of Wilderness would allow mountain bike, hiker, and horseback use. Many of these trail miles are not well suited for mountain bike use, but such use is procedurally allowed. There are about 117 miles of non-motorized trail outside of Wilderness that, under existing conditions, are managed for mountain bike use and are often depicted as mountain bike trails on various maps. Mountain bike use on the other 322 miles of managed trail outside of Wilderness may prove difficult because of terrain and maintenance standards. Based on the hierarchy of travel management, mountain bikes are allowed on motorized trails, including single track (396 miles), ATV trails (212 miles), and roads. Although non-motorized travelers may not find the same level of enjoyment or satisfaction sharing motorized trails and roads, those routes are open to their use.

[5] *On the MVUM, the Forest Service defines OHVs as ATVs and UTVs 50 inches or less in width.*

[6] *Running track of 24 inches cleared of branches and obstructions to about 42 inches wide.*

Administrative Routes

The No Action Alternative includes administrative roads and trails closed to public travel. Administrative routes have been established under previous agency decisions regarding resource management activities (i.e., timber roads or fire roads) or authorized use (e.g., oil and gas exploration roads, communication site access, and private in-holding access). These administrative roads are shown on the No Action Alternative map (Figure 3) but would not appear on an MVUM because they are closed to public travel. Under this alternative, there are approximately 240 miles of existing administrative roads.

Dispersed Camping Access

Motor vehicle access for dispersed camping would be allowed within 300 feet of roads designated as open for public travel as long as use does not result in resource damage.

Table 2-1. Summary of No Action Alternative Travel Routes (Existing Conditions)

	Motorized Routes				Non-motorized Routes Outside of Wilderness	
	All Public Roads on Federal Lands (miles)	Roads on Federal Lands Managed by Forest Service and BLM (miles)	ATV/OHV* (miles)	Motorcycle (miles)	Trails Managed by Forest Service and BLM (miles)	Mountain Bike Use Restricted (miles)
Alternative 1	5,411	3,731	212	396	439	N/A

** OHVs – ATVs and UTVs 50 inches or less in width*

ALTERNATIVE 2 – PROPOSED ACTION (DEIS)

This alternative is the original Forest Service and BLM Proposed Action in the DEIS. It depicts a system of roads and trails that the agencies believe represents a balance between the needs for motorized recreation and the need for resource protection provided by reduced motorized travel. This alternative remains in the FEIS for comparison purposes, but the agencies have modified or adjusted the Proposed Action from the DEIS to formulate Alternative 5, which is the Forest Service and BLM Preferred Alternative.

Motorized Travel

In this alternative, about 2,392 miles of road on federal lands would be directly managed by the Forest Service and BLM and open to the public for motorized travel. Of these roads, about 78 percent (1,872 miles) are dirt roads more suited to higher clearance trucks and SUVs than passenger cars. Approximately 44 miles of existing road would be converted to and managed as Jeep trails for OHVs greater than 50 inches in width. These Jeep trails are wider than 50 inches but are typically very rough, rocky, steep, and better suited for specially built or modified vehicles resembling Jeep™ four-wheel-drive vehicles.

There are another 174 miles of trail that would be managed and maintained for use by ATVs and OHVs that are 50 inches or less in width. Additionally, there would be 318 miles of motorized trail maintained as single-track trail that would be managed for motorcycle use.

As with the No Action Alternative, there would continue to be about 1,680 miles of road on federal lands managed and maintained by other governmental entities such as state, county, and federal highways. These would be open to the public for motorized travel; however, not all of these public roads are open to non-licensed motorized vehicles. Additionally, there are about 1,340 miles of road on private lands that are not within the scope of this travel management plan.

Non-motorized Travel

Under this original DEIS Proposed Action, there would be 440 miles of non-motorized trail available outside of Wilderness; of these, approximately 179 miles would be managed for mountain bike, hiker, and horseback use. The remaining 261 miles (about 59 percent of total) are more appropriate for hiker and horseback use; therefore, mountain bike use would not be allowed. Reasons for restricting mountain bike use vary from trail design limitations, excessively steep or rocky conditions, trail length, past user conflicts, desired primitive settings, or traditional use. The majority of non-motorized trails determined to be inappropriate for mountain bike use are located in the Paonia Ranger District. There would continue to be about 510 miles of managed hiker and horseback trails in Wilderness.

Based on the hierarchy of travel management, mountain bikes are allowed on motorized trails, including single track (318 miles), ATV trails (174 miles), and roads. Although non-motorized travelers may not find the same level of enjoyment or satisfaction sharing motorized trails and roads, those routes are open to their use.

Administrative Routes

Under this alternative, there would be approximately 332 miles of administrative roads.

Possible New Routes

Under this alternative, there are plans for new routes, some of which do not currently exist on the ground. This alternative would not authorize the construction of routes, but it has made the determination that new routes would meet the purpose and need. This alternative would plan for about 60 to 70 miles of new routes. Almost all of these new routes would be trails, with about 15 miles planned as motorized trail and 45 to 55 miles as non-motorized trails open to mountain bikes. Some existing user-created routes may be added to the system under this alternative. Additionally, approximately 3 miles of road that would be closed and possibly decommissioned under existing conditions (No Action), would become open for public travel under this alternative. The potential environmental consequences of these planned new routes are incorporated into the total miles of road and trail and analyzed at the landscape level. Before a new route can be constructed (ground disturbance), further environmental impact analysis and compliance with other laws and regulations must be completed prior to a decision pursuant to NEPA. This alternative does not imply approval or pre-determine the actual project-level decision for new route construction.

Seasonal Use Restriction Changes

Existing seasonal closures or resource protection closures (e.g., saturated soil conditions, mud season, wildlife winter range, breeding/rearing habitat, etc.) will remain in effect. Under this alternative, seasonal restrictions on 17 roads and 4 trails on NFS lands are proposed to change from existing conditions. Routes with changes are listed below:

Roads	Trails
Almont Triangle Road #7810 Almont Powerline Road #7860 Fields Branch Road #7860.1A Flat Top Road #7863 Flat Top Bench Road #7955 Midtalus Road #7784.1B Powerline #708 (Paonia District) Powerline Cutoff Road #7860.1B Powerline #7862 (Gunnison District) Rambouilet Road #7735 Rainbow Lake Road # 7724 Red Mountain Road #7829 Red Mountain Branch Road #7829.1 Samora Creek Road #7874 Stevens Gulch Road #701 Talus Road #7784 and #7784.1A Willow Creek Road #7882	Cannibal Plateau #7464 Cement Mountain #9553 Deer Creek #9568 Doctor Park #9424 Rosebud #9423

The BLM proposes to apply seasonal closures on motorized travel from March 15 to May 15 each year to entire areas rather than specific routes. The purpose of this proposed closure is to protect sage-grouse breeding and early nesting habitat. This seasonal closure encompasses about 191,000 acres around Gunnison. There are further restrictions on about 38,000 acres of BLM Public land to protected critical sage-grouse breeding activities from March 15 to May 15 each year that also prohibit non-motorized use before 9:00 a.m.

Dispersed Camping Access

Motor vehicle access for dispersed camping and other dispersed recreational activities would be allowed on existing access routes to existing campsites within 300 feet of the centerline of routes designated as open to motorized travel. This is a minor change from existing conditions and would require vehicles to follow existing “two track” access routes to access existing campsites and parking areas. Under this alternative, as with the No Action Alternative, motor vehicle travel that causes resource damage would not be allowed, even for the purposes of dispersed camping access.

Table 2-2. Summary of DEIS Proposed Action – Alternative 2 Travel Routes

	Motorized Routes					Non-motorized Routes Outside of Wilderness	
	All Public Roads on Federal Lands (miles)	Roads on Federal Lands Managed by the Forest Service and BLM (miles)	Jeep Trail (miles)	ATV/OHV* (miles)	Motorcycle (miles)	Total Trail (miles)	Mountain Bike Use Restricted (miles)
Alternative 2	4,072	2,392	49	174	318	440	261

** OHVs – ATVs and UTVs 50 inches or less in width*

ALTERNATIVE 3

This alternative places increased emphasis on route selection to protect natural resources. It also provides opportunities to further enhance non-motorized recreation experiences (i.e., there would be fewer miles of motorized routes and therefore fewer conflicts with motorized users). Under this alternative, the Forest Service and BLM would manage a more basic system of roads and trails open for public motorized travel in the Gunnison Basin travel analysis area. This system of roads and trails would accommodate transportation, access, and a variety of recreational opportunities. In evaluating existing routes to remain open to the public, natural resource management objectives are a priority. In the proposed action of the DEIS, route evaluations were made to achieve a balance between resource protection and recreational demand.

Motorized Travel

Under this alternative, about 1,984 miles of road on federal lands would be managed and maintained by the Forest Service and BLM and open to public travel. About 74 percent (or 1,474 miles) of these roads are better suited for higher-clearance trucks and SUVs rather than passenger cars. Approximately 35 miles of existing road would be converted and managed as Jeep trail. Approximately 100 miles of motorized trail would be managed and maintained for ATVs and OHVs 50 inches or less in width, with another 232 miles of trail designated as motorized single-track trail. Roads open to motorized travel crossing federal lands would total about 3,664 miles under this alternative, but not all of these road miles are managed by the Forest Service and BLM. In addition to these public roads, there are approximately 1,340 miles of road on private land that are not within the scope of this travel management planning. Generally, few of these roads are open to the public.

Non-motorized Travel

Under this alternative, 496 miles of non-motorized trails are available outside of Wilderness; of these, approximately 178 (36 percent) miles would be managed for mountain bike, hiker, and horseback use. The remaining 318 miles are more appropriate for hiker and horseback use; therefore, mountain bike use would not be allowed. The reasons for restricting mountain bike use vary from trail design limitations, excessively steep or rocky conditions, trail length, past user conflicts, desired primitive settings, or traditional use. Similar to Alternative 2, the majority of non-motorized trails that were determined to be inappropriate for mountain bike use are located in the Paonia Ranger District.

Based on the hierarchy of travel management, mountain bikes are allowed on motorized trails, including single track (232 miles), ATV trails (100 miles), and roads. Although non-motorized travelers may not find the same level of enjoyment or satisfaction sharing motorized trails and roads, those routes are open to their use.

Table 2-3. Summary of Alternative 3 Travel Routes

	Motorized Routes					Non-motorized Trails Outside of Wilderness	
	All Public Roads on Federal Lands (miles)	Roads on Federal Lands Managed by the Forest Service and BLM (miles)	Jeep Trail (miles)	ATV/OHV* (miles)	Motorcycle (miles)	Trail (miles)	Mountain Bike Use Restricted (miles)
Alternative 3	3,664	1,984	37	100	232	496	318

** OHVs – ATVs and UTVs 50 inches or less in width*

Administrative Routes

Under this alternative, approximately 391 miles of routes are designated as administrative. In some situations, this management designation would be applied in an effort to reduce motorized traffic. Administrative roads are not open for public travel. These roads would remain on the ground, but vehicle use would be restricted for the purposes of resource management, with travel allowed by permit or to access private lands. These administrative roads would not be included on the MVUM.

Possible New Routes

This alternative also contains plans for new routes. Again, it does not authorize the construction of routes, but has made the determination that new routes (regardless of it physical presence or not) are needed to meet the purpose and need. This alternative would plan for about 36 miles of new routes. Almost all of these new routes would be trails, with about 9 miles planned as motorized trail and 27 miles as non-motorized trails designated open for mountain bikes. Additionally, approximately 2 miles of roads that are closed and possibly decommissioned under existing conditions (No Action) would be open for public travel under this alternative. The possible environmental consequences of these planned new routes are incorporated into the total miles of road and trail and analyzed at the landscape level. Before a new route can actually be constructed (ground disturbance), further environmental impact analysis and environmental clearances must be completed prior to a decision pursuant to NEPA. This proposal does not imply approval or pre-determine the actual project level decision for new route construction.

Seasonal Use Restriction Changes

Existing seasonal closures or resource protection closures (e.g., saturated soil conditions, mud season, wildlife winter range, breeding/rearing habitat, etc.) will remain in effect. There are 15 roads and 4 trails on NFS lands where the season restrictions are proposed to change from existing conditions under this alternative. Those changes are listed below:

Roads	Trails
Almont Powerline Road #7860	Cannibal Plateau #7464
Deadman Road #7744.2C	Cement Mountain #9553
Fields Branch Road #7860.1A	Deer Creek #9568
Flat Top Road #7863	Doctor Park #9424
Flat Top Bench Road #7955	Rosebud #9423
Midtalus Road #7784.1B	
Powerline #708 (Paonia District)	
Powerline Cutoff Road #7860.1B	
Red Mountain Road #7829	
Red Mountain Branch Road #7829.1	
Spring Creek Road #7744	
Stevens Gulch Road #701	
Talus Road #7784 and #7784.1A	
Willow Creek Road #7882	

The BLM proposes to apply seasonal closures on motorized travel to entire areas rather than specific routes from March 15 to May 15 each year. The purpose of this proposed area closure is to protect sage-grouse breeding and early nesting habitat; it encompasses about 191,000 acres around Gunnison.

This same area would also be closed to non-motorized uses (horseback, hikers, and mountain bikes) before 9:00 AM during this same period.

Dispersed Camping Access

Motor vehicle access for dispersed camping and other dispersed recreational activities would be allowed on existing access routes to existing campsites within 300 feet of the centerline of routes designated as open to motorized travel. This is minor change from existing conditions and would require vehicles to follow existing "two track" access routes to access existing campsites and parking areas. Similar to the No Action Alternative, motorized vehicle travel that causes resource damage would not be allowed, even for the purposes of dispersed camping access.

ALTERNATIVE 4

This alternative places more emphasis on providing travel-oriented recreational opportunities than the other alternatives. It has fewer roads open to public travel than what is available under No Action, but converts some roads to motorized trails in an attempt to address the increasing demand for ATV and motorcycle recreation in the Gunnison Basin travel analysis area. This alternative is expected to enhance trail riding recreational opportunities for mechanized and motorized modes of travel by linking trails, converting roads to motorized trails, and planning for new trails to create looped riding opportunities.

Motorized Travel

Under this alternative, about 2,399 miles of roads and trails on federal lands would be managed and maintained by the Forest Service and BLM and designated open to public travel. Of those road miles, about 79 percent (1,891 miles) of these roads are better suited for higher-clearance trucks and SUVs rather than passenger cars. Additionally, there are about 64 miles of existing road that would be converted to Jeep trail. There are about 1,680 miles of road managed and maintained by other governmental entities that are open to public travel; these roads combined with those roads managed by the Forest Service and BLM provide about 4,079 miles of road open to the public. In addition to these public roads, there are approximately 1,340 miles of road on private land that are not within the scope of this travel management planning. Generally, few of these roads are open to the public.

There are about 260 miles of trail that would be managed and maintained for use by ATVs and OHVs 50 inches or less in width and about 390 miles of single-track trail open to motorcycle use.

Non-motorized Travel

If implemented, this alternative would provide about 490 miles of managed non-motorized use trails outside of Wilderness. Mountain bikes, hikers, and horseback riders would be allowed on about 308 miles (63 percent) of these non-motorized trails. Approximately 182 miles would be managed for hiker and horseback use with mountain bike use not allowed.

Table 2-4. Summary of Alternative 4 Travel Routes

	Motorized Routes					Non-motorized Routes Outside of Wilderness	
	All Public Roads on Federal Lands (miles)	Roads on Federal Lands Managed by the Forest Service and BLM (miles)	Jeep Trail (miles)	ATV/OHV* (miles)	Motorcycle (miles)	Trial (miles)	Mtn. Bike Use Restricted (miles)
Alternative 4	4,079	2,399	64	260	390	490	182

** OHVs – ATVs and UTVs 50 inches or less in width*

Possible New Routes

This alternative also contains provisions for new routes that may incorporate existing user-created routes. This alternative would not authorize the construction of these routes, but has made the determination that new routes are needed to meet the purpose and need. This alternative would plan for about 75 to 110 miles of new routes. Almost all of these new routes would be trails, with about 10 miles planned as motorized trail and 90 to 100 miles as non-motorized trails open to mountain bikes. Additionally, there would be about 3 miles of road that are closed and possibly decommissioned under existing conditions (No Action) that would be open for public travel under this alternative. The possible environmental consequences of these planned new routes are incorporated into the total miles of road and trail and analyzed at the landscape level. Before a new route can actually be constructed (ground disturbance), further environmental impact analysis and compliance with other laws and regulations must be completed prior to a decision pursuant to NEPA. This alternative does not imply approval or pre-determine the actual project-level decision for new route construction.

Administrative Routes

This alternative includes approximately 306 miles of administrative routes closed to public travel. These roads would be retained for the purposes of managing natural resources or providing permitted access to specific projects or private lands.

Seasonal Use Restriction Changes

Under this alternative, there are only two new route-specific proposed changes in the season-of-use restrictions. They are on NFS lands for the Rainbow Lake road (#7724) and the Rambouilet road (#7735). Other than these two roads, the existing season of use restrictions (No Action) would remain in place.

The BLM proposes, under this alternative, to apply seasonal closures on motorized travel to entire areas rather than specific routes from March 15 to May 15 each year. The purpose of this proposed area closure is to protect sage-grouse breeding and early nesting habitat; the area encompasses about 191,000 acres around Gunnison. Non-motorized travelers in this area would be encouraged to help protect important sage-grouse breeding activities during the same period by not using these areas before 9:00 AM.

Dispersed Camping Access

Motor vehicle access for dispersed camping and other dispersed recreational activities would be allowed on existing access routes to existing campsites within 300 feet of the centerline of routes designated as open to motorized travel. This is a minor change from existing conditions and would

require vehicles to follow existing "two track" access routes to access existing campsites and parking areas. As with the Proposed Action, motorized vehicle travel that causes resource damage would not be allowed, even for the purposes of dispersed camping access.

ALTERNATIVE 5 – PREFERRED ALTERNATIVE

This alternative represents the Forest Service and BLM Preferred Alternative. Figure 4A, B, and C depicts those routes that would remain open for public travel and identifies the planned modes of travel that would be managed for and allowed with the implementation of this alternative. It has been chosen as the Preferred Alternative (40 CFR 1502.14 (e)) because both the Forest Service and BLM believe it best meets the purpose and need identified for Gunnison Basin travel management. The formulation of this alternative was guided by public and agency comments on the DEIS and environmental consequences identified in that document. This alternative builds upon much of the DEIS Proposed Action (Alternative 2) but mixes some aspects of Alternative 3, Alternative 4, and the No Action Alternative to define the final Preferred Alternative. These modifications are related to specific routes, season of use restrictions, modes of travel, and access for dispersed camping.

There are several routes where a change was made from the Proposed Action for this Preferred Alternative. Those changes were based on re-evaluation of the existing conditions, desired long-term management objectives, and public comment. The summary table of these routes is below.

Table 2-5. Key Route Changes between DEIS Proposed Action and Preferred Alternative

Route Number	Route Name	Proposed Action	Preferred Alternative
#531	Monarch Crest (CDNST)	Non-motorized (mountain bikes, hikers, horseback)	Motorized single track (motorcycle, mtn. bike, hiker, horseback)
#499	Corduroy/Lujan trail (CDNST)	Non-motorized (mountain bikes, hikers, horseback)	Motorized single track (motorcycle, mtn. bike, hiker, horseback)
#484, #484.2A	Agate Creek trail and spur	Non-motorized (mountain bikes, hikers, horseback)	Motorized single track (motorcycle, mtn. bike, hiker, horseback)
#436	Carbon trail	Non-motorized (hiker and horseback only)	Motorized single track (motorcycle, mtn. bike, hiker, horseback)
UT – 8282	Italian Connector	Closed	Motorized single track (motorcycle, mtn. bike, hiker, horseback)
#439	Swampy Pass trail	Non-motorized (hiker and horseback only)	Non-motorized (mountain bikes, hikers, horseback)
#438	Lowline trail	Non-motorized (hiker and horseback only)	Non-motorized (mountain bikes, hikers, horseback)
#558	Granite Basin trail	Non-motorized (hiker and horseback only)	Non-motorized (mountain bikes, hikers, horseback)
#559	Eccher Gulch trail[1]	Non-motorized (hiker and horseback only)	Non-motorized (mountain bikes, hikers, horseback)
#840	Cliff Creek trail	Non-motorized (hiker and horseback only)	Non-motorized (mountain bikes, hikers, horseback)
#583	Crystal Peak trail	Motorized single track (motorcycles, mountain bikes, hikers, horseback)	Non-motorized (mountain bikes, hikers, horseback)
UT-7071	Fenceline	Non-motorized (mountain bikes, hikers, horseback)	Closed

Route Number	Route Name	Proposed Action	Preferred Alternative
UT -7073 and UT-7164	Waterfall Cut-off	Closed	Non-motorized (mountain bikes, hikers, horseback)
#802.2E	Revenue Gulch trail	ATV, OHV 50 inches	Closed
Z[2] 7622	Cochetopa Cut-off	ATV, OHV 50 inches	Closed
Z 7645	Unnamed	ATV, OHV 50 inches	Closed
Z 7643	Unnamed	ATV, OHV 50 inches	Closed
Z 9642	Bear Springs trail	ATV, OHV 50 inches	Closed
#572	Ute Gulch trail	ATV, OHV 50 inches	Closed
Z 716.1A1	Unnamed	ATV, OHV 50 inches	Closed
Z 716.1A	Unnamed	ATV, OHV 50 inches	Closed
#798.2A	Lone Cabin Ditch road	High clearance road	Jeep trail
#876	Lone Cabin road	High clearance road	Jeep trail
#812.2C	East Cabin Springs road	Closed	High clearance road
#677.6	Powerline Section 6	High clearance road	Administrative access road
#724.2F	Slab Mill road	High clearance road	Administrative access road
#827	Prefecto Ridge road	High clearance road	Administrative access road

[1]Mountain bikes would be allowed on the non-motorized Eccher Gulch trail (#559) and connecting Granite Basin trail (#558) as a long-term management objective.*
[2] Non-system trails created prior to the 2001 Interim Restrictions that exist on the ground but would be closed and decommissioned under the Preferred Alternative.

In the Preferred Alternative, the proposed mode of travel changes back to the existing conditions for segments of the CDNST and the Agate Creek Trail, allowing for the continued use of motorcycles. The Preferred Alternative also incorporates the existing conditions for the Carbon trail (#436) from Ohio Pass area to the Kebler Pass road (CR-12), allowing motorcycles and non-motorized travel (including mountain bikes). The Swamp Pass (#439) and Lowline (#438) trails would allow mountain bike use on those non-motorized trails. Under existing conditions, such use is allowed. As a long-term management objective, mountain bikes would be allowed on the non-motorized Eccher Gulch trail (#559) and connecting Granite Basin trail (#558) as is the current existing use. However, problems and concerns with public access across private lands make it improbable to implement the long-term desired conditions until those issues are resolved. The ATV trails with “Z” prefixes to their route numbers were non-system trails created prior to the 2001 Interim Restrictions and exist on the ground, but would be closed and decommissioned under the Preferred Alternative.

There are seven trails (about 13 miles in total) that were planned to be closed or not managed as system trails under the DEIS Proposed Action but would be managed as non-motorized trails open to mountain bikes, hikers and horseback riders under this Preferred Alternative.

The overall miles of routes open for public travel would be slightly different than the DEIS Proposed Action, but these changes reflect a strong preference by the public for maintaining existing conditions and keeping some traditional motorized trails open for public travel as well as the need to close un-needed user-created routes. It also includes provisions to further control vehicle access related to

dispersed camping in some areas on NFS lands based on public and agency concerns related to unnecessary and cumulative resource damage.

Motorized Travel

Under the Preferred Alternative, about 2,334 miles of road on federal lands managed and maintained by the Forest Service and BLM are proposed to be open for public travel. Of these miles of road, about 78 percent (1,818 miles) are better suited for higher-clearance trucks and SUVs rather than passenger cars. There would be about 52 miles of existing road converted to and managed as Jeep trails. There are about 149 miles of motorized trail that would be designated open for use by ATVs and OHVs 50 inches or less in width and about 351 miles of single-track trail managed and open to motorcycle use.

As with the other alternatives, there would continue to be about 1,680 miles of road on federal lands managed and maintained by other governmental entities such as state, county, and federal highways. These would be open to the public for motorized travel. Not all of these public roads are open to non-licensed motorized vehicles. Additionally, there are about 1,340 miles of road on private lands that are not within the scope of this travel management plan.

Non-motorized Travel

The Preferred Alternative would implement a travel management plan that would result in about 409 miles of non-motorized trails outside of Wilderness that would be managed as system trails. Some of these trails or segments of trails were open to motorized travel under the 2001 Gunnison Interim Travel Restrictions but would be restricted to non-motorized travel under the Preferred Alternative. There are also about 96 miles of trails on NFS lands that were identified on the 2001 Gunnison Interim Travel Restriction “green to yellow” inventory maps that would no longer be managed and maintained as system trails. Hikers and horseback riders could continue to travel on these trails since there are no regulations for NFS lands to restrict hikers and horseback riders to designated trails, but they would not be managed or maintained for such use. Mountain bike use would be allowed on 279 miles of non-motorized trails outside of Wilderness (about 68 percent). On the other 130 miles of non-motorized trail, mountain bike use would be restricted leaving those system trails open to hikers and horseback riders only. Mountain bike use is restricted on those trails because it was deemed inappropriate for reasons relating to safety, resource protection, consistency with overall planning direction, or appropriate use. Based on the hierarchy of travel management, mountain bikes are allowed on motorized trails, including single track (351 miles), ATV trails (149 miles), and roads. Although non-motorized travelers may not find the same level of enjoyment or satisfaction sharing motorized trails and roads, those routes are open to their use and are often required to complete popular loop rides (e.g., Brush Creek road, Cement Creek road, Gothic road, and Spring Creek road, to name a few).

As with the No Action Alternative, there would be about 510 miles of trail in Wilderness that have restrictions on mechanized travel where mountain bike use is not allowed. There would be a few system trails (about 5.5 miles) where horseback riding is restricted for safety reasons.

Administrative Routes

In the Preferred Alternative, approximately 343 miles of administrative routes would be closed to public travel. This is similar to the miles of administrative roads in the original Proposed Action but more than under existing conditions. These would be retained for the purposes of managing natural resources, providing permitted access for special projects, or providing access to private lands.

Table 2-6. Summary of Alternative 5 – Preferred Alternative

	Motorized Routes					Non-motorized Routes Outside of Wilderness	
	All Public Roads on Federal Lands (miles)	Roads on Federal Lands Managed by Forest Service and BLM (miles)	Jeep Trail (miles)	ATV/OHV* (miles)	Motorcycle (miles)	Total Trail (miles)	Mountain Bike Use Restricted (miles)
Alternative 5	4,014	2,334	59	149	351	409	130

** OHVs – ATVs and UTVs 50 inches or less in width*

Possible New Routes

Under this alternative, there would be new routes, some of which do not currently exist on the ground. This alternative includes these new routes as part of the transportation system but would not authorize the construction of routes. This determination to include these new routes as part of this alternative is useful in defining the purpose and need for future construction project NEPA compliance. Listed below are some of the new routes planned for under this alternative:

- Kebler Wagon Trail (approximately 23 miles), part of the Carbondale to Crested Butte bike trail;
- Lower Loop Extension trail (about 5.5 miles), non-motorized use in the Slate River Valley near Crested Butte;
- Snodgrass West trail (approximately 1.6 miles), opportunity for an advanced mountain bike downhill trail;
- Brush Creek connector (approximately 1.3 miles), non-motorized trail from Mt. Crested Butte to the east side connecting with Brush Creek trails;
- Farris Creek trail, a new motorized trail to by-pass a private land closure (approximately 0.2 mile) that would allow motorized access into Farris Creek trails, Strand trails, and connection to Double Top trails;
- Left Hand Trail realignment (approximately 0.4 mile), a new motorized trial segment intended to by-pass private land; and
- Slaughterhouse connector trail (approximately 0.8 miles), a motorized trail connection from Kentucky Ridge to the Slaughterhouse Gulch road that would help facilitate an alternative ATV route from Taylor Park campgrounds and store to Tincup without using the Tincup road (#765).

These are just a few of the more defined new routes. There are other routes that, conceptually, would provide desired travel options consistent with the Gunnison Basin travel management purpose and need. The planned new routes listed above and other possible routes in areas northeast of Gunnison may total 40 miles of trail in the future. Additionally, there would be about 3 miles of road that are closed under existing conditions (No Action) that would become open for public travel under this alternative. The possible environmental consequences of these planned new routes are incorporated into the total miles of road and trail and analyzed at the landscape level in this FEIS. Before a new route can be approved to be built (ground disturbance), further environmental impact analysis and public involvement, pursuant to NEPA must be completed prior to a decision to authorize the action as well as compliance with other laws and regulations relating to endangered species and cultural

resources. This alternative does not imply approval or pre-determine the actual project-level decision for new road or trail construction.

Seasonal Use Restriction Changes

Seasonal closures or resource protection closures (e.g., saturated soil conditions, mud season, wildlife winter range, wildlife security, breeding/rearing habitat, etc.) will remain in effect. There would be minimal changes in spring mud season closures on Forest Service roads under this alternative. The purpose of mud season closure restrictions is to protect the road from undue damage due to rutting and to reduce the need for extra grading maintenance. Roads with mud season closure restrictions would typically not be open for public travel until roadbed conditions are dry. The end dates of closures reflect, on average, the occurrence of dry roadbed conditions. Since these roads are gated, the Forest Service can make the determination as to when dry roadbed conditions exist. The gates would be opened at earlier dates if suitable dry roadbed conditions exist.

Under this alternative there are roads where the existing seasonal closures would be eliminated either because it was determined they were not necessary or not needed because the major arterial road seasonal closure would effectively protect those connecting roads. Also some existing roads hane been converted to Jeep trails and the seasonal closures for those would carry over to those Jeep trails. About 30 miles of road would have new seasonal restrictions applied where there were none prior. In total, approximately 327 miles of road would have seasonal restrictions on NFS lands.

Under this alternative, the Forest Service would seasonally restrict motorized and mechanized travel on approximately 41 miles of trail. The purpose of these restrictions are to enhance wildlife conditions by reducing motorized intrusions during the later fall hunting seasons or to prevent disturbances during spring migration and breeding seasons. Such closures are expected to create less stress on wildlife and in turn provide for a non-motorized, quiet hunting opportunity. Those routes with new seasonal restrictions are listed below:

Roads	Trails
Mainline road #784 and Talus spurs 1A and1B	Brush Creek trail #457
Red Mountain road #829	Calf Creek Plateau trail #458
Almont Powerline roads #860	Deer Lakes Cut-off trail #458.0A
Powerline road #862	Cannibal Plateau trail #464
Flat Top Bench road #955	Rosebud trail #423
Fields Bench road #860.1A	Doctor Park trail #424
Powerline Cutoff road #860.1B	Cement Mountain trail #553
	Razor Creek trail #487
	Flat top Bench Jeep trail #863
	Flat top Bench Jeep trail spur #863.2A
	Flat top Bench Jeep trail spur #863.2E
See Appendices G and H for a full listing of proposed seasonal restrictions and closures.	

The BLM proposes to apply seasonal closures on motorized travel for sage-grouse to specific areas of key sage-grouse habitat rather than specific routes. This proposed area closure is expected to help protect sage-grouse breeding and early nesting habitat and encompasses about 191,000 acres around Gunnison. This area would be closed to all motorized use from March 15 to May 15 each year. In this same area, non-motorized travelers would be encouraged to not travel before 9:00 AM from March 15 to May 15 each year to avoid disturbing sage-grouse on the breeding grounds. Formal closures may be a future option if voluntary restrictions on non-motorized travel are not adequately protecting breeding sage-grouse. The BLM would continue existing seasonal restrictions on travel during the spring mud season to prevent road damage due to wet roadbed conditions.

The dates and details for all season restrictions are contained in Appendices G and H.

Dispersed Camping Access

The Forest Service and the BLM would have slightly different plans for motor vehicle access for the purposes of dispersed camping.

The BLM would allow motorized travel off designated roads only on existing routes (i.e., a recognizable travel footprint or "two-track" trail) within 300 feet of designated roads open for public travel for the purposes of dispersed camping and general recreation. This would prohibit the creation of any new routes off the designated roads under the guise of dispersed camping. If no existing route is available, vehicles may pull off the designated road up to 30 feet of the edge of the roadway to park or camp.

The Forest Service would allow motorized travel for the purposes of dispersed camping within the 300-foot corridor as an allowed exemption to the 2005 Travel Rule that restricts all motorized travel to designated routes. Motorized travel within this 300-foot corridor along each designated road would be solely for the purposes of dispersed camping (36 CFR 212.51). The Forest Service would actively work to educate and inform the public of the need to utilize existing camp sites, minimize vegetative damage, restrict off-road travel within the 300-foot corridor, and discourage new dispersed camping sites if other existing sites are available.

Under this alternative, the Forest Service would eliminate the 300-foot corridor exemption for dispersed camping access along the 12 corridors listed below. Along these corridors, motorized travel for dispersed camping would only be allowed on designated routes (spurs). As with the BLM restrictions, motor vehicle parking would be allowed within 30 feet of the edge of the designated route (FSM 7716.1). Because the Forest Service has not completed the necessary inventories, mapping, and suitability evaluations (field assessments) of the dispersed camping access spurs along these corridors, the 300-foot exemption would remain in place until those field assessments are completed. Once the field assessments are completed and the access routes for dispersed camping can be designated, the 300-foot exemption would no longer apply on the 12 corridors listed below. The MVUM maps will reflect policy changes on dispersed camping in these areas.

List of Restricted Dispersed Camping Access Corridors

Gothic Corridor- Forest Service Road #317 (from the forest boundary past the Gothic town site to Schofield Pass)

Washington Gulch– Forest Service Road # 811 (from the forest boundary to Elkton)

Slate River Corridor- County Road 734 (from the forest boundary to private land at Pittsburg)

Kebler Pass Corridor- Country Road 12 (from the forest boundary to above Irwin Campground ending at private lands, to the top of Ohio Pass and Kebler Pass, and up the Splains Gulch road)

Cement Creek Corridor- Forest Service road #740 and #740.2C, D, E (from the forest boundary to Deadman trailhead)

Spring Creek Corridor – Forest Service road #744 (from the forest boundary to ¼ mile beyond junction of Forest Service roads #744 and #880)

Taylor Canyon – Forest Service road #742 (camping only in developed campgrounds from Almont to Rivers End campground).

Taylor River Corridor -From the junction with Cottonwood Pass road (Forest Service road #3209) to Dorchester campground

Quartz Creek Corridor- Forest Service road #765 (from the forest boundary past Pitkin to Hall Gulch road junction)

Middle Quartz Creek- Forest Service road #767 (from the junction with Forest Service road #765 to Middle Quartz Creek campground)

Long Branch- Forest Service road #780 (from the forest boundary to Baldy Lake and Long Branch trailheads)

Needle Creek Reservoir Corridor- Forest Service road #781 (from the forest boundary to the upper end of Needle Creek Reservoir)

A detailed criterion used for the inventory and suitability evaluations to designate dispersed camping access routes along these corridors is contained in Chapter 3, Recreation Opportunity.

ALTERNATIVES CONSIDERED BUT ELIMINATED FROM DETAILED STUDY

Federal agencies are required under NEPA to rigorously explore and objectively evaluate all reasonable alternatives and to briefly discuss the reasons for eliminating any alternatives that were not developed in detail (40 CFR 1502.14). Public comments received in response to the Proposed Action provided suggestions for potential alternatives that would achieve the purpose and need as well as possible alternatives identified by the agency ID teams. They are:

Maintenance Funding–based Alternative

In several scoping comments, the public requested the BLM and Forest Service to consider an alternative where the miles of routes designated open to motorized uses would be based on the agencies' ability to fund the target maintenance levels for those routes. Full maintenance means that target maintenance levels would be achieved annually or on a prescribed cycle for all road and trail miles. Maintenance levels vary by route and maintenance schedules follow either annual or multi-year cycles. Well-traveled routes usually receive maintenance on a regular basis; other routes receive maintenance as needed to address unsafe conditions, resource damage, or damaged route surfaces. Some routes receive minimal mechanical or physical maintenance due to lack of use, location, and physical conditions unless there is severe resource or route damage.

The Forest Service and BLM road and trail maintenance budget is, on average, about $300,000 per year. Based on previous year expenditures, the average cost to maintain (no reconstruction or replacement construction) a mile of unpaved road is about $700/mile. Based on past funding levels, the agencies would be able to maintain about 425 to 475 miles of road annually. Approximately 1,680 miles of roads will continue to be maintained by local, county and state governments.

Assuming maintenance to be at or near current levels, this alternative would maintain and keep open to public travel about 2,100 to 2,150 miles of road in total, about half of the open road miles under all of the action alternatives evaluated. Very basic access to public lands within the Gunnison Basin travel analysis area would be provided under an alternative such as this. The miles of secondary and high-clearance roads now open to the public or that would be proposed to be open under the other alternatives would be reduced by 50 to 60 percent. Many of these existing roads also provide access to private residences surrounded by public lands and access to recreation facilities and commercial or business endeavors on the federal lands. Closure of almost half the roads on federal lands due to lack of maintenance funding would necessitate substantially more administrative roads and maintenance agreements with private property and commercial users in order for the BLM or Forest Service to provide those users needed access.

The public's maintenance expectations vary; however, the majority of users do not expect frequent or regular maintenance activities on the majority of high-clearance roads. During scoping, some users expressed a desire for less maintenance and rougher roads to enhance the recreation experience and discourage other users. Others expected well-traveled, unpaved roads to be maintained on a regular basis to alleviate the "washboard" effect and accommodate frequent use, passenger cars, and higher travel speeds.

This alternative was not considered for further analysis due to the unreasonable nature of maintaining the entire road system that is lightly used (e.g. vehicle trips per day) located in remote rural areas every year. The public's expectations for access and travel on federal lands, the impracticality of closing as many as 3,300 miles of road to public use (about 60 percent of existing roads), and the unrealistic nature of such a substantially reduced transportation system on federal lands further makes this an unreasonable or unrealistic alternative. The up-front decommissioning costs associated with such an alternative, although not a reason to dismiss this alternative, could easily range from about $5.5 million to as much as $9.35 million depending upon the level of closure or restoration effort. Because of societal expectations and the extensive recreation desires for motorized travel on federal lands, this alternative does not address the purpose and need for a functional transportation system that is balanced with public recreation and access needs.

Specific Options or Variations to the Proposed Action

Several variations or concepts were discussed and include the following:

- Open cross-country travel for mountain bikes similar to the provisions for hiking and horseback riding on public lands;
- Designation of "play areas" (i.e., designated areas) for unrestricted ATV, motorcycle, or mountain bike use;
- Open limited cross-country travel by motorized vehicles off of designated routes for the purposes big game retrieval; and
- Require all dispersed camping access to be on designated routes, with no 300-foot exemption throughout the analysis area.

Few public comments expressed a desire for travel management to address these types of variations. In general, these variations are inconsistent with Forest Plan or BLM Resource Management Plan direction and did not address the purpose and need for the action. Eliminating the existing 300-foot exemption for dispersed camping to travel off of designated routes for dispersed camping was considered, but due to a lack of inventory and evaluation requirements, this variation to travel management is not feasible at this time. The Preferred Alternative does propose to limit dispersed camping access to designated routes on 12 corridors in the future as the necessary evaluations and inventories of suitable dispersed camping sites are completed.

Any option that would open areas to cross-country or off-route travel would have serious implications related to endangered species protection. Cross-country travel generally leads to the establishment of new unplanned and un-needed routes. Forest Service experience with a trial exemption for big game retrieval on the Grand Mesa National Forest of the GMUG proved to be problematic. The Colorado Division of Wildlife does not favor such travel exemptions for game retrieval for the Gunnison Basin travel analysis area.

Based on the environmental and endangered species concerns, the lack of public desire, and the unsubstantiated need to implement such variations to travel management, these options were not evaluated further in this travel management planning process. Consequently, they are not included in the DEIS Proposed Action, Preferred Alternative, or other action alternatives. Such variations could

be addressed in the future and potentially be incorporated into travel management for the analysis area, but that would be a separate planning effort and require additional public involvement, environmental analysis, and decision making.

Comparison of Alternatives

This section provides a summary of the effects of each alternative. The table identifies resources and activities where different levels of effects or outputs can be distinguished quantitatively or qualitatively among alternatives.

Table 2-7. Summarized Comparison of Consequences by Alternative

Resource/Activity	No Action Alternative 1	DEIS Proposed Action Alternative 2	Alternative 3	Alternative 4	Preferred Alternative Alternative 5
TRAVEL OPPORTUNITIES (Open to the Public)					
Public roads on federal lands (miles)	5,411	4,072	3,664	4,079	4,014
Routes within the scope of analysis[7] managed by the Forest Service and BLM (miles)	3,731	2,392	1,984	2,399	2,334
OHV > 50” trail (miles)	0	49	37	64	59
ATV/OHV 50” trail (miles)	212	174	100	260	149
Motorcycle trail (miles)	396	318	232	390	351
Non-motorized trails (miles)	439	440	496	490	409
SOILS					
Erosion hazard (high to very high) (miles)	277	185	158	205	183
Alpine areas (miles)	104	81	59	90	84
Land area (acres)	16,261	11,276	9,816	11,300	11,077
WATER RESOURCES					
Average road density (miles/square mile)	1.13	23% reduction	32% reduction	18% reduction	24% reduction
Average road density within WIZ (miles/square mile)	2.41	1.93 20% reduction	1.71 29% reduction	2.01 16.5% reduction	1.88 22% reduction
Motorized routes crossing streams (crossings/mile of stream)	0.80	0.61 24% reduction	0.56 30% reduction	0.65 19% reduction	0.61 24% reduction
WETLANDS, RIPARIAN, T & E PLANTS, and NOXIOUS WEEDS					

[7] *Roads on federal lands managed and maintained by the Forest Service and BLM, does not include approximately 1,680 miles of road maintained by other governmental entities. The 1,680 miles are outside the scope of travel management analysis.*

Resource/Activity	No Action Alternative 1	DEIS Proposed Action Alternative 2	Alternative 3	Alternative 4	Preferred Alternative Alternative 5
Motorized routes in wetland soils (miles)	293	222 24% reduction	191 34% reduction	235 20% reduction	230 21% reduction
T & E plant determinations	None made	No direct effects	No direct effects	No direct effects	No direct effects
Impacts on noxious weeds (ranking, high =1, low=4)	1	2	5	3	4
AQUATIC SPECIES					
MIS – Motorized routes crossing streams (crossings/mile of stream)	0.80	0.61 24% reduction	0.56 30% reduction	0.65 19% reduction	0.61 24% reduction
MIS – Average road density within WIZ (miles/square mile)	2.41	1.93 20% reduction	1.71 29% reduction	2.01 17% reduction	1.88 22% reduction
Motorized routes crossing streams containing Colorado cutthroat trout (8 – 6th HUCs) (crossings/mile of stream)	0.48	0.39 19% reduction	0.34 29% reduction	0.42 13% reduction	0.39 19% reduction
Motorized routes density within WIZ in watersheds with Colorado cutthroat trout (miles/square mile of WIZ)	3.592	2.69 25% reduction	2.30 36% reduction	3.06 15% reduction	2.63 28% reduction
Motorized routes crossing streams containing greenback cutthroat trout (9 – 6th HUCs) (crossings/mile of stream)	0.48	0.42 13% reduction	0.31 35% reduction	0.48 0% reduction	0.41 15% reduction
Motorized route density within WIZ in watersheds with greenback cutthroat trout (9 – 6th HUCs)(miles/square mile of WIZ)	2.34	1.88 19% reduction	1.69 27% reduction	1.93 16% reduction	1.85 20% reduction
Motorized routes crossing streams containing bluehead suckers (5 – 5th HUCs) (crossings/mile of stream)	0.83	0.63 24% reduction	0.54 35% reduction	0.69 17% reduction	0.63 24% reduction
Motorized route density Within WIZ in watersheds With bluehead sucker (5 – 5th HUCs) (miles/square mile of WIZ)	2.02	1.62 20% reduction	1.49 26% reduction	1.51 25% reduction	1.60 21% reduction
Motorized routes within 1 mile of occupied habitat (6 – 6th HUCs) (miles)	4.13	3.64 11% reduction	2.56 38% reduction	3.58 13% reduction	2.96 28% reduction
TERRESTRIAL WILDLIFE SPECIES					

Resource/Activity	No Action Alternative 1	DEIS Proposed Action Alternative 2	Alternative 3	Alternative 4	Preferred Alternative Alternative 5
Adjusted road density (miles/square mile)	0.81	0.65 16% reduction	0.57 24% reduction	0.66 15% reduction	0.67 14% reduction
Habitat effectiveness rating for elk (average)	0.69	0.71 2% improvement	0.74 5% improvement	0.72 3% improvement	0.70 1 % improvement
Roads 0.6 miles from Gunnison sage-grouse leks (miles)	370	251 32% reduction	224 39% reduction	272 26% reduction	222 40% reduction
Roads 4.0 miles from Gunnison sage-grouse leks (miles)	1,274	777 39 % reduction	631 50% reduction	876 31% reduction	719 44% reduction
RECREATION OPPORTUNITY					
Hunting/Fishing	Existing opportunities	32% reduction in motorized access	46% reduction in motorized access	28% reduction in motorized access	33% reduction in motorized access
Motorized trail riding (miles)	608	541	369	714	559
Non-motorized trails (miles)	439	440	496	490	409
Trails with mountain bike restrictions (hiker/horse only) (miles)	none	252	312	173	124
Dispersed camping	300 ft from existing route	300 ft from designated route on existing routes to existing sites only			300 ft from designated roads with 12 corridors where dispersed camping access would only be on designated spurs
Speed, noise, and dust	Existing conditions	41% reduction of unpaved roads	53% reduction of unpaved roads	40% reduction of unpaved roads	43% reduction of unpaved roads
LOCAL ECONOMICS					
Dispersed camping	Existing conditions	Minor effects	Some effects	Minor effects	More regulated w/ minor effects

Resource/Activity	No Action Alternative 1	DEIS Proposed Action Alternative 2	Alternative 3	Alternative 4	Preferred Alternative Alternative 5
Hunting	Existing conditions	32% reduction in motorized access	46% reduction in motorized access	28% reduction in motorized access	33% reduction in motorized access
	Existing conditions	Improved habitat security			
OHV riding (miles)	608	541 11% reduction	369 29% reduction	714 17% gain	552 9% reduction
Mountain bike riding (miles)	430[8]	179	178	308	279
CULTURAL RESOURCES					
Known sites potentially impacted	191	147	135	157	147
TRAVEL SYSTEM					
All roads (includes roads on federal lands, administrative roads, roads managed by other agencies, and roads on private lands) (miles)	6,991	5,744	5,395	5,725	5,388
Administrative roads – Closed to the public (miles)	240	332	391	306	343
New routes planned	None	60	36	90 to 100	40
Full maintenance costs – roads (annual)	$2.6 M	$1.67 M	$1.4 M	$1.68 M	$1.63 M
Full maintenance costs – trails (annual)	$144,700	$98,100	$86,500	$120,400	$96,100
Closure costs (total)	$526,300	$1.96 M	$2.48 M	$1.76 M	$2.04 M
Ten-year cost (total)	$28.5 M	$19.7M	$17.2 M	$19.8 M	$19.3 M
AIR QUALITY					
Vehicle miles traveled/day	86,780	58,660	47,060	62,260	57,720
NO_x (lbs/day)	287	194	155	206	191
Fugitive dust (tons PM_{25})	7.5	5.1	4.1	5.4	5.0

[8] *Mountain bikes are allowed on non-motorized trails unless specifically restricted. Under existing conditions, all non-motorized trails allow mountain bike use, but over one hundred miles of non-motorized trail are not suited for or traditionally used by mountain bike riders.*

CHAPTER 3. AFFECTED ENVIRONMENT AND ENVIRONMENTAL EFFECTS

INTRODUCTION

This chapter summarizes the physical, biological, social, and economic environments of the project area and the effects of each alternative on that environment. It also presents the scientific and analytical basis for the comparison of the alternatives.

An interdisciplinary (ID) team completed an analysis of the reasonably foreseeable natural and human-caused changes to the existing condition expected to occur should any of the alternatives be selected. The ID team of Forest Service and Bureau of Land Management (BLM) personnel (Chapter 4. List of Preparers) were involved based on their education, expertise, professional experience, and knowledge of the analysis area.

The following physical, biological, social, and economic topics were included in this environmental analysis based on public, and ID team issues and concerns and the likelihood that some aspects within these topics would be impacted by the implementation of the Proposed Action or the alternatives:

- Soils
- Water Resources and Water Quality
- Wetland, Riparian Vegetation, Threatened and Endangered Plants, and Noxious Weeds
- Aquatic Resources
- Wildlife
- Recreation Opportunity
- Cultural Resources
- Roadless Areas
- Societal Values (i.e., noise, dust, speed, and local economies)
- Air Quality and Vehicle Emissions
- Transportation System (i.e., roads, trails, maintenance, and safety)

There have been changes in numbers of miles of road and trail from the DEIS to this Final Environmental Impact Statement (FEIS) for all alternatives evaluated. Additional information and/or refinement of previously used information was incorporated into this final evaluation and often resulted in some changes to the assessment of numerically quantifiable impacts. These changes are minor and do not constitute a need for re-evaluation, because the consequences associated with the alternatives considered in the DEIS remain the same relative to No Action (existing conditions). It should be noted that all miles of road and trail are approximations. Those values were generated based on the best GIS data available. Miles calculated by GIS are planimetric distances and do not reflect on-the-ground travel distances. The process of revising and correcting GIS data and updating GIS data is on-going and has resulted in adjustments to road and trail miles for the FEIS. Public comments on the DEIS also resulted in revisions or corrections to the data base information used by the Forest Service and Bureau of Land Management relative to road and trail miles, resource information, and land status.

This list forms the basis for the organization of this chapter. Information for each of the topic areas listed above is presented in a common format. First, the analysis methodology or assumptions when applicable used to assess impacts is outlined. Next, the affected environment is described setting the context of the existing conditions that may or may not be impacted. The environmental consequences of the alternatives are presented drawing from the expertise and knowledge of the ID team using the best available information. Cumulative impacts are addressed specifically for a resource area or topic and broader cumulative impacts are discussed at the end of this chapter. Finally, if mitigation measures are available to lessen or eliminate potential impacts, then these measures are presented.

SOIL RESOURCES

Affected Environment

The analysis area is within the South Central and North Central Highlands Sections of the Southern Rocky Mountain Open Woodland-Coniferous Forest-Alpine Meadow Province as described in the 1994 USDA Forest Service Ecological Subregions of the United States. It consists of broad elevated areas dominated by granitic material and flanked by various types of sedimentary rocks ranging from sandstones, claystones, and siltstones. Geomorphic landforms range from rugged, high, glaciated mountain peaks, mountain slopes, hills, valleys, mesas, and open parks.

The granitic and glacial settings occur mostly in the central and eastern portions of the analysis area. For the most part, these landscapes exhibit a naturally low tendency to produce sediment. The northwestern part of the analysis area is underlain by sedimentary geologic materials (interbedded shales, siltstones, mudstones, and sandstones) and includes more unstable landforms such as earth flows, debris flows, and landslides. As a result, the watersheds in this portion of the analysis area have a higher rate of natural sediment production.

The Gunnison Basin travel analysis area includes more than 150 soil map units that vary widely in terms of their characteristic properties and environmental settings, which together combine to determine overall soil behavior. The individual soils are delineated and described in four separate soil survey reports that cover the analysis area. These reports and the information they contain were relied on to evaluate soil impacts by alternative: the analysis compares the miles of routes in the various erosion risk categories, the miles of routes in alpine ecosystems, and the total acres of surface disturbance.

The soils in this analysis area have been impacted by various travel ways over the years. Some routes have been designed, scraped, and bladed, or otherwise prepared to define a useable surface. These include BLM and Forest Service roads and trails as well as unplanned, user-created roads and trails.

Environmental Effects Common to All Alternatives

The direct effects of roads on soil resources have been well documented (Gucinski, Furniss, Ziemer, and Brookes 2001). They include the loss of protective vegetative cover, removal and displacement of topsoil, and the alteration of soil properties such as density, infiltration capacity, water-holding capacity, gas exchange rates, and micro climate. These impacts increase soil runoff and erosion rates while reducing growth potential and local site productivity. There are specific conditions or circumstances that are especially vulnerable to the impacts of roads and trails such as stream crossings, wetlands, areas that exhibit high erosion risk characteristics, and high elevation areas above timberline (i.e., alpine ecosystems). Illegal off-road use has the potential to damage surrounding vegetation and introduce noxious weeds.

Environmental Effects Attributed to the Alternatives

Erosion is a natural process influenced by the presence of roads and trails. Regardless of geology or soil type, compared to naturally permeable soil conditions that facilitate water infiltration, the compaction of soils beneath roads and trails result in accelerated runoff and erosion.

Erosion risk within the analysis area was evaluated based on criteria described in the Rocky Mountain Region Soils Group Interpretations Rating Guide, and the National Resource Conservation Service's (NRCS) National Forestry Manual. Surface soil horizon "k" factor and prevailing slope are the interpretive criterion used to rate erosion risk into four categories: slight, moderate, severe, and very severe. Erosion risk was estimated using currently available information on local soils and slope in conjunction with Arc-GIS processing.

Given constant soil, site conditions, and climatic factors, gradient or slope steepness is the primary variable that determines erosion risk. The change in relative erosion risk by slope class is assumed to be the same for roads and trails. Because trails are narrower features than roads, with less surface area exposed, they typically generate less absolute erosion per unit of length.

Roads and trails that remain open for travel under each alternative will continue to erode at accelerated rates above natural conditions. The miles of motorized routes remaining open in the four separate erosion risk classes by each alternative are summarized in Table 3-1.

Table 3-1. Miles of Motorized Routes by Erosion Risk Class.

Erosion Risk	No Action Alternative 1	DEIS Proposed Action Alternative 2	Alternative 3	Alternative 4	Preferred Alternative Alternative 5
Low	2,173	1,500	1,236	1,618	1,472
Moderate	1,926	1,291	1,054	1,432	1,275
Severe	218	141	118	158	142
Very Severe	59	44	40	47	41

The analysis results illustrate that the current condition (No Action), has the greatest total mileage in the severe and very severe erosion risk classes (277 miles), while all other alternatives have fewer miles in those highest two risk categories. On a percentage basis, Alternatives 2 through 5 reduce that mileage by 33 percent, 42 percent, 26 percent, and 34 percent, respectively.

High elevation alpine systems are especially sensitive to surface disturbance due to harsh climatic conditions, thin soils with limited fertility, high amounts of precipitation and runoff, long recovery rates, and susceptibility of alpine vegetation to damage. Table 3-2 presents the miles of motorized routes by alternative that would remain open in areas with alpine soils and conditions.

Table 3-2. Miles of Motorized Routes in Alpine Areas.

	No Action Alternative 1	DEIS Proposed Action Alternative 2	Alternative 3	Alternative 4	Preferred Alternative Alternative 5
Miles	104	81	59	90	84

Comparing the miles of routes in alpine ecosystems provides a basis for comparing alternatives and their potential for impacts to these fragile areas. The existing condition (No Action) has the highest number of miles (104) within alpine ecosystems. On a percentage basis, Alternatives 2 through 5 reduce the mileage within the alpine zone by 22 percent, 43 percent, 13 percent, and 19 percent, respectively.

The total surface area covered by each type of route (mode of travel) is another indicator for evaluating soil impacts by alternative. Land covered by roads and trails have lost topsoil, been compacted, and support minimal vegetation (Table 3-3). As a result, inherent productivity is lost or greatly diminished, and the routes become chronic sources of sediment. For this analysis, the following assumptions have been made regarding the average extent of surface disturbance caused by a particular type (mode) of route: all-terrain vehicle (ATV) and off-highway vehicle (OHV) routes=0.6 acres/mi.; single-track routes=0.3acres/mi.; Jeep trails=1 acre/mi.; and high clearance, surfaced, and passenger car roads=4 acres/mi.

Table 3-3. Land Area in Acres Directly Impacted by Travel Routes.

Route Type	No Action Alternative 1	DEIS Proposed Action Alternative 2	Alternative 3	Alternative 4	Preferred Alternative Alternative 5
Road[9]	15,884	10,896	9,500	10,820	10,708
Jeep Trail	0	49	37	60	59
OHV	127	104	60	156	89
Single-track*	250	227	218	264	228
Total Acres	16,261	11,276	9,815	11,300	11,084

**Single-track in this analysis includes motorcycle, mountain bike, hiker, and horse trails.*

The No Action Alternative, has the most acreage (16,261 acres) covered by travel routes and, therefore, the greatest reduction in soil productivity. All alternatives reduce the surface area dedicated to travel routes. Through route closure and decommissioning, vegetation will be re-established and soil erosion reduced; however, the return of inherent productivity will require a long period of time and in some cases could be costly.

WATER RESOURCES AND WATER QUALITY

Affected Environment

Motorized uses of roads and trails within the Gunnison Basin travel analysis area have been commonplace for the last 40 to 50 years. Primary access was developed in the valleys due to favorable grades, less side slope, and often less need for clearing large trees. Routes developed for resource extraction (i.e., mining and timber hauling routes) were primarily designed for travel across upland areas in order to reach the resource. Recreation routes, and particularly those that were originally created by OHVs, cover the spectrum of locations within watersheds. There are some watersheds where the absence of roads, such as designated Wilderness or other large tracts of un-roaded land (i.e., Roadless Areas) reflect more pristine or reference type conditions. Comparisons of watersheds with roads to those that are in roadless areas indicate the effects of roads on watershed conditions water quality and provide an understanding of the influence of roads on hydrologic function.

The 1983 Grand Mesa, Uncompahgre, and Gunnison National Forests (GMUG) Forest Plan, amended in 1991, provides guidance on the management of the transportation system, including guidance for road closures due to unacceptable damage to soil and water resources. The following statement in the 1991 plan amendment addresses travel management. “All existing roads not needed for multi-resource management will be obliterated at the earliest opportunity. Reduce existing open road

[9] *Includes miles of Administrative road.*

mileage in project areas whenever possible." The prescription for management of riparian areas includes direction for road closures as needed to protect riparian habitat and values.

The Forest has an annual program of work, which includes watershed restoration projects. Over the last decade, particular emphasis has been directed at the elimination and rehabilitation of unauthorized travel routes and restoring areas within riparian corridors impacted by dispersed recreation. In an effort to implement previous travel management decisions, many miles of road have been closed in order to restore hydrologic paths and reduce surface runoff. Additionally, fills associated with abandon crossings have been removed from the floodplain and stream crossings culverts have been replaced to eliminate aquatic species passage barriers. Many of these restoration methods have been completed in the Gunnison Basin and more are expected as future decisions are implemented.

Hydrologic Unit Code (HUC) is a nationally adopted hierarchy of watersheds, with the entire Colorado River being a 1st level HUC and the Gunnison Basin being a 3rd level HUC. Smaller subdivisions or tributaries within the larger Gunnison Basin are 5th and 6th level HUCs. The Gunnison Basin travel analysis area encompasses twenty-five 5th level HUC watersheds (Table 3-4). Several additional 5th level HUC watersheds had very minor acreage within the analysis area and were not included in the detailed analysis for watershed effects.

Table 3-4. Watersheds within the Gunnison Basin Travel Analysis Area.

5th Level HUC Watershed Name	Watershed Area (mi^2)	Motorized Travel Routes (mi)	Intermittent Stream (mi)	Perennial Stream (mi)
Taylor River	474.67	656.36	444	180
East River	240.20	401.33	367	69
Ohio Creek	107.01	98.54	230	34
Soap/Antelope Creek	201.94	251.21	300	80
Smith Fork/Crawford Res	66.61	30.45	96	19
Blue Mesa Reservoir/ Upper Gunnison River	1.25	168.58	114	22
Blue/Pine Creek	47.05	33.39	81	15
South Beaver Creek	26.46	59.84	56	2
Crystal/Curecanti Creek	104.71	147.53	66	46
Gunnison River	22.03	98.59	92	5
Willow Creek	73.69	94.59	36	4
Cimarron River	85.04	25.11	260	17
Lake Fork, Gunnison River	117.23	191.66	498	119
Cebolla Creek	163.18	329.99	482	68
Razor Creek	40.65	99.20	116	2
Cochetopa Creek	256.61	611.79	540	66
Lower Tomichi Creek	123.23	696.06	704	23
Upper Tomichi Creek	172.42	303.98	207	19
Quartz Creek	121.71	321.92	215	27
Anthracite Creek	226.02	110.15	346	55
East Muddy Creek	109.77	58.86	185	27

5th Level HUC Watershed Name	Watershed Area (mi^2)	Motorized Travel Routes (mi)	Intermittent Stream (mi)	Perennial Stream (mi)
North Fork, Gunnison River	106.09	179.38	162	14
West Muddy Creek	86.21	72.89	99	3
Hubbard Creek	42.60	51.27	39	1
Leroux/Cottonwood Creeks	15.16	17.92	30	0

As part of the Forest Plan revision, a forest-wide assessment was made to evaluate the relative condition and/or risk of impact to soil, water, and aquatic resources within watersheds across the GMUG National Forests. The assessment was based upon geo-climatic factors, large-scale disturbances, and management activities. For each 6th level HUC watershed, several variables were evaluated to determine both a sensitivity class and a management activities class of 1, 2, 3 or 4. The variables selected characterize physical sensitivity and are related to sediment and runoff generation and subsequent routing through the channel network. They reflect inherent physical factors (i.e., geologic parent materials, landforms, topography, and climate) that are likely to experience short-term change or modification.

Sensitivity Class 1 suggests low sensitivity and, therefore, more resistance to the influences of disturbance, while Sensitivity Class 4 suggests higher sensitivity and less resistance to disturbance. Sub-watersheds (6th level HUC) with high sensitivity ratings are inherently more susceptible to water resource impacts from human activity than those with lower sensitivity ratings (2005 Grand Mesa, Uncomphagre and Gunnison NF Watershed/Aquatics Comprehensive Evaluation Reports, unpublished).

Sub-watersheds with high activity ratings (Activity Class 1) indicate that management activities have either been minimal or recoveries from previous impacts have likely occurred. Activity Class 4 ratings indicate that lands have been intensively managed or significantly altered by human use.

Sensitivity Class and Activity Class were combined to create Integrity Class ratings of 1, 2, 3, or 4.

Integrity Class 1 - These sub-watersheds have the highest relative integrity and are functioning well within a range of natural variability with minimal human influences.

Integrity Class 2 - These sub-watersheds generally have moderate activity levels coupled with low to moderate physical sensitivity levels. Activities have altered natural conditions to some extent, but most likely, processes remain in the range of historic variability.

Integrity Class 3 - These sub-watersheds have moderate or higher activity levels coupled with moderate to high sensitivity. While these watersheds may have diminished levels of natural function, they are not impaired and beneficial uses are sustained.

Integrity Class 4 – These sub-watersheds have low integrity in that natural processes may no longer be functioning properly. They are likely to have specific degraded stream segments with some impairment of beneficial use or unstable conditions that are adversely affecting aquatic conditions.

These Integrity Class ratings are a strategic method allowing specialists to determine where travel routes may or may not be of a general concern and to focus on opportunities for improvement at a larger watershed or landscape level typical of travel planning. The higher the numerical value for the sensitivity and activity class, the greater the level of sensitivity or activity. For integrity ratings, the higher the numerical value, the lower the watershed integrity (i.e., less likely to be properly functioning). At this time, these ratings are a modeling exercise, which has not been thoroughly tested through an examination of field indicators. The ID team elected to conduct its analysis for travel management at a 5th level HUC watershed scale, in order to incorporate the findings from the GMUG Forest Plan Revision-Comprehensive Evaluation Report (CER). The CER data needed to be

aggregated from the 6th level HUC watershed scale to the 5th level HUC scale. This was accomplished by conducting a weighted-average analysis based upon acreage. The results are listed in Table 3-5 below:

Table 3-5. Watershed Integrity, Sensitivity, and Activity Ratings.

5th Level HUC Watershed Name	Integrity	Sensitivity	Activity
Taylor River	2.6	3.4	2.6
East River	3.1	3.8	3.3
Ohio Creek	1.3	2.6	1.6
Soap/Antelope Creek	1.3	3.6	1.5
Smith Fork/Crawford Reservoir	1.0	2.9	1.1
Blue Mesa Reservoir/Upper Gunnison River	1.0	3	1
Blue/Pine Creek	1.1	3.7	1.3
South Beaver Creek	1.0	1.0	1.0
Crystal/Curecanti Creek	1.4	2.4	2.2
Gunnison River	2.0	1.8	3.0
Willow Creek*			
Cimarron River	2.3	3.7	2.3
Lake Fork Gunnison River	1.2	3.5	1.3
Cebolla Creek	1.0	2.9	2.0
Razor Creek	2.0	2.8	2.2
Cochetopa Creek	2.1	2.6	2.3
Lower Tomichi Creek	2.1	2.5	3.1
Upper Tomichi Creek	2.9	3.5	2.9
Quartz Creek	3.8	3.9	3.8
Anthracite Creek	1.6	3.0	1.6
East Muddy Creek	1.1	2.9	1.3
N. Fork Gunnison River	1.8	2.8	2.0
West Muddy Creek	1.2	2.0	2.2
Hubbard Creek	1.7	2.8	2.0
Leroux/Cottonwood Creeks	2.1	2.7	2.8

Values are reflective of NFS lands only.
**Willow Creek is entirely under BLM jurisdiction; therefore, no integrity rating exists.*

A review of these findings (Table 3-6) suggests that Quartz Creek, East River, and Upper Tomichi Creek have been most affected by past actions. Additional disturbances in these landscapes have the potential to lead to more severe impacts. On further examination, Quartz Creek has the highest road densities within the analysis area. Along with steep terrain and highly erosive soil types, this is a particularly sensitive watershed with a low integrity rating, indicating an area of concern. To evaluate existing conditions, the road densities for watershed units (i.e., 5th level HUCs) were calculated. Table 3-6 displays road densities for the entire road network, both public and private, as well as road densities associated with Forest Service- and BLM-administered lands. A number of 5th level HUC watersheds contain very little or no BLM lands, and densities are listed as NA (“not applicable”).

Table 3-6. Total Road Density in 5th Level HUC Watersheds.

5th Level HUC Watershed Name	Total Road Density (mi/ mi^2)	BLM Road Density (mi/ mi^2)	FS Road Density (mi/ mi^2)
Taylor River	1.63	NA	1.38
East River	1.62	NA	1.67
Ohio Creek	0.92	0.39	0.73
Soap/Antelope Creek	1.12	1.23	0.79
Smith Fork/Crawford Reservoir	0.77	NA	0.46
Blue Mesa Reservoir/ Upper Gunnison River	1.11	1.25	1.15
Blue/Pine Creek	0.39	0.43	0.00
South Beaver Creek	1.03	1.26	0.30
Crystal/Curecanti Creek	1.27	0.51	1.31
Gunnison River	2.47	1.77	2.37
Willow Creek	1.38	1.28	0.00
Cimarron River	0.15	0.34	0.00
Lake Fork Gunnison River	0.5	0.55	0.16
Cebolla Creek	1.09	1.10	0.48
Razor Creek	1.93	1.55	1.43
Cochetopa Creek	1.75	1.62	1.53
Lower Tomichi Creek	2.41	2.07	2.17
Upper Tomichi Creek	2.20	NA	1.76
Quartz Creek	2.74	2.04	2.34
Anthracite Creek	0.43	0.66	0.49
East Muddy Creek	0.5	NA	0.54
North Fork Gunnison River	1.21	NA	1.69
West Muddy Creek	0.83	NA	0.85
Hubbard Creek	0.94	NA	1.20
Leroux/Cottonwood Creeks	0.09	NA	1.18
Average	1.22	0.72	1.04

In areas where travel routes were linked to watershed concerns, road densities were calculated at the 6th level HUC, a smaller subwatershed area, to provide more detailed evaluation. Sub-watersheds (6th level HUC) with high sensitivity ratings are inherently more susceptible to water resource impacts from human activity than those with lower sensitivity ratings. An evaluation of road densities, a measure of human activity that can impact water resources, in combination with watershed sensitivity, resulted in the identification of six sub-watersheds with high road densities (greater than 1.9 mile/square mile) within a Sensitivity Class 4 watershed (Table 3-7). These would be areas where the density of roads and trails could have a great influence on watershed function and could be a contributing factor to adverse water resource impacts (Figure 3-1). Therefore, when addressing the environmental effects of the Proposed Action and alternatives, these six 6th level HUCs are areas

where differences can be evaluated and should be considered when making travel decisions. There are other sensitive watersheds within the travel analysis area, but they do not have these higher road densities and are typically predominated by Wilderness.

Table 3-7. Forest Service Watersheds with Road Related Concerns.

6th Level HUC Watersheds	Square Miles	Existing FS Road Mileage	FS Road Density
Willow Creek	63.47	131.56	2.073
Cement Creek	35.23	69.12	1.962
Upper Tomichi Creek	90.98	144.08	1.584
Lower Quartz Creek	48.35	120.83	2.499
Gold Creek	30.40	48.81	1.605
Upper Quartz Creek	40.50	99.49	2.457

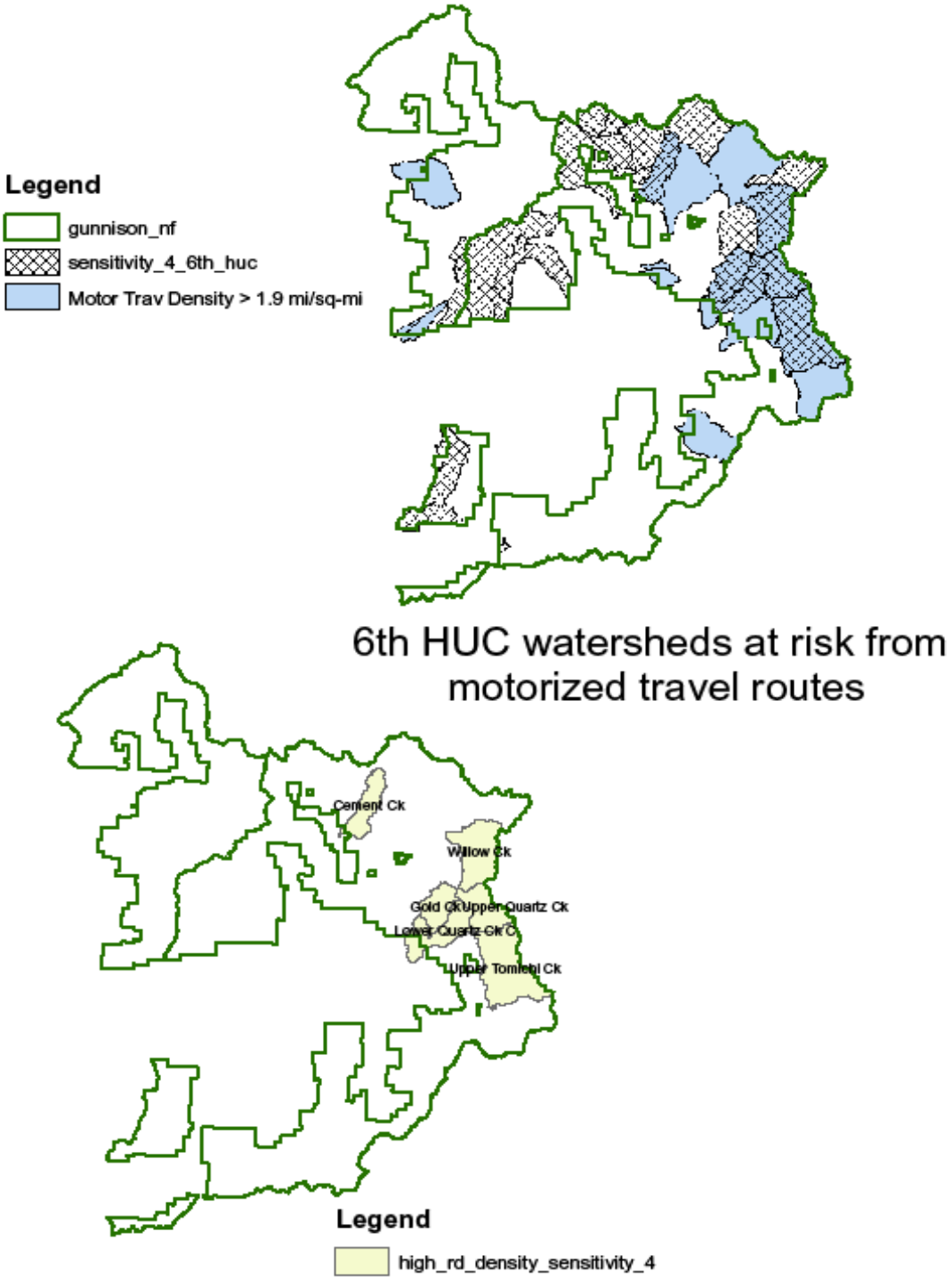

Figure 3-1. Watersheds at Risk from Impacts of Motorized Travel Routes.

The Upper and Lower Quartz Creek watersheds and Gold Creek, a tributary of Quartz Creek, are areas where travel routes and erosive soils have caused excessive sediment deposition in the stream channels. A report prepared in March 2000 concluded that increased off-route use is visible in many areas. The effects are usually visible as erosion from increased bare soil and vehicle ruts, damaged vegetation near newly created trails, and damaged riparian areas at stream crossings. Several recommendations were made that address travel management needs: specifically, a need for increased maintenance and route closures in riparian and alpine areas (Johnston 2000).

Currently, about 50 percent of the total road miles on federal lands within the travel analysis area are well-established travel routes that comprise state, county, and public land transportation systems linking population centers or local attractions. Often, these more developed roads are better engineered, hard surfaced, and/or have stabilized because of age or better cross drainage systems. Because they receive more traffic, they are more frequently maintained, which keeps road drainage functioning as designed. These types of roads extend over 2,250 miles in the Gunnison Basin travel analysis area and are less likely to contribute significant amounts of sediment to area streams.

Water quality in the Upper Gunnison Basin and North Fork Valley is generally very good and, with a few exceptions, is fully capable of supporting beneficial uses. This is particularly true in headwater areas. The Colorado Water Quality Control Act gives authority to the Colorado Water Quality Control Commission to classify and assign numeric standards to state waters. State waters are classified for the present beneficial uses of water or beneficial uses that may be reasonably expected in the future. The classifications for beneficial uses include: aquatic life, recreation, agriculture, and water supplies for various purposes. The numeric standards are assigned to define the allowable concentrations of various substances under the following categories: physical and biological, inorganic, and metals. The BLM has specific direction that agency projects shall meet or exceed water quality standards established by the State of Colorado for all water bodies located on or influenced by public lands.

The Colorado Water Quality Control Commission has included a narrative statement in the basic standards for all surface waters that states, in part: "All waters (except in wetlands and/or except where authorized by approved permits, certifications or plans of operation) shall be free from substances attributable to human caused point or non-point source discharges in amounts, concentrations or combinations that: 1) can settle to form bottom deposits detrimental to the beneficial uses, 2) are harmful to the beneficial uses or toxic to humans, animals, plants or aquatic life, or 3) produce a predominance of aquatic life (Colorado Department of Health and the Environment)." Both sediment and nutrient loading in surface waters could result in violations of the above standard.

Surface waters where the water quality standards are not being met are identified by the State of Colorado on its Clean Water Act section 303(d) List of Impaired Waters or the 303(d) Monitoring/Evaluation list. There are several streams on those lists within the Gunnison Basin travel analysis area.

Natural processes do produce sediment. In those watersheds where topography is gentle, good ground cover exists, soils are cohesive, and the underlying geology is not prone to movement, the sediment production is minimal. However, within the analysis area, these conditions do not exist, particularly in watersheds underlain by inter-bedded marine shale deposits which are prone to movement under the influence of moisture and gravity. Natural sediment production is quite high in the following watersheds: Soap/Antelope Creek, Smith Fork/Crawford Reservoir, East Muddy Creek, West Muddy Creek, and the North Fork of the Gunnison River. Most aquatic systems and the biota that occupy them are resilient and have adapted to withstand periodic impacts associated with natural disturbances (i.e., floods, droughts, landslides, fires, avalanches, insect mortality, etc.). There have been several specific routes on Forest Service lands where water related concerns have been expressed by either a

member of the interdisciplinary team or during public comment, including the Upper Soap Park Road (FS Rd 7721.3F), the Farris Creek Road (FS Rd 736), the Needle Creek Road (FS Rd 781), South Fork Quartz Creek Road (769.2C), the South Texas Creek Road (847.1A), and Dry Fork Minnesota Creek Rd (FS Rd 711). These concerns were based upon observations and qualitative assessments and not a definitive inventory protocol; therefore, it could be argued they are opinion and not science-based findings. In spite of the lack of scientific rigor behind the conclusions made, most observers would agree that these highlighted routes are having impacts to aquatic ecosystems.

Analysis Area 303(d) Listings

In the vicinity of the town of Crested Butte, Coal Creek and its tributary, Elk Creek, are 303(d)-listed for cadmium, lead, and zinc. A major source of contaminates to these stream segments is the Standard Mine, where ongoing cleanup efforts began in 2006. Oh-Be-Joyful Creek, located in the same general area, is listed for cadmium, lead, zinc, and copper. Both of these impaired segments are a high priority for assessments and strategies in achieving Total Maximum Daily Load (TMDL); however, those assessments have not yet been scheduled. Tributaries to the Gunnison River below Crystal Reservoir flow across Mancos shale and are on the 303(d) list for selenium. Selenium reduction in part can be linked to sediment reduction efforts. Development of a TMDL is also a high priority for this area and some initial efforts have been made; but as of July 2008, additional efforts are on hold (see information online at *http://www.cdphe.state.co.us/wq/Assessment/TMDL/gunnison.html*).

Palmetto Gulch, a tributary to Henson Creek and the Lake Fork of the Gunnison River, was listed as water quality impaired on Colorado's 303(d) List in 2002. Henson Creek, a tributary to the Lake Fork of the Gunnison River, was also listed for water quality impairment on Colorado's 303(d) List in 2008. The water quality impairments of both systems are due to the presence of dissolved metals cadmium and zinc. Current levels of these two metals do not meet the water quality standards adopted for Palmetto Gulch or for Henson Creek by the State of Colorado.

The Clean Water Act requires the adoption of TMDL's for water bodies that do not meet adopted water quality standards. TMDL Assessments identify sources of impairment to aquatic life such as contributions of dissolved metals from natural sources, draining adits, and waste rock from abandoned mines. In addition, TMDL Assessments identify reductions in concentrations of these metals from past and historic mining sources that need to be achieved to enable the segments to support aquatic life and to meet the adopted water quality standards. Current levels do not affect recreation or agriculture classifications. Because the causes of these listings are not due to effects from roads, they are not addressed further in this analysis.

Environmental Effects to Water Resources and Water Quality Common to All Alternatives

Watershed studies have demonstrated that roads can have a noticeable impact on both physical and biological aquatic resources. Mileage of roads on Forest Service lands doubled from 1940 to 1960 (160,000 miles) and by 1993 had increased to 350,000 miles (Copstead 1997). The watershed impacts associated with travel routes is well understood and documented as it has been the subject of research for decades. The hydrologic significance of roads is due to their potential to alter both the processes by which runoff is generated and the rate at which water is delivered to stream channels (MacDonald and Stednick 2003). A heavily used road may contribute up to 130 times the sediment of an abandon road (Reid and Dunne 1984). Sedimentation in streams can have adverse effects on aquatic life and alter water quality. The presence of a road system will often increase peak flows following small to moderate size storms (Bren and Leitch 1985). This is a result of reduced infiltration and increased runoff in addition to increased routing efficiency associated with channel network extension. A study in Oregon concluded that 57 percent of a road system was connected to the stream network, which

effectively increased the drainage density of the basin by 21 percent (Wemple et al. 1996). Studies have shown the sediment delivered to adjacent streams along roads is highest in the initial years after road construction or after resurfacing occurs (Megahan 1974).

Watershed function, the processes involving infiltration and runoff, is adversely affected by roads and trails. The level of adverse effect varies widely based on the cumulative extent of the road and trail network, design of the road or trail, soil types, slope, and precipitation amounts. The drainage network of a watershed influences the infiltration capacity of a watershed as well as the amount and timing of runoff. Watersheds with a high drainage network (greater ratio of miles of drainage channel to area of watershed) tend to experience less infiltration and more intensive runoff. Roads increase the drainage network of a watershed. As the road density within a watershed increases, there is effectively a corresponding increase in the drainage network.

Individual travel routes have varying degrees of risk to water resources and water dependent values based upon route design, maintenance levels, soil type, land cover, but most importantly, location within the landscape. Location of the road is often the most significant consideration in assessing potential effects. Route locations within the valley bottoms as opposed to routes in the uplands have a higher probability of adversely impacting water quality, channel morphology, and wetland ecosystems. Routes through and across valley bottoms provide for a direct drainage connection from disturbed areas in the uplands to the streams draining those upland areas. This more direct connection occurs where roads or trails cross the streams and where routes closely parallel drainages. More direct runoff from disturbed areas (resulting from mountain bikes, campsites, or off-road vehicles) to the river can result in an increased disturbance of the stream bed and the banks (Wohl 2005).

Water quality impacts are most often associated with the sediment moving off road surfaces, road cuts, and fill-slopes into the drainage network. The sediment can include both coarse and fine material, which affect channel substrates and turbidity. Impacts can also occur from the physical disturbance that occurs from wet crossings. Pollutants, such as oil and gas that accumulate on road surfaces, and chemicals used to reduce dust and bind the road surface can migrate to channels.

Those routes located in uplands tend to have less impact, although the potential for impacts does occur from routes that cross highly erosive soils; routes across steep side-hills; routes with steep grades; and the cumulative effects of high road densities. In recent years, with increased public use and increased capability and popularity of motorized equipment, the miles of user-created routes in the Gunnison Basin has expanded and the traffic on primitive roads has become more frequent. In addition, the location or design of many of the pre-2001 motorized trails did not consider protection of watershed resources. These factors contribute to the watershed impacts of our road and trail network.

The delivery of sediment to streams is further expedited when roads and trails cross streams or where insufficient buffer exist between cross-drainage outlets and the streams. The roadside ditches and running surface provide a direct conduit to the stream for the transport of sediment and other pollutants that may be attached to or washed from the road surface by runoff.

Non-motorized trails can and do have adverse impacts to water quality. There are specific examples in the Gunnison Basin where trails that are open to foot, horse and bike travel have captured and redirected water down the tread, causing erosion. Other impacts have occurred where such non-motorized trails traverse wet soils. However, in general, motorized travel has a greater potential for causing resource impacts due to heavier, faster, and more powerful motorized equipment, as compared to non-motorized modes of travel.

Environmental Effects by Alternatives

For the purpose of this analysis, only motorized roads and trails were summarized. The routes designated as motorized trails include single-track motorcycle trails; routes managed for ATV's less than 50 inches wide, and jeep roads. Those trails that are open to only foot, horse, and bike travel were not included in our tabular displays. To compare the potential effect of travel routes on streams by alternative relative to sedimentation and possible pollutant delivery, the number of times a motorized route crosses a stream was calculated. This analysis determined the number of crossings per mile of stream (Table 3-8). Many variations of displaying the travel routes by location and type and how they potentially interact with the environment were utilized. These tables were constructed from data contained within our geographic information spatial database. For simplicity, these data reports were combined and limited to the following tables. This analysis does not determine quantitative impact; it does provide a measure of potential impact to streams from motorized travel routes. The greater the ratio of stream crossings per mile of stream increased the potential for adverse impacts to water quality. In order to make a comparison between geographic areas that have significant size differences, the metric used to compare stream crossings was the density of crossings or the number of crossings/mile of stream. Table 3-8 compares the number of stream crossings per mile of stream (perennial and intermittent streams combined) for motorized roads and trails between the existing condition (No Action), the Draft Environmental Impact Statement (DEIS) Proposed Action (Alternative 2), Alternatives 3, 4, and Preferred Action (Alternative 5). The analysis combines calculations done for Forest Service lands and BLM lands to depict totals for the entire analysis area.

Table 3-8. Road and Trail Stream Crossings per Mile of Stream.

5th HUC Watershed	No Action Crossing Density	DEIS Proposed Action Alternative 2 Crossing Density	Alternative 3 Crossing Density	Alternative 4 Crossing Density	Preferred Alternative Alternative 5 Crossing Density
	(number of crossings/ mile of stream)				
Taylor River	0.80	0.70	0.62	0.72	0.67
East River	0.80	0.68	0.62	0.71	0.68
Ohio Creek	0.51	0.39	0.39	0.41	0.41
Soap/Antelope Creeks	0.53	0.36	0.36	0.42	0.36
Smith Fork Crawford Res.	0.34	0.33	0.29	0.33	0.30
Blue Mesa Reservoir/ Upper Gunnison	0.68	0.55	0.51	0.58	0.55
Blue/Pine Creeks	0.29	0.28	0.23	0.30	0.28
South Beaver Creek	0.67	0.55	0.41	0.63	0.51
Crystal/Curecanti Creeks	1.00	0.76	0.74	0.80	0.75
Gunnison River	0.89	0.64	0.61	0.65	0.64
Willow Creek	1.23	0.68	0.58	0.91	0.68
Cimarron River	0.07	0.07	0.06	0.07	0.07
Lake Fork Gunnison River	0.33	0.30	0.29	0.30	0.29
Cebolla Creek	0.72	0.54	0.45	0.57	0.53
Razor Creek	1.05	0.85	0.63	0.86	0.85

5th HUC Watershed	No Action Crossing Density	DEIS Proposed Action Alternative 2 Crossing Density	Alternative 3 Crossing Density	Alternative 4 Crossing Density	Preferred Alternative Alternative 5 Crossing Density
	(number of crossings/ mile of stream)				
Cochetopa Creek	1.11	0.78	0.72	0.85	0.78
Lower Tomichi Creek	1.21	0.81	0.73	0.87	0.81
Upper Tomichi Creek	1.31	1.03	0.92	1.10	1.09
Quartz Creek	1.65	1.33	1.28	1.34	1.32
Anthracite Creek	0.23	0.21	0.20	0.21	0.21
East Muddy Creek	0.42	0.40	0.36	0.48	0.40
North Fork Gunnison River	1.15	0.67	0.65	0.69	0.69
West Muddy Creek	0.83	0.80	0.72	0.82	0.79
Hubbard Creek	1.30	1.14	1.09	1.14	1.04
Leroux/Cottonwood	0.85	0.54	0.51	0.54	0.51
Average (% reduction)	0.80	0.61 (24%)	0.56 (30%)	0.65 (19%)	0.61 (24%)

Ecosystems have the ability to withstand some impacts associated with the travel network and may even have the ability to withstand sizeable periodic impacts so long as sufficient flows exist to move sediment and maintain fluvial processes.

The physical location of roads and trails on the landscape has a significant influence on whether those routes have an effect on streams, wetlands, and water resources. The consequence of crossing streams by travel routes is addressed above as one potential source of adverse effect. Additionally, the location of a road or trail adjacent to or within the riparian area of a stream or through a wetland area has an adverse effect on riparian and wetland functions. Compaction of soils in these water-dependent zones adversely impacts infiltration, damages riparian and wetland vegetation, and provides a direct pathway for sediment and vehicle produced pollutants to enter streams and other water-dependent environments. The Forest Service refers to the land next to water bodies as the water influence zone (WIZ). To evaluate the potential for roads and trails to impact riparian/wetland ecosystems and water quality, the density of motorized travel routes located within WIZ was calculated as miles of route per square mile of WIZ (Table 3-9). The watersheds (5th level HUCs) with a greater ratio of miles of motorized travel route per square mile of WIZ have a greater potential for adverse impacts on these vulnerable zones. Reduction of the overall road density by alternative is given in Table 3-10.

Table 3-9. Motorized Route Density per Square Mile of Water Influence Zone (WIZ).

5th Level HUC Watershed	No Action Alternative 1	DEIS Proposed Action Alternative 2	Alternative 3	Alternative 4	Preferred Alternative Alternative 5
Taylor River	2.685	2.212	2.028	2.352	2.224
East River	2.551	2.135	2.000	2.292	2.139
Ohio Creek	1.287	1.007	1.004	1.037	1.069
Soap/Antelope Creek	2.443	1.866	1.736	2.016	1.773
Smith Fork/Crawford Res	0.604	0.530	0.466	0.530	0.487
Blue Mesa Reservoir/ Upper Gunnison River	1.457	1.243	1.178	1.269	1.232
Blue/Pine Creek	0.907	0.866	0.765	0.876	0.842
South Beaver Creek	3.277	2.918	2.126	3.301	2.732
Crystal/Curecanti Creek	2.274	1.749	1.699	1.845	1.697
Gunnison River	4.395	3.500	3.404	3.492	3.479
Willow Creek	4.868	3.489	2.898	3.720	2.565
Cimarron River	0.231	0.202	0.187	0.207	0.192
Lake Fork Gunnison River	0.932	0.784	0.737	0.818	0.770
Cebolla Creek	1.961	1.478	1.201	1.544	1.441
Razor Creek	3.737	3.237	1.874	3.263	3.239
Cochetopa Creek	3.452	2.682	22.321	2.773	2.570
Lower Tomichi Creek	4.463	3.126	2.939	3.307	3.143
Upper Tomichi Creek	4.043	3.281	2.787	3.537	3.519
Quartz Creek	5.390	4.610	4.305	4.623	4.569
Anthracite Creek	0.575	0.520	0.514	0.520	0.520
East Muddy Creek	0.861	0.801	0.728	0.868	0.801
North Fork Gunnison River	2.510	1.870	1.835	1.898	1.903
West Muddy Creek	1.402	1.336	1.233	1.342	1.329
Hubbard Creek	1.853	1.461	1.362	1.461	1.390
Leroux/Cottonwood Creeks	1.990	1.343	1.291	1.343	1.320
Overall Average	2.406	1.930	1.705	2.009	1.8784
Reduction from Existing		19.8%	29.1%	16.5%	22.0%

Table 3-10. Comparison of the Alternatives Using Watershed Metrics.

	No Action Alternative 1		DEIS Proposed Action Alternative 2		Alternative 3		Alternative 4		Preferred Alternative Alternative 5
5th Level HUC Scale (Average For Federal Lands in Analysis Area)									
Reduction in Road Density		0%		22.7%		31.8%		18.3%	23.6%
Reduction in Stream Xing Density		0%		23.5%		30.1%		18.7%	24.1%
Reduction in Roaded WIZ		0%		19.8%		29.1%		16.5%	22.0%
6th Level HUC Scale (Average of Focus Watersheds)--Only Available for NFS lands									
Reduction in Road Density	0%		17.5%		24.7%		15.0%		14.7%
Reduction in Stream Crossing Density	0%		17.3%		23.0%		15.7%		15.9%
Reduction in Roaded WIZ	0%		14.4%		21.3%		12.3%		12.6%

Table 3-11. Comparison of Alternatives for Specific Routes of Concern.

Route	Miles	No Action	DEIS Proposed Action Alternative 2	Alternative 3	Alternative 4	Preferred Alternative Alternative 5
7736.0 Farris Creek Rd	2.53	High Clearance Motorized	High-Clearance Motorized	Non-Motorized Trail	High Clearance Motorized	High Clearance Motorized
711.0 Dry Fork Minnesota Rd	10.97	High Clearance Motorized	High-Clearance Motorized w/ seasonal use restrictions	Administrative Use Only	High Clearance Motorized	High Clearance Motorized/Jeep
7781.0 Needle Creek Rd (lower segment)	2.57	High Clearance Motorized	High-Clearance Motorized	Administrative Use Only	High Clearance Motorized	High Clearance Motorized
7781.0 Needle Creek Rd (middle segment)	.56	High Clearance Motorized	High-Clearance Motorized	Non-Motorized Trail	High Clearance Motorized	High Clearance Motorized
7781.0 Needle Creek Rd (upper) segment)	.98	High Clearance Motorized	ATV	Non-Motorized Trail	ATV	ATV
7721.3F Upper Soap Creek Rd (upper segment)	1.0	High Clearance Motorized	High-Clearance Motorized	Non-Motorized Trail	High Clearance Motorized	High Clearance Motorized
7847.1A South Texas Branch Rd	1.31	High Clearance Motorized	Decommission	Decommission	Decommission	Decommission
7769.2C South Quartz Creek Rd	2.61	High Clearance Motorized	ATV	Decommission	Motorcycle	ATV

Environmental Affects of No Action

The No Action Alternative would perpetuate the impacts to water quality and stream morphology where those impacts are already occurring. With the trend of increased use, those routes that are already suffering degradation are likely to get worse. There is a potential to mitigate or offset those effects by increasing the level of maintenance where resource impacts are known. However, with the limitations on maintenance budgets, this may not be realistic. Generally, these routes have significant impacts because they cross wetlands or are close to streams. Those impacts are costly to mitigate requiring drainage upgrades and surfacing of the road prism. It is also reasonable to assume that those 6th level HUCs where road densities are high and watershed characteristics rate them highly vulnerable to disturbance,would be disproportionately affected. When the cumulative effects of other human disturbance is added, these watersheds have the potential to degrade to a point where designated beneficial uses for domestic water supply and cold water aquatic life may be compromised.

Environmental Affects of the DEIS Proposed Action

The Proposed Action significantly reduces the open motorized road and trail density from what currently exists (22.7 percent across the entire analysis area). It converts many single-purpose use roads that may still be needed for management purposes to administrative roads and reduces overall road density by eliminating duplicate access and eliminating many routes with recognized resource impacts. The reduction in road density reduces stream crossings and miles of open road crossings through riparian areas and wetlands. Improvements will occur only after roads are closed and/or use patterns are modified. To fully restore the natural surface and subsurface drainage patterns, reduce compaction, and re-establish natural functions, mechanical restoration efforts will be required in many cases in order to reconnected self-sustaining drainage paths and in some cases reshape slopes where cuts and fills now exist. This will take considerable capital expenditure and time. In some instances, passive restoration achieved by closing the route and relying on the effects of weather, gravity, and vegetation to erase the footprint over time will be sufficient to eliminate impacts. If not addressed, these routes (depending upon their location) will continue to be chronic sources of sediment. By reducing the road and trail network, the agencies would be able to increase the frequency of routine maintenance on those remaining routes in the transportation system that (along with maintaining public safety) is primarily intended to keep the road drainage system functioning as designed.

Environmental Affects of Alternative 3

This alternative expands the effort to reduce the resource impacts associated with travel—particularly motorized travel. This alternative best addresses concerns regarding improving water quality and protection of hydrologic functions. This alternative will not completely eliminate sediment impacts associated with travel routes, but it will significantly reduce impacts when compared to the No Action alternative and will further reduce the impacts beyond those expected in Alternatives 2, 4, or 5. It is apparent when reviewing the outcomes for watersheds of concern that the route-by-route construct of this alternative was very much driven by reducing to the extent possible impacts to water resources and aquatic ecosystems. This was achieved by aggressively closing routes that were not necessary for basic public and administrative access and, more specifically, made a concerted effort to eliminate stream crossing and roads located within the WIZ whenever possible. This alternative did not attempt to balance motorized recreation with resource protection, and as a result, motorized recreation and dispersed recreation opportunities would be reduced. Under this alternative, specific routes with water resource concerns are treated similarly as in the other action alternatives.

Environmental Affects of Alternative 4

The consequences of this action would be of similar magnitude as the Proposed Action. Alternative 4 would improve water resource conditions from the current situation (No Action). Under this alternative, locations for new proposed routes and routes that would remain open to motorized users are those associated with minimal water quality impacts or impacts that could be reduced through the use of best management practices. This alternative was developed to enhance both motorized and non-motorized recreation opportunities. However, at a simplistic level, it could be concluded that more roads often mean more risk to water resources; therefore, from a water resource standpoint, this alternative is actually less preferable than the DEIS Proposed Action or the Preferred Alternative (Alternative 5) and significantly less preferable than Alternative 3.

Environmental Affects of the Preferred Alternative (Alternative 5)

The effects od Alternative 5 will be similar to Alternatives 2 thru 4. It is assumed that the benefits to water and aquatic resources associated with reductions in motorized routes is proportionate to the numeric change of the evaluation metric. This alternative, when viewed in a cumulative manner across the entire landscape, will significantly reduce the total mileage of motorized routes and, therefore, should reduce the total impacts to water resources once actions authorized under this decision can be implemented. The total reduction in motorized route density will be 23.6 percent. At the 5th level HUC watershed scale, all the basins within the analysis area would have less than 1.9 miles of road per square mile of basin area. In comparison to other roaded mountainous landscapes, road densities of less than 1.9 mi/mi^2 are quite low. A more direct indicator of road impact is the density of stream crossings (25 percent); and routes that are located within the WIZ (22 percent). Under this alternative crossing density would be reduced by 24.1 percent and roads within WIZ would be reduced by 22 percent of the existing situation.

The more site-specific the analysis, the meaningful it becomes. Earlier in this section, six 6th level HUC watersheds were identified to have recognized road associated impacts. Those watersheds were highlighted due to high road densities within the watershed. Using the road density, stream crossings, and roaded WIZ metrics, four of the watersheds would see significant improvement (Table 3-12). Very minor reductions in the road density-associated metrics would occur in two of the watersheds, resulting in minimal improvements in water quality, wetlands, and aquatic habitat conditions.

Table 3-12. Preferred Alternative (5) Percentage Changes from Existing Conditions of 6th Level HUC Watersheds of Concern

6th Level HUC Watersheds	Road Density	Stream Crossing Density	Density of WIZ Roads
Willow Cr	14.6%	13.2%	19.0%
Cement Cr	21.0%	21.7%	12.5%
Upper Tomichi Cr	10.5%	9.4%	6.3%
Lower Quartz Cr	12.3%	23.7%	18.1%
Gold Cr	3.6%	10.1%	3.5%
Upper Quartz Cr	26.2%	17.2%	16.6%
Ave for Gunnison Basin	14.7%	15.9%	12.6%

Watershed impact indicators (displayed as percentages) were not significantly reduced in some of the focus watersheds when compared to the average change of stream crossing density and road density in WIZ for the Gunnison Basin travel analysis area. However, the focus watersheds have a much lower stream crossing density compared to the current situation for all the watersheds on the GMUG

National Forests (Figure 3-2). When compared to the trend for road densities within the WIZ, the focus watersheds are above average even after implementation of Alternative 5 (Figure 3-3).

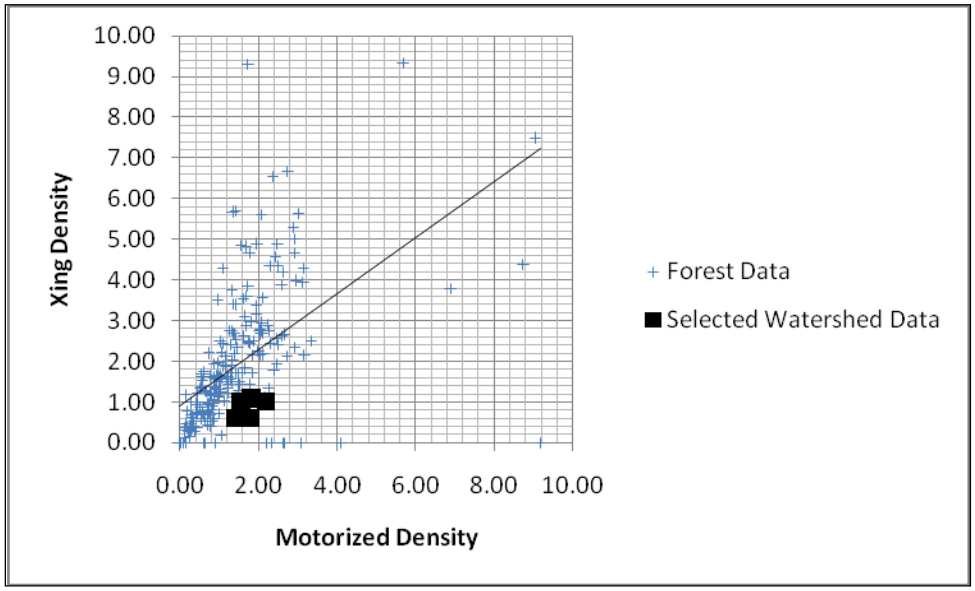

Figure 3-2. Comparing Road Density and Stream Crossing Relationship Data for the Entire Forest vs the Six Watersheds of Concern.

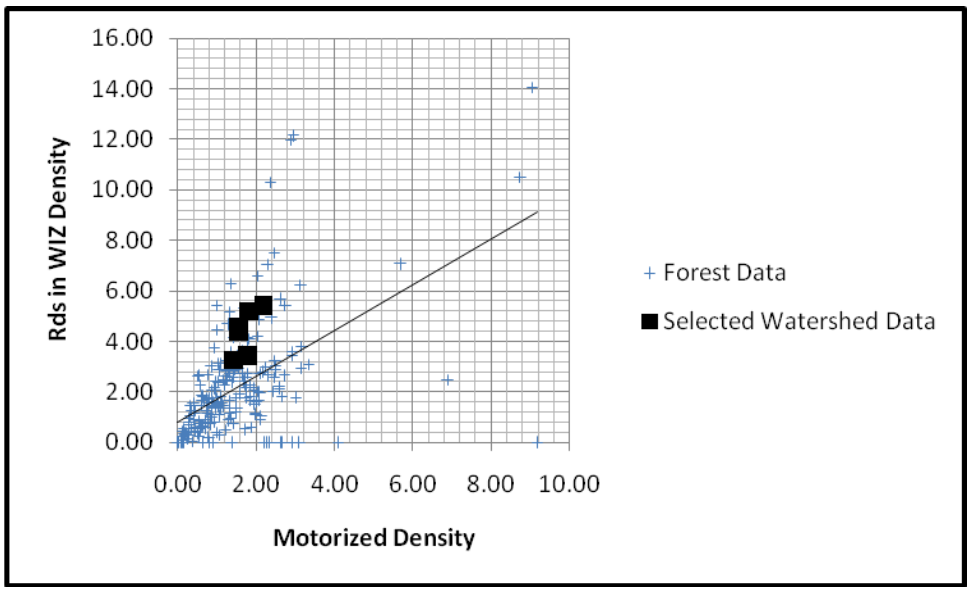

Figure 3-3. Comparing Road Density and Road Densities within WIZ for the Entire Forest vs the Six Watersheds of Concern.

At an even more site-specific scale, eight routes where significant use occurs were singled out as having particular concerns with regard to watershed and aquatic impacts (Table 3-13). These concerns were based upon either the location of the road within wetland ecosystems, their proximity to stream courses, or the erosive nature of the road materials. Some of these routes exhibit multiple issues. Only one of the identified routes is proposed for decommissioning under Alternative 5; two of the routes would no longer be available to full size vehicles, and for the remaining five routes, there is no change proposed over the existing situation.

Table 3-13. Comparison of Alternatives for Specific Routes of Concern.

Route	Miles	No Action Alternative 1	DEIS Proposed Action Alternative 2	Alternative 3	Alternative 4	Preferred Alternative Alternative 5
7736.0 Farris Creek Rd	2.53	High Clearance Motorized	High-Clearance Motorized	Non-Motorized Trail	High Clearance Motorized	High Clearance Motorized
711.0 Dry Fork Minnesota Rd	10.97	High Clearance Motorized	High-Clearance Motorized w/ seasonal use restrictions	Administrative Use Only	High Clearance Motorized	High Clearance Motorized
7781.0 Needle Creek Rd (lower segment)	2.57	High Clearance Motorized	High-Clearance Motorized	Administrative Use Only	High Clearance Motorized	High Clearance Motorized
7781.0 Needle Creek Rd (middle segment)	.56	High Clearance Motorized	High-Clearance Motorized	Non-Motorized Trail	High Clearance Motorized	High Clearance Motorized
7781.0 Needle Creek Rd (upper) segment)	.98	High Clearance Motorized	ATV	Non-Motorized Trail	ATV	ATV
7721.3F Upper Soap Creek Rd (upper segment)	1.0	High Clearance Motorized	High-Clearance Motorized	Non-Motorized Trail	High Clearance Motorized	High Clearance Motorized
7847.1A South Texas Branch Rd	1.31	High Clearance Motorized	Decommission	Decommission	Decommissio n	Decommission
7769.2C South Quartz Creek Rd	2.61	High Clearance Motorized	ATV	Decommission	Motorcycle	ATV

In conclusion, there will be tangible benefits across the analysis area associated with implementing Alternative 5 by reducing the transportation network and, in particular, the number of locations where that network intersects streams, wetlands, and their associated WIZ. However, the evidence suggests that, for the six watersheds of concern, there will continue to be a relatively high percentage of roads located within the WIZ, which is likely to have some direct adverse effects to water quality and riparian health. In spite of this finding none of the streams associated with either areas or routes of concern is expected to suffer degradation to the extent that impairment, as defined in the Clean Water Act, would occur.

Mitigation Measures

The impacts associated with existing routes are best mitigated by maintenance activities and restrictions of use. Management of existing road networks has been the subject of many years of research and has led to adoption of current maintenance practices, development of specialized equipment, and modification of road prism design features. The Forest Service program of work, which sets standards for Forest Service operations, contractors, and county operations on Forest Service roads are based upon both the Water/Road Interaction Technology Series and the Region 2 Watershed Conservation Practices Handbook FSH 2509.25. This handbook contains proven watershed conservation practices to protect soil, aquatic, and riparian systems. If used properly, these

practices will meet applicable federal and state laws and regulations. Both of these foundational guidance documents emphasize:

Minimize road/trail construction and road density to reduce adverse impacts to watersheds;

Locate roads/trails away from streams and riparian areas as much as possible;

Locate roads/trails away from steep slopes or erosive soils;

Minimize road/trail stream crossings;

Stabilize cut and fill slopes; and

Provide adequate road/trail drainage and control surface erosion with adequate waterbars, crowns, rolling dips, and ditch relief culverts to promote drainage off roads or along roads and trails.

WETLAND AND RIPARIAN VEGETATION, THREATENED AND ENDANGERED PLANTS, AND NOXIOUS WEEDS

Affected Environment – Wetlands and Riparian Vegetation

There are approximately 25 different wetland and riparian ecological communities in the analysis area. Miles of road within identified and mapped wetland soil types is the indicator used to evaluate and measure the effects of travel on riparian, and wetland areas. These ecosystems provide habitat for a variety of plant and animal species that, in some cases, may be unique or sensitive.

Routes can affect wetlands directly by encroachment and indirectly by altering hydrologic surface and subsurface flow paths. Encroachment results in a loss of wetland area directly proportional to the area disturbed. Alteration of the hydrologic flow paths can affect wetland function with the effects extending beyond the area directly affected. Routes also result in direct disturbance, removal, or damage of protective vegetation associated with these ecosystems, which can result in sediment moving directly into drainage networks or wetlands.

Improperly prepared surfaces on routes through riparian and wetland areas result in rutting, displacement, and churning of soils. The result is surface compaction and loss of internal structure, which reduces permeability and prolongs periods of standing water. It can also reduce productivity and increase the potential for erosion and sedimentation.

Hinsdale County Road Impacts to Wetlands along Henson Creek

There are some impacts from the Henson Creek road that were identified in the Henson Creek Watershed Analysis (Reck, J. and Alexander, K. 2007 EPA Report: Henson Creek Watershed Analysis). Henson Creek Road is Hinsdale County Road 20 which is maintained and managed by the County for public travel. Much of the road is located on federal land managed by the BLM. As the responsible land management agency, the BLM has the responsibility of trying to achieve water quality standards and protect natural resources.

The riparian corridor along Henson Creek is considered by the Colorado Natural Heritage Program (CNHP) to be a Potential Conservation Area (PCA) because of its high biodiversity significance (B3 ranking). This riparian corridor is threatened by the Hinsdale Country road running alongside the creek and impacting the rare (i.e., significant) plant community.

The road and steep adjacent cliffs confine the riparian zone to a 2-3 meter corridor along the stream bank. The thinleaf alder (*Alnus incana*) and Drummond's willow (*Salix drummondiana*) co-dominate the shrub layer in this corridor and are ranked as vulnerable (G3/S3). In addition, the narrowleaf

cottonwood, blue spruce, and thinleaf alder woodlands adjacent to the narrow riparian corridor are also ranked as vulnerable (G3/S3).

The greatest threat to this vulnerable vegetative community along the river appears to be human activities associated with road use and physical damage and disturbance caused by road maintenance. Riparian vegetation is also damaged by winter snowplows piling unnatural amounts of snow on the plants or blading plants out of the ground in efforts to keep the running surface of the road clear.

As the Henson Creek road is under county jurisdiction, decisions regarding the use of this road are outside the scope of this travel management plan. Impacts associated with road use and maintenance will continue as an existing condition and will be common to all alternatives.

Environmental Effects Attributed to the Alternatives

The miles of motorized routes crossing soil map units that include wetland soils within that map unit is used as a metric to evaluate the impacts of all alternatives on wetland soils. The results of that analysis are presented in Table 3-14.

Table 3-14. Miles of Motorized Routes Identified in Wetland Soil Units

	No Action Alternative 1	DEIS Proposed Action Alternative 2	Alternative 3	Alternative 4	Preferred Alternative Alternative 5
Miles	293	222	191	235	230

The analysis indicates that, under current conditions (No Action), there are 293 miles of motorized routes in areas with potential wetlands and that, under all of the action alternatives, there is a reduction in that mileage. Reducing the amount or extent of vehicular travel through these sensitive sites is considered to be an environmental benefit. On a percentage basis, Alternatives 2 thru 5 provide for reductions of 24 percent, 34 percent, 20 percent, and 21 percent, respectively over the current conditions.

Affected Environment – Threatened, Endangered, and Sensitive Plant Species

The Gunnison Basin travel analysis area has upland, riparian, and wetland plant communities. Elevations range from approximately 6,000 to over 14,000 feet above sea level. Upland plant communities vary from low elevation pinyon-juniper and sagebrush communities to higher elevation aspen, Douglas-fir, lodgepole pine, spruce-fir, and alpine tundra.

Endangered and Threatened Plant Species

According to the CNHP (2008), the Colorado Rare Plant Field Guide (1997), and Dr. Barry Johnston, Forest Service Botanist, there have been no Threatened or Endangered (T&E) plants found on federal lands within the analysis area. Thus, no consultation with the U.S. Fish and Wildlife Service (USFWS) will occur, and there will be no foreseen effects of this project on any T&E plant species.

Sensitive Plant Species

According to geographic information system (GIS), information from the CNHP and the *Colorado Rare Plant Field Guide*, sensitive plant species exist in the Gunnison Basin travel analysis area. Table 3-15 lists sensitive plant species found within the analysis area.

Table 3-15. Sensitive Plant Species List

Scientific Name (Common Name)	Habitat	Known to be present?
Arabis crandallii (Crandall's rockcress)	Rocky hill slopes in sagebrush, serviceberry, and Douglas-fir communities, between 7,500'– 8,550' elevation	Yes
Astragulus microcymbus (skiff milkvetch)	Sagebrush around 7,800 elevation	Yes
Astragalus anisus (Gunnison milkvetch	Sagebrush 7,000 – 9,000 elevation	Yes
Botrychium "*furcatum*" (forkleaved moonwort)	Alpine or subalpine open rocky sites above 9,500 elevation	Yes
Botrychium paradoxum (peculiar moonwort)	Alpine or subalpine open rocky sites above 9,500" elevation.	Yes
Braya glabella (arctic braya)	Alpine tundra on calcareous gravelly soils, 12,000 – 13,000 elevation	Yes
Cirsium perplexans (Rocky Mountain thistle)	Dry clay/shale hillsides in mountain shrub or ponderosa pine below 8,500 elevation	Yes
Carex diandra (lesser panicled sedge)	Fens, wetlands, subalpine 9,000 – 10,500" elevation.	Yes
Drosera rotundifolia (round leaf sundew)	Fens, floating peat mats with Sphagnum moss, 9,100 – 10,500 elevation	Yes
Eriophorum altaicum var. *neogaeum* (Altai cottongrass)	Fens, wetlands, 9,500 – 14.000 elevation	Yes
Eriophorum chamissonis (Chamisso's cottongrass)	Fens, wetlands, 9,500 – 14.000 elevation	Yes
Eriophorum gracile (slender cotton grass)	Sedge meadows, floating peat mats, saturated soil to shallow water, 8,100 – 12,000 elevation	Yes
Gilia sedifolia (stonecrop gilia)	Alpine tundra, above 10,500 elevation.	Yes
Kobresia simpliciuscula (simple bog sedge)	Alpine tundra or subalpine, calcareous fens with hummocks, 9,500 10,000 elevation	Yes
Machaeranthera coloradoensis (Colorado tansy aster)	Gravelly places in mtn. parks, dry alpine tundra, or ponderosa pine on sandstone / limestone, 8,500 - 12,500 elevation	Yes
Ranunculus gelidus (*R. karelinii*) (ice cold buttercup, tundra buttercup)	Alpine ridge tops and peaks, in rocks and scree, with low-lying snow banks or in the rivulets below them, 11,000 –14,100 elevation	Yes
Rubus arcticus ssp. *Acaulis* (dwarf raspberry)	Subalpine fens, wetlands, or moist aspen stands, 9,500 – 10,000 elevation	Yes
Salix candida (hoary willow)	Fens, edges of streams, wetlands, 8,800 – 10,600 elevation	Yes
Salix myrtillifolia (blueberry willow)	Wetlands, stream banks, fens, 9,000 – 10,500 elevations.	Yes

Scientific Name (Common Name)	Habitat	Known to be present?
Sphagnum angustifolium (Sphagnum moss)	Iron fens or wetlands, in alpine or subalpine, 9,500 –10,500 elevation	Yes
Utricularia minor (lesser bladderpod)	Fens, wetlands, subalpine ponds, 8,600 – 10,500 elevation	Yes

Environmental Effects to Sensitive Plants Common to All Alternatives

Existing travel routes that would remain open to public travel are typically not locations where sensitive plants occur. Vehicle and non-motorized traffic on these routes has effectively denuded them of vegetation. Travel off of existing routes does have the potential to impact plant species. Trampling can kill the individual plant, but such random impacts would not necessary impact the long-term viability of the particular plant species. Motorized off-route travel has the greatest potential to crush or kill individual plants because of the larger footprint created by vehicle tires and the capability for greater frequency of travel. Unplanned and improperly located user-created routes have the greatest potential to harm sensitive plant species. Because no plant surveys have been conducted prior to development of the route, sensitive plants can be destroyed that would have otherwise been avoided with prior route planning.

New route construction also has the potential to destroy sensitive plants or their habitats because of grading and surfacing (i.e., construction). New road or trail construction on federal lands would require site-specific environmental evaluations prior to the authorization of new construction projects. The federal approval process can require project design and mitigation to avoid or lessen impacts to sensitive plants and their habitats and would be decided on a project-by-project basis. Closing routes to travel can have a positive effect on sensitive plants as these decommissioned travel routes may again support vegetation. Closing routes can also reduce the spread of noxious weeds, which can have adverse impacts on sensitive plants (see the following Noxious Weeds section).

Routes in alpine areas under all alternatives provide the public direct access to fragile alpine plant communities where some sensitive plant species occur. Many of the alpine species (such as pincushion or mat plants) have charismatic life forms and are actively sought by collectors. These collections are valued in the landscape business for rock gardens. As a result of providing access to alpine and subalpine areas, sensitive species found in these communities may become less common.

Environmental Effects of No Action

In the No Action alternative, those routes currently open for public travel would remain open as designated routes described in the 2005 Travel Rule. The No Action alternative does not plan for the development of new routes; consequently, there are no potential adverse impacts associated with new road or trail construction.

User-created routes may continue to develop as they have in the past, but both the Forest Service and BLM would continue to take steps to stop such proliferation of un-needed or undesirable routes through existing methods, including education, signage, barriers, and law enforcement.

Maintaining the 300-foot corridor open to dispersed camping and associated vehicle use does have the potential to result in damage to existing vegetation (including sensitive plants), cause soil disturbance, and create conditions conducive to weed invasion. All of these consequences are adverse to sensitive plants if the plants are present in new dispersed camping areas.

For the determination of adverse impacts to sensitive plants, those plants must occur in areas where new tracks are created by users to access dispersed camping sites. The locations of these unplanned activities are usually unknown; however, user-created access routes have the potential to occur. The Forest Service has assumed sensitive plant species *may be affected, but actions would not result in a loss of species viability within the analysis area or cause a trend toward federal listing or a loss of species viability range-wide* (USFS Plant Biological Evaluation, 2010) .

Environmental Effects of the DEIS Proposed Action

Under the DEIS Proposed Action, there would be fewer miles of roads and trails for public travel. It is expected that such reduction in total route miles would have a positive effect on sensitive plants and the DEIS Proposed Action would not have an adverse effect on these species.

Conditions similar to the No Action Alternative are expected to occur with respect to user-created routes and dispersed camping.

While the DEIS Proposed Action plans for the possible development of about 60 to 70 miles of new trails, this travel management decision does not authorize the construction of those new routes. Therefore potential adverse impacts to sensitive plants from new construction would not occur as a result of this planning decision. Project-specific environmental analysis of the proposed new route construction would occur, and if sensitive plants were expected to be impacted, the project decision maker can design the project to avoid those plants or provide for mitigation to minimize the potential impacts.

As there might be some sensitive plants impacted due to user-created routes and new travel to dispersed camping sites, it can be expected that the DEIS Proposed Action - *May affect, but would not result in a loss of species viability within the analysis area nor cause a trend toward federal listing or a loss of species viability range-wide* for sensitive plants. Future decisions on actual new route construction would require additional environmental impact analysis, site-specific to the action. Once there are more definitive and site-specific proposed actions for new route construction, the environmental consequences attributed to specific construction would be addressed in the project environmental impact analysis and documented for public review and comment. During that environmental analysis, sensitive plants would be further evaluated and possible impacts identified.

Environmental Effects of Alternative 3

The environmental consequences associated with sensitive plants under this alternative are similar to those identified for the DEIS Proposed Action. There will be fewer miles of road and trail open for public travel. There are fewer miles (14 to 24 mile reduction) of planned new trails under this alternative, but the conditions identified for the DEIS Proposed Action are the same under this alternative.

Environmental Effects of Alternative 4

In general, the environmental consequences associated with this alternative relative to sensitive plants are similar to those impacts identified for the Proposed Action. Under this alternative, more roads would be converted to motorized and mechanized trails than under the DEIS Proposed Action or the No Action Alternative. The total route miles open to public travel would be fewer than the No Action Alternative and are very similar to the DEIS Proposed Action.

This alternative does plan for about 90 to 110 miles of new trails to be developed in the future, but this travel management decision does not authorize the construction of those new routes. Therefore, potential adverse impacts to sensitive plants from new construction would not occur as a result of this planning. Project-specific environmental analysis of the proposed new route construction would

occur; and, if sensitive plants were expected to be impacted, the project decision maker can design the project to avoid those plants or provide mitigation to minimize the potential impacts.

Environmental Effects of the Preferred Alternative (Alternative 5)

In general, the environmental consequences associated with this alternative relative to sensitive plants are similar to those impacts identified for the DEIS Proposed Action. The total route miles open to public travel would be fewer than the No Action alternative and are very similar to the DEIS Proposed Action.

Like the DEIS Proposed Action, this alternative considers the possible development of about 60 to 70 miles of new trails. This travel management decision does not authorize the construction of those new routes. Therefore potential adverse impacts to sensitive plants from new construction would not occur as a result of this travel management decision. Project-specific environmental analysis of the proposed new route construction would occur and if sensitive plants were expected to be impacted, the project decision maker can design the project to avoid those plants or provide for mitigation to minimize the potential impacts.

As there might be some sensitive plants impacted due to the unauthorized creation of trails and even possibly roads by the public, it can be expected that implement of the Preferred Alternative “may affect, but would not result in a loss of species viability within the analysis area nor cause a trend toward federal listing or a loss of species viability range-wide” for sensitive plants. Both the Forest Service and BLM would continue to take steps to prevent the public from creating unauthorized new routes and close new user-created routes.

Cumulative Effects

Past and present management activities have caused changes in plant community structure and composition across federal lands. These federal management and land use activities have altered the present landscape to various degrees and have had direct, indirect, and possibly cumulative effects on sensitive plant species. These activities include: past and present grazing, timber harvest and thinning, fire suppression, prescribed fire, mining, motorized and non-motorized recreational use, road and trail construction, urban development (sub-dividing and development of private land), and noxious weed infestation. These activities are expected to continue. The travel management decisions covered by the Preferred Alternative and alternatives would have little impact on sensitive plants and would not result in the loss of species viability. The cumulative effects of these other on-going activities may have a greater impact on sensitive plants than the impacts of designating routes open for travel. This travel management planning would not cumulatively affect sensitive plants. There is a broad assessment of cumulative effects associated with timber harvesting, fuels treatment, grazing, private land development, mining, and energy development near the end of this chapter in the section (See The Evaluation of Cumulative Impacts at the Landscape Level).

Affected Environment – Noxious Weeds

Invasive plants that are undesirable or non-native and have low forage value for livestock or wildlife are generally classified as noxious weeds. Noxious weeds are considered one of the Forest Service Chief’s “Four Threats” to National Forests and Grasslands (USDA Forest Service 2005). Noxious weeds out-compete and displace native plant species and communities and may alter pollinator patterns (Lacey et al. 1989).

The Forest Service and BLM continue to monitor noxious weed populations, identifying locations and the extent of occurrences in the analysis area. These agencies also actively treat noxious weeds to eradicate and control their spread. Most treatment is done by application of herbicides on known or new populations of noxious weeds on federal lands. Other treatments can include release of biological

controls (i.e., insects that consume specific weed species) or physical removal by pulling or digging out weeds. About 10 percent of the known weed populations in the analysis area were treated in 2006 and 2007.

The Colorado Noxious Weed Act was revised in 2003 to categorize noxious weeds into three lists. Weeds on List A are to be eradicated. These weeds occur in limited areas and have the potential to be eradicated quickly or have not yet come into Colorado (Colorado Weed Management Association 2004). There are no List A noxious weeds found in the analysis area. Noxious weeds on List B are required to be controlled to stop the continued spread of those species. List C noxious weeds are typically more widespread. Management controls for these weeds will not stop their continued spread but through education, research, and biological vectors, these species can be more effectively managed.

In the Gunnison Basin travel analysis area, noxious weeds from List B and C are present. The noxious weeds known to be found in the analysis area are: diffuse knapweed (*Centaurea diffusa*), spotted knapweed (*Centaurea maculosa*), yellow toadflax (*Linaria vulgaris*), Russian knapweed (*Acroptilon repens*), Dalmation toadflax (*Linaria genistifolia*), sulfur cinquefoil (*Potentilla recta*), whitetop or hoary cress (*Cardaria draba*), houndstongue or gypsyflower (*Cynoglossum officinale*), bull thistle (*Cirsium vulgare*), Canada thistle (*Cirsium arvense*), musk or nodding plumeless thistle (*Carduus nutans*), oxeye daisy (*Leucanthemum vulgare*), corn chamomile (*Anthemis arvensis*), scentless chamomile (*Matricaria perforata*), black henbane (*Hyoscyamus niger*), absinthe wormwood (*Artemisia absinthium*), common burdock (*Arctium minus*), cheatgrass or downy brome (*Bromus tectorum*), and field bindweed (*Convolvulus arvensis*).

Environmental Effects to Noxious Weeds Common to All Alternatives

Weed concentrations increase around residential areas and extend outwards along roads and trails from urbanized areas. Weeds are spread by seeds carried from existing populations to other areas where conditions are suitable or conducive to the establishment or spread of invasive weeds. Most noxious weeds invade disturbed sites (Stohlgren et al. 1999). Weed seeds attach themselves to animals, equipment, vehicles, and human clothes and are transported to other locations where these carriers travel. Grazing animals ingest weed seeds as part of their food and carry those seeds to other locations when the seeds are passed as part of the digestive process. Weed seed carriers/hosts can travel great distances and usually use roads and trails which are the prime locations for the establishment of new weed populations. Treating new weed populations along roads and trails is easier because of the access than treating them in remote areas where new invasive noxious weed populations have become established.

Road and trail maintenance activities also have a greater potential to create conditions conducive to noxious weed invasion than routes where little or no maintenance occurs. Maintenance equipment, such as construction equipment, can carry weed seeds in residual mud or soil on the equipment from one location to another. Maintenance of roadsides and roadside ditches creates disturbed soil conditions conducive to weed invasion.

New routes created by users would disturb new areas, damage or eliminate native vegetation, and create areas prone to noxious weed invasions. Such actions are likely to continue to occur, but both the Forest Service and BLM will continue to take steps to stop the proliferation of unauthorized routes. The effectiveness of such actions to control user-created routes is varied and depends on the location and societal attitudes towards compliance with vehicle travel restrictions.

Noxious weed invasion has the potential to impact native plant communities and sensitive plants. Noxious weeds displace native plant habitat and can degrade watershed function. They also directly

compete with other plant species and have the potential to extirpate rare plant sites through direct competition for light, nutrients, and water. The spread of weeds along route corridors poses a serious adverse effect to native and sensitive plant species in the analysis area. Once established, noxious weeds can be difficult to control or eradicate.

Preventing further noxious weed invasions and limiting the spread of existing noxious weeds is desired, and efforts to control the spread of weed seeds associated with travel would continue but is limited by funding and personnel.

Construction of new roads or trails has a greater potential for noxious weeds to spread and invade new areas. Construction disturbs the existing vegetation and can either scarify or compact soils, all of which create conditions conducive to noxious weed invasion. There is a great potential for construction machinery used to build roads and trails to transport weed seeds because of residual mud or soil on the equipment being carried from other locations.

Environmental Effects of No Action

Under the No Action Alternative, existing routes that are currently designated for public travel would continue to be open to the public for travel. This alternative contains the highest number of road miles, and the level of vehicular travel is not expected to be higher in any of the other alternatives considered. This alternative would result in the most motorized vehicle access to federal lands. Existing road and trail maintenance levels are expected to continue at the current levels. Noxious weeds are expected to continue to spread because all of the current means for transporting or dispersing weed seeds would continue to occur (e.g., grazing animals, motorized vehicles, hikers, and horseback riders). Efforts to control, eradicate, and treat noxious weeds by the Forest Service, BLM and others would continue to occur.

Environmental Effects of the DEIS Proposed Acton

The DEIS Proposed Action would reduce the number of miles of road and trail open to public travel compared to existing conditions. Whether this reduction in miles of open road and trail would lessen the spread of noxious weeds is unknown, but restricting vehicle travel does have the potential to keep some areas less prone to seed dispersal. All of the vectors associated with weed seed dispersal would continue to occur in the analysis area and there is no indication travel by motorized vehicles, hikers, horseback riders and mountain bikes would lessen in total numbers. Vehicle access to some areas may be restricted or lessened under this proposal, but hikers, horseback riders, and grazing animals would continue to have access to federal land in the analysis area and continue to disperse weed seed.

While the DEIS Proposed Action plans for the development of about 60 to 70 miles of new trails, this travel management decision does not authorize the construction of those new routes. Therefore, potential for new construction to further cause the spread of noxious weeks would not occur as a result of this planning decision. Project-specific environmental analysis of the proposed new route construction would occur and the project decision maker can design the project to avoid the spread of noxious weeds or provide for mitigation to minimize the potential for their spread.

Future decisions on actual new route construction would require additional environmental impact analysis, site-specific to the action. Once definitive and site-specific proposed actions for new route construction are developed, the environmental consequences of specific construction would be addressed in the project environmental impact analysis and documented for public review and comment. During that environmental analysis, noxious weeds would be further evaluated and possible impacts identified.

Environmental Effects of Alternative 3

The expected consequences related to noxious weeds under this alternative are similar to those expected for the DEIS Proposed Action. While there are fewer miles of road and trail open to public travel, there is no indication that the number of vehicles, hikers, horseback riders, or mountain bikes will decrease. The same vectors that spread weeds will continue to utilize the analysis area. There are fewer miles (14 to 24 mile reduction) of planned new routes under this alternative, but the conditions identified for the DEIS Proposed Action are the same under this alternative.

Environmental Effects of Alternative 4

The expected consequences related to noxious weeds under this alternative are similar to those expected for the DEIS Proposed Action. Under this alternative, there will be more miles of trail open for public travel than under existing conditions and the Proposed Action. This shift in mode of travel (i.e., full-sized vehicles to OHVs) may increase the number of vehicles using the trails. More vehicles and more use do have the potential to increase the spread of noxious weeds. The same vectors that spread weeds will continue to utilize the analysis area.

This alternative does plan for about 90 to 110 miles of new route to be developed in the future, most of which would be trails. But, this travel management decision does not authorize the construction of those new routes. Therefore potential adverse impacts related to noxious weeds from new construction would not occur as a result of this planning decision. Project-specific environmental analysis of the proposed new route construction would occur, and if noxious weeds were expected to increase or spread further, the project decision maker can design the project to avoid the spread of noxious weeds or provide for mitigation to minimize the potential for their spread.

Environmental Effects of Preferred Alternative (Alternative 5)

The expected consequences related to noxious weeds under this alternative are similar to those expected for the DEIS Proposed Action (Table 3-16). While there are fewer miles of road and trial open to public travel, there is no indication that the number of vehicles, hikers, horseback riders, or mountain bikes will decrease. The same vectors that spread weeds will continue to utilize the analysis area.

Table 3-16. Probability of Noxious Weed Impacts by Alternative

Miles of Routes	No Action Alternative 1	DEIS Proposed Action Alternative 2	Alternative 3	Alternative 4	Preferred Alternative Alternative 5
Road[10]	3971	2724	2375	2705	2677
OHV Trail	212	174	100	260	149
Motorcycle Trail	396	318	232	390	351
Mountain Bike Trail	N/A	179	178	308	279
Hiker/Horse Trail	439	261	318	182	130
Highest Probability of Noxious Weed Infestation	1	2	5	3	4
Rank by Cumulative Impacts to Noxious Weeds	1	2	5	3	4

[10] *Includes miles of administrative road.*

The highest probability of noxious weed infestation ranking was determined by the existing number of miles of road and trails. Rank by cumulative impacts to noxious weeds was determined by past impacts to noxious weed spread in addition to new route construction and miles of roads and trails.

Cumulative Effects

Ground disturbance in the Gunnison Basin travel analysis area has been on-going and will continue to occur as a result of other resource management activities, resource extraction activities, and public use on federal lands. Activities associated with soil disturbance include, but are not limited to timber sale log skidding, road and trail construction and maintenance, wildfires, fire-line construction, dispersed camping, OHV riding, mountain bike riding, fence-line construction, and water developments. With soil disturbance, the following State-listed noxious weeds can spread: Canadian thistle, musk thistle, yellow toadflax, oxeye daisy, and scentless chamomile. In the last 5 to 10 years, there has been an increase in recreational use and motorized off-trail use, which has led to additional soil disturbance and noxious weed invasions.

Possible Mitigation for Noxious Weeds

Standard management practices such as inventory, avoidance or pre-treatment of known noxious weed sites, cleaning equipment, and using weed-free animal feed and mulch greatly minimize the threat to sensitive plant species.

The threat from noxious weed sites in the analysis area along new proposed routes, reroutes, and user-created routes can be minimized by:

Weed surveys prior to ground disturbance,

Avoidance of noxious weed population(s) by rerouting the route and/or control of the noxious weeds located in these sites for 3 years *prior* to implementation,

Power-washing with an inspection of maintenance and construction equipment prior to arrival on federal lands, and

Continued eradication and control measures on known noxious weed populations.

AQUATIC RESOURCES

Affected Environment — Fish

The Gunnison Basin travel analysis area includes Forest Service and BLM administered lands in the Upper Gunnison River Basin and the North Fork of the Gunnison River (Figure 1-2). Twenty-five 5th level HUC watersheds are included in the analysis area. The Forest Service assesses the potential for impacts to aquatic species by evaluating the effects of the Proposed Action and alternatives on the Management Indicator Species (MIS). For the GMUG, those MIS aquatic species are common trout (brook, brown, and rainbow trout), and all are known to occur in the Gunnison Basin travel analysis area. Common trout are indicator species used to detect management influences on aquatic and riparian habitats. The habitat needs, habitat relationships, distributions and trends, population trends, and status are evaluated for these common trout because they represent the habitat needs of a larger group of aquatic species that require similar habitats. The Colorado River cutthroat trout is both an MIS and Forest Service Sensitive Species and is addressed in the Sensitive Species section.

Assumptions Used to Address All Action Alternatives

The following assumptions were used to assess effects of motorized routes on fisheries and aquatic ecosystems:

Use of routes will be compliant with the approved travel management plan.

When routes are decommissioned, the management measures and design criteria described in the Region 2 Watershed Conservation Practices Handbook would be the strategies to follow when appropriate. Specific measures that could apply are:

Management Measure (12) – Reclaim roads and other disturbed sites when use ends, as needed, to prevent resource damage. Specifically, restore grades, stabilize drainages, and restore ground cover to protect soil quality and stream health.

Management Measure (4) – Design and construct all stream crossings and other instream structures to provide for passage of flow and sediment, withstand expected flood flows, and allow free movement of resident aquatic life.

Motorized routes are one of many cumulative activities occurring in a watershed that can alter hydrology, the amount and size of sediment entering a streams, riparian areas and wetlands, and floodplain function. Removal of motorized routes, especially routes that cross streams or occur in the WIZ, improve watershed, wetland, riparian area, and in-channel habitat conditions.

Watershed integrity developed for the GMUG Forest Plan Comprehensive Assessment was used to assess the amount of human activity in a watershed and the amount of risk these activities pose to the "health" of the watershed (GMUG, Comprehensive Assessment – Chapter 5, 2006). Integrity is a combination of physical sensitivity of a watershed (potential response to current or future land disturbances—natural or management related) and the amount of past and on-going human activities occurring in that watershed (see Water Resources, Affected Environment section).

Affected Environment – Aquatic MIS

Aquatic Management Indicator Species information

Rainbow Trout (*Oncorhynchus mykiss*)

The Forest Service MIS Assessment (USDA 2008c) for rainbow trout is the primary source and reference for information on the biology, ecology, habitat and population condition and trend for this species of trout. A summary of that information is given below.

Distribution, Life History and Biology

Within the Forest Service's Rocky Mountain Region (R2), rainbow trout are widely distributed. These fish were introduced in the 1880s and have become the mainstay of Colorado's hatchery system. According to the Colorado Division of Wildlife (CDOW), millions of catchable -and sub-catchable-sized fish are stocked annually (CDOW 2008). Many rainbow trout populations are currently self-sustaining populations and provide excellent recreational fishing opportunities. Rainbows can be found in most mountain lakes and streams, as well as in many reservoirs.

Rainbow trout have been collected from 31 streams within 23 6th level HUC watersheds on the GMUG. In the Gunnison Basin travel analysis area, rainbows have been collected in 13 streams within 12 5th level HUC watersheds.

Adult and juvenile rainbow trout are opportunistic feeders that select a wide variety of food types depending on seasonal availability (Raleigh et al. 1984; Staley and Mueller 2000).For the most part, rainbow trout consume aquatic and terrestrial insects. Resident trout in streams with dense riparian vegetation can feed heavily on terrestrial insects, such as grasshoppers and ants that fall into the streams (Staley and Mueller 2000).

Research suggests that spawning occurs at specific natal streams with low incidence of straying (Raleigh et al. 1984). Data from fish sampling suggests that rainbow trout on the GMUG likely mature at 2 or 3 years of age and approximately 100–150mm in length. During spawning, mature females dig nests known as redds in gravel and deposit eggs, which males fertilize and females then cover with gravel. Redds tend to be located where velocity, depth, and bottom configuration induce water flow through the stream substrate (Young 1989).

Locally, rainbow trout spawning occurs from mid-April through late June. Optimal mean water temperatures range from 7°–12 °C respectively (Raleigh et al., 1984). Incubation periods for rainbow trout range from 28–49 days and vary inversely with water temperature (Raleigh et al. 1984). Rainbow trout larvae remain in redds for several weeks after hatching as they continue to develop (Bjornn and Reiser 1991).

Population Condition and Trends

Quantitative population sampling has been conducted across the GMUG from 2000–2007. Rainbow trout were sampled in 65 of 339 total reaches (19 percent), representing approximately 34 of 69 sampled streams/rivers (49 percent), and are found in 29 of the 6th level HUC watersheds. Populations within the upper Gunnison River Basin are particularly well-distributed, which is likely the result of some fluvial behavior patterns and residualized populations in tributaries. The number of adult fish (>150mm) per stream mile in the Gunnison Basin travel analysis area range from a high of over 815 fish/mile in Spring Creek to the low of 14 fish/mile in West Muddy Creek.

Recent drought conditions from 2002 through 2004 have likely affected rainbow trout populations throughout the analysis area. However, as self-sustaining populations of rainbow trout are widely distributed across the analysis area, there is inherent resilience to natural disturbances. Post-drought population estimates indicate that rainbow trout are in a relatively stable and/or increasing trend.

Habitat Conditions and Trends

Intensive habitat inventories were conducted from 2001 through 2007 on approximately 62 miles of stream from 224 reaches. Three stream habitat assessment protocols were used to measure various stream habitat parameters: Stream Condition Inventory (SCI) (Frazier et al. 2005), R1/R4 Fish Habitat Inventory Method (R1/R4) (Overton et al.1997) and Pacfish Infish Biological Opinion (PIBO) (Heitke et al. 2006). These protocols differ slightly in methodology; however, agency fisheries biologists and hydrologists have determined that a core set of habitat variables were measured equivalently.

This data represent the best available information to date on fish habitat conditions, and likely provides a good “cross-section” of current habitat conditions for rainbow trout. General habitat conditions for rainbow trout within the Gunnison Basin travel analysis area are:

Most streams are small (<15 ft. wide) with a gradient ranging from 1 to 7 percent.

Suitable spawning gravel utilized by rainbow trout range from 3–100 mm (Orcutt et al. 1968, Raleigh et al. 1984). Optimal substrate size depends on the size of the spawner. Optimal substrate sizes (15–60mm) appear to make up approximately 44 percent of the substrate composition. The data suggest that suitable spawning gravel is available randomly throughout the sampled reaches.

Spawning habitat in the analysis area consist of approximately 20 percent fines smaller than 2mm. Data from 189 stream reaches indicate that areas typically suited for spawning consist of approximately 20 percent fines smaller than 2mm. Optimal spawning gravel conditions for rainbow trout contain less than 5 percent fines (Raleigh et al. 1984). As fines approach 30 percent of the spawning gravel, low survival of embryos and fry is expected (Raleigh et al.

1984). Thus, the data suggest that fine sediment is likely a limiting factor to rainbow trout survival and recruitment.

Literature suggests that optimal water temperatures for rainbow trout occur between 12–18°C, and mortality may occur when temperatures exceed 25°C. Optimum water temperature requirements for rainbow trout are generally met from June through September; however, water temperatures begin to drop dramatically after September and remain near 0°C during the months of November through March.

Residual pool depths ranged from 0.02–1.61m, with an average of 0.32m. Pools greater than 1m in depth occurred in only 1 percent of the total surveyed pools (n=2461), with the majority of these occurring in larger streams. The lack of pool depth is limiting rainbow trout populations, especially during low flow periods in late summer and during the winter months.

Large woody debris (LWD), undercut banks and boulders are an important cover component for all trout species, including brown trout. Generally speaking LWD is abundant on most forested streams and small and large boulders comprise approximately 25 percent of the measured cover on sampled reaches.

Stable banks appear to be common, but undercut banks and substantial undercut depth is limited.

Brown Trout (*Salmo trutta*)

The Forest Service MIS Assessment (USDA 2008b) for brown trout is the primary source and reference for information on the biology, ecology, habitat and population condition and trend for this species of trout. A summary of that information is given below.

Distribution, Life History and Biology

The native range of the brown trout includes Europe, western Asia, and northern Africa (Behnke 2002). Brown trout have been introduced all over the world and the first documented introduction of brown trout to North American occurred in Michigan in 1884 (Behnke 2002). Brown trout are known to exist in 12 of the 5th level HUC watersheds in the analysis area.

Brown trout can be opportunistic feeders in more general food habitats or they can be specialized feeders (Belica 2007). Differences between specialist and generalist food habitats among brown trout have been attributed to differences in genetics and environmental factors experienced by populations. In a Rocky Mountain stream in southwestern Colorado, Allan (1978) found that brown trout ranging in total length from 68–295 mm (2.7–11.6 inches) primarily fed on aquatic insects, terrestrial invertebrates, and non-insect aquatic invertebrates. As fish become larger, they become piscivorous (i.e., fish eaters).

Locally, brown trout spawning occurs from mid-October through November. Spawning is initiated by decreasing day length, increased late fall flows, and drops in water temperature to <9°C (Reiser and Wesche 1977, Raleigh et al. 1986). Incubation periods for brown trout range from 30 to 148 days at mean water temperatures ranging from 11.2° to 1.9 °C, respectively (Raleigh et al. 1986).

Population Condition and Trends

Brown trout are considered widely-distributed throughout the Gunnison Basin travel analysis area which is likely the result of fluvial behavior patterns and residualized populations in tributaries. The number of adult fish (>150mm) per stream mile in the analysis area range from a high of over 3,400 fish/mile in Spring Creek compared to the low of 11 fish/mile in Clear Creek.

Recent drought conditions from 2002 through 2004 have likely affected the brown trout populations throughout the analysis area. However, As self-sustaining populations of brown trout are widely

distributed across the analysis area, there is inherent resilience to natural disturbances. Post-drought population estimates by the Forest Service indicate that brown trout are in a relatively stable and/or increasing trend.

Habitat Conditions and Trends

Intensive habitat inventories were conducted from 2001 through 2007 on approximately 62 miles of stream from 224 reaches. Three stream habitat assessment protocols were used to measure various stream habitat parameters (see reference to these protocols listed above). This data represent the best available information on fish habitat conditions, and likely provides a good "cross-section" of current habitat conditions for brown trout in the Gunnison Basin travel analysis area.

General habitat conditions for brown trout within the Gunnison Basin travel analysis area are:

Most of streams are small (<15 ft. wide) with a gradient ranging from 1–7 percent.

Spawning substrate utilized by brown trout range from 3–100 mm, with preference towards substrate between 10–70mm. Preferred spawning substrate size between 10–70mm make up approximately 46 percent of the total substrate composition. The data suggest that suitable spawning gravel is available randomly throughout the sampled reaches.

Spawning habitat consist of approximately 20 percent fines smaller than 2mm. Optimal spawning gravel conditions for brown trout contain less than 5 percent fines. Thus, the data suggest that fine sediment is likely a limiting factor to brown trout survival and recruitment.

Literature suggests that optimum water temperature for brown trout is between 12°–19°C. Optimum water temperature requirements for brown trout are generally met from June-September; however, water temperatures begin to drop dramatically after September, and remain near 0°C during the months of November-March.

Residual pool depths ranged from 0.02 to 1.61m, with an average of 0.32m (Figure 1-5). Pools greater than 1m in depth occurred in only 1 percent of the total surveyed pools (n=2461), with the majority of these occurring in larger streams. The lack of pool depth limits brown trout populations especially during low flow periods in late summer and during the winter months.

LWD, undercut banks, and in-stream boulders are an important cover component for all trout species, including brown trout. Generally speaking LWD is abundant on most forested streams, and small and large boulders comprise approximately 25 percent of the measured cover on sampled reaches.

Brook trout (*Salvelinus fontinalis*)

The Forest Service MIS Assessment (USDA 2008b) for brook trout is the primary source and reference for information on the biology, ecology, habitat and population condition and trend for this species of trout. A summary of that information is given below.

Life History and Biology

The native range of brook trout comprises most of eastern Canada from Newfoundland to the western side of Hudson Bay, along with the Atlantic, Great Lakes, and Mississippi River Basins to Minnesota (Page and Burr 1991). Brook trout as also native to the Appalachian Mountains and extend as far south as northern Georgia (Behnke 2002). Since the late 1800s, brook trout have been introduced successfully outside their native range in North America and around the world.

In Colorado, introductions have been made to the South Platte, North Platte, Republican, Arkansas, Rio Grande, Blue, Gunnison, Green, Yampa, and San Juan drainages and throughout Rocky Mountain National Park (Fuller 2008).

In the Gunnison Basin travel analysis area, brook trout are documented or suspected to occur in 19 of the 25 5th level HUC watersheds.

Population Conditions and Trends

Brook trout are considered widely-distributed throughout the analysis area. Electrofishing sampling and professional observations indicate that brook trout are generally dispersed to higher elevations and steeper stream gradient sections of drainage basins (James, pers. comm. 2008).

In the analysis area, the number of adult fish (>150mm) per stream mile range from a high of over 2,100 fish/mile in Curecanti Creek compared to the low of 3 fish/mile in upper Henson Creek. Brook trout numbers range from 1 adult fish per mile in Alder Creek to over 50 fish per mile in Los Pinos Creek. The large range in abundance may reflect different growth rates for brook trout populations. Growth rates are largely determined by habitat conditions, stream size, and food availability.

Recent drought conditions from 2002 through 2004 have likely affected the brook trout populations throughout the analysis area. However, As self-sustaining populations of brook trout are widely distributed, there is inherent resilience to natural disturbances. Post-drought population estimates indicate that brook trout are in a stable and increasing trend.

Habitat Conditions and Trends

Intensive habitat inventories were conducted from 2001 through 2007. This data represent the best available information on fish habitat conditions, and provides a good cross-section of current habitat conditions for brook trout.

General habitat conditions for brook trout on the GMUG and within the Gunnison Basin travel analysis area are:

> Most of streams are small (<15 ft. wide) with a gradient ranging from 1 to 7 percent although several larger rivers are present in the analysis area.
>
> Suitable spawning habitat makes up about 25 percent of the substrate composition, however spawning areas are typically small (<3ft^2).
>
> Typical spawning habitat has greater than 20 percent fines (<2mm), which limits survival and recruitment of brook trout.
>
> Ideal water temperatures for brook trout range from 11° to 16° C. These temperature requirements are met from June-September but drop to near 0° C from November to March. For brook trout fry, if adequate substrate burial depth and acclimation to water temperature are not achieved, it is likely that the temperature profile may impact growth rates or cause mortality.
>
> Residual pool depths ranged from 0.02 to 161m, with an average of 0.32m. Pools greater than 1m in depth occurred in only 1 percent of the total surveyed pools (n=2461), with the majority of these occurring in larger streams. The lack of pool depth is limiting brook trout populations, especially during low flow periods in late summer and during the winter months.
>
> Boulders are an important cover component for all trout species, comprising approximately 25 percent of the measured cover on forest streams.
>
> Stable banks appear to be common, but undercut banks and substantial undercut depth is limited.

Environmental Effects to Trout by Alternative

Direct and indirect effects to brook, brown and rainbow trout by alternative are addressed by the species group common trout.

Direct mortality to aquatic plants and animals occurs during road use (stream crossings), but most of the harmful impacts to aquatic biota due to motorized and non-motorized route use, construction, and maintenance are indirect impacts. The effects of motorized and non-motorized routes on aquatic biota can affect many of the life-history stages of aquatic animals by degrading or eliminating their associated habitats (Furniss et al. 1991; Waters 1995). The magnitude of effect to aquatic systems is dependent upon the width of the constructed route, the amount and type of use, and proximity to aquatic habitats. Specific effects to aquatic biota include:

Chemical contamination due to spills or road-treatment products (such as dust abatement chemicals) can cause direct mortality or decreased fitness (e.g., immune system depression) of aquatic plant and animal species.

Sediment inputs to aquatic and wetland ecosystems associated with routes and route activities can decrease spawning success for fish, especially salmonids, and cause decreases and/or alterations of macro-invertebrate communities.

During route construction, use, and maintenance, individual organisms and local biotic communities (especially plants and early-development stage amphibians) of aquatic biota can be crushed.

Motorized and non-motorized routes can facilitate introductions of exotic species (plant and animal) into aquatic systems.

Motorized and non-motorized route networks can facilitate the spread of pathogens and disease (e.g., whirling disease and bacterial kidney disease) in aquatic and wetland ecosystems.

Motorized and non-motorized route networks can contribute to the reduction in distribution and abundance of aquatic and wetland biota because of exploitation (recreational fishing pressure) and field collections (scientific and casual).

Route drainage features such as culverts can fragment aquatic habitats by creating barriers to all or some species' life stages.

Motorized and non-motorized routes placed in the WIZ can be a major source of sediment to riparian areas, wetlands and in-channel which can reduce riparian/wetland function and affect in-channel habitat for aquatic life. Routes in the WIZ can also constrict the floodplain, thereby reducing its functionality.

The scope of the Gunnison Travel plan is motorized use on road and trails. Two metrics (number of motorized stream crossings per mile of stream and miles of motorized routes in the WIZ) were chosen as predictors of direct, indirect, and cumulative effects to aquatic biota.

Stream Crossings

The number of crossings per mile of stream is reduced or stays the same in 23 of 25 watersheds supporting populations of common trout under all alternatives (Table 3-17). The Blue/Pine Creeks and East Muddy Creek watersheds will have slight increase in crossing density under Alternative 4. Average percent reduction across all watersheds is 24 percent under the Preferred Alternative, 24 percent under the DEIS Proposed Action, 30 percent under Alternative 3, and 19 percent under Alternative 4. Reducing the number of stream crossings reduces potential migration barriers, point of entry for road-derived sediment, and the risk of direct channel and riparian alteration. It can also reduce the potential for impacts from chemical contamination from road spills and road surface treatments.

Table 3-17. Stream Crossings per Mile in Watersheds with Common Trout.

5th Level HUC Watershed	No Action Alternative 1	DEIS Proposed Action Alternative 2	Alternative 3	Alternative 4	Preferred Alternative Alternative 5
	(number of crossings/mile of stream)				
Taylor River	0.80	0.70	0.62	0.72	0.67
East River	0.80	0.68	0.62	0.71	0.68
Ohio Creek	0.51	0.39	0.39	0.41	0.41
Soap/Antelope Creeks	0.53	0.36	0.36	0.42	0.36
Smith Fork Crawford Res.	0.34	0.33	0.29	0.33	0.30
Blue Mesa Reservoir / Upper Gunnison	0.68	0.55	0.51	0.58	0.55
Blue/Pine Creeks	0.29	0.28	0.23	0.30	0.28
South Beaver Creek	0.67	0.55	0.41	0.63	0.51
Crystal /Curecanti Creeks	1.00	0.76	0.74	0.80	0.75
Gunnison River	0.89	0.64	0.61	0.65	0.64
Willow Creek	1.23	0.68	0.58	0.91	0.68
Cimarron River	0.07	0.07	0.06	0.07	0.07
Lake Fork Gunnison River	0.33	0.30	0.29	0.30	0.29
Cebolla Creek	0.72	0.54	0.45	0.57	0.53
Razor Creek	1.05	0.85	0.63	0.86	0.85
Cochetopa Creek	1.11	0.78	0.72	0.85	0.78
Lower Tomichi Creek	1.21	0.81	0.73	0.87	0.81
Upper Tomichi Creek	1.31	1.03	0.92	1.10	1.09
Quartz Creek	1.65	1.33	1.28	1.34	1.32
Anthracite Creek	0.23	0.21	0.20	0.21	0.21
East Muddy Creek	0.42	0.40	0.36	0.48	0.40
North Fork Gunnison River	1.15	0.67	0.65	0.69	0.69
West Muddy Creek	0.83	0.80	0.72	0.82	0.79
Hubbard Creek	1.30	1.14	1.09	1.14	1.04
Leroux/Cottonwood	0.85	0.54	0.51	0.54	0.51
Average (% reduction)	0.80	0.61 (24%)	0.56 (30%)	0.65 (19%)	0.61 (24%)

Road Miles in WIZ

The miles of motorized routes per square mile of WIZ are reduced in 23 out of the 25 watersheds supporting populations of common trout under all alternatives (Table 3-18). Alternative 4, the miles

of motorized route in WIZ increases in South Beaver Creek watershed (<1 percent) and East Muddy Creek watershed (< 1 percent). Average percent reduction across all watersheds is 22 percent under the Preferred Alternative, 20 percent under the DEIS Proposed Action, 29 percent under Alternative 3, and 17 percent under Alternative 4. Reduced miles of route in WIZ will reduce direct effects to riparian areas, wetlands and floodplains from alteration and will reduce the risk of sediment and other contaminates delivered to wetlands, riparian areas and in-channel habitats.

Table 3-18. Miles of Motorized Road and Trail per Square Mile of Water Influence Zone (WIZ) in Watersheds with Populations of Common Trout.

5th Level HUC Watershed	No Action Alternative 1	DEIS Proposed Action Alternative 2	Alternative 3	Alternative 4	Preferred Alternative Alternative 5
	(mi route/mi^2 WIZ)				
Taylor River	2.69	2.21	2.03	2.35	2.22
East River	2.55	2.14	2.00	2.29	2.14
Ohio Creek	1.29	1.01	1.00	1.04	1.07
Soap/Antelope Creek	2.44	1.87	1.74	2.02	1.77
Smith Fork/Crawford Reservoir	0.60	0.53	0.47	0.53	0.49
Blue Mesa Reservoir /Upper Gunnison River	1.46	1.24	1.18	1.27	1.23
Blue/Pine Creek	0.91	0.87	0.77	0.88	0.84
South Beaver Creek	3.28	2.92	2.13	3.30	2.73
Crystal/ Curecanti Creek	2.27	1.75	1.70	1.85	1.70
Gunnison River	4.40	3.50	3.40	3.49	3.48
Willow Creek	4.87	3.49	2.90	3.72	2.57
Cimarron River	0.23	0.20	0.19	0.21	0.19
Lake Fork Gunnison River	0.93	0.78	0.74	0.82	0.77
Cebolla Creek	1.96	1.48	1.20	1.54	1.44
Razor Creek	3.74	3.24	1.87	3.26	3.24
Cochetopa Creek	3.45	2.68	2.32	2.77	2.57
Lower Tomichi Creek	4.46	3.13	2.94	3.31	3.14
Upper Tomichi Creek	4.04	3.28	2.79	3.54	3.52
Quartz Creek	5.39	4.61	4.31	4.62	4.57
Anthracite Creek	0.58	0.52	0.51	0.52	0.52
East Muddy Creek	0.86	0.80	0.73	0.87	0.80
North Fork Gunnison River	2.51	1.87	1.84	1.90	1.90

5th Level HUC Watershed	No Action Alternative 1	DEIS Proposed Action Alternative 2	Alternative 3	Alternative 4	Preferred Alternative Alternative 5
	(mi route/mi^2 WIZ)				
West Muddy Creek	1.40	1.34	1.23	1.34	1.33
Hubbard Creek	1.85	1.46	1.36	1.46	1.39
Leroux/ Cottonwood Creeks	1.99	1.34	1.29	1.34	1.32
Average (% reduction)	2.41	1.93 (20%)	1.71 (29%)	2.01 (17%)	1.88 (22%)

Aquatic MIS Determination of Effects

A reduction in the number of motorized route stream crossings, elimination of migration barriers at stream crossings, or reduction of the number of routes in the WIZ would be beneficial to the quality and quantity of riparian and in-channel habitats. Habitat improvement can increase the number and distribution of common trout in the analysis area; however, the amount of change is not believed to be quantifiable at the watershed scale.

Overall, Alternative 3 has the greatest potential for positive effects on common trout based on the following factors:

The number of stream crossings per mile of stream would be reduced in 23 out of 25 watersheds and the average percent reduction would be greatest under Alternate 3 (30 percent). The Preferred Alternative reduces stream crossing density by 30 percent.

The miles of motorized routes in WIZ are reduced in all (25) watersheds supporting common trout, and the average percent reduction would be greatest under Alternative 3 (29 percent). The Preferred Alternative reduces miles of motorized route in WIZ by 22 percent.

Affected Environment – Sensitive Aquatic Species and Colorado Aquatic Species of Concern

Table 3-19 lists the known occurrences of fish and amphibians identified as Forest Service Sensitive Species and the State of Colorado Species of Concern. State Species of Concern known to occur on BLM lands include Colorado River cutthroat trout and leopard frogs. Leopard frogs could occur throughout the Gunnison Basin travel analysis area, but extensive surveys have not been conducted. Because they have the potential to be so widely dispersed, effects to frogs will be addressed by comparing potential affects at the 5th level HUC watershed scale.

Table 3-19. Watersheds with Aquatic Sensitive Species and Species of Concern

5th or 6th Level HUCs	Species	Known or Suspected Occupied Streams
East Muddy	Bluehead sucker	Clear Fork Muddy
North Fork Gunnison River	Bluehead sucker	Lower Muddy Creek
West Muddy	Bluehead sucker	West Muddy Creek
Taylor River Gunnison River	Bluehead sucker	Taylor River Willow Creek
Cochetopa	Bluehead sucker	Los Pinos
Anthracite	Bluehead sucker	Anthracite Creek

5th or 6th Level HUCs	Species	Known or Suspected Occupied Streams
Gunnison River	Flannelmouth suckers	Upper Gunnison River
Upper South Beaver	Colorado River cutthroat trout	East Beaver Creek Deer-Beaver Creek (NFS and BLM)
Muddy Creek	Colorado River cutthroat trout	Doug Creek (BLM)
Smith Fork	Colorado River cutthroat trout	Smith Fork Gunnison River Second Creek
Clear Fork	Colorado River cutthroat trout	Trail Gulch
Upper Lake Fork	Colorado River cutthroat trout	Lake Fork Gunnison above Sherman Falls (BLM)
Road Beaver	Colorado River cutthroat trout	Road Beaver Creek (BLM)
Beaver Creek	Colorado River cutthroat trout	Beaver Creek
Anthracite Creek	Colorado River cutthroat trout	Anthracite Creek
Upper Taylor Cement Creek Brush Creek Middle East River Copper River	Boreal toad	*Locality names:* Triangle Pass, West Brush Creek, Brush Creek, Upper Taylor River, Magdalene Gulch (Texas Creek)
North Fork Gunnison River West Muddy Hubbard Ck East River	Leopard frog	No specific locations identified

Species Information

Colorado River Cutthroat Trout (*Oncorhynchus clarki pleuriticus*)

Life History and Biology

Behnke (1992) provides a thorough discussion of the description and taxonomy of Colorado River cutthroat trout (CRCT). He states that CRCT are commonly identified through bright crimson colors along the ventral region, and with golden yellow along the lower sides of the body. Scale counts and coloration have been used most often to characterize CRCT (ibid); however, variations in color, spotting patterns, and body size can vary between local watersheds (C. James, pers. obs.). Metcalf et al. (2007), using genetic markers (molecular markers from the mitochondrial and nuclear genomes), discovered that many native populations of CRCT have been compromised and, in some cases, are actually of greenback cutthroat trout lineage. This study also revealed the presence of pure populations of greenback cutthroat trout in western Colorado outside of their historic range but within the historic range of Colorado River cutthroat trout. To date, only 17 cutthroat populations have been examined using the new technique.

Population Trends and Conditions

Conservation populations of CRCT are known to occur in eight of the 6th level HUC sub-watersheds on National Forest System (NFS) lands, and three populations exist on adjacent BLM lands (Table 3-3). In the Gunnison Basin travel analysis area, ten streams, totaling approximately 20-30 miles, are known to support conservation populations of CRCT. Number of adult fish (>150mm) range from 30 to 40 in Doug Creek to over a 1000 fish in Beaver Creek. The majority of conservation populations have fewer than 500 adults, and they occur largely in small headwater streams ranging from 2 to 4 miles in length. Generally, cutthroat trout populations are composed of four to five age classes and

generally range from 40 to 200 mm in length (Wang and Lambert, unpublished report; James, unpublished data). Fish larger than 200 mm were observed for only 7 percent of the fish sampled, with most fish ranging between 55 and 165 mm.

Habitat Conditions and Trends

Most CRCT streams in the analysis area lack suitable fish habitat to sustain large populations of trout species. Abundance and size of CRCT are generally limited by steep gradients, lack of spawning habitat, cold-water temperatures, pool depth and frequency, and lack of cover (Behnke 1992, Young 1995). Recent stream surveys suggest that most fish-bearing streams on the GMUG have gradients ranging between 1 and 7 percent.

Spawning habitat is very limited in these headwater systems, causing CRCT to spawn in marginal spawning areas. This has likely resulted in poor egg-to-fry survival. Measurements of fine sediment (smaller than 2 mm) indicate that the percentage of fine sediments may comprise a higher percentage of the typical spawning sites, particularly in lower gradient stream reaches (James, unpubl. data).

Literature suggests that optimum water temperatures for cutthroat trout is between 12 and 15°C, and mortality may occur when temperatures exceed 22°C (Dwyer and Kramer 1975, Hickman and Raleigh 1982). Based on existing temperature data, optimum water temperature requirements for cutthroat trout are generally met from June to September; however, water temperatures begin to drop dramatically after September and remain near 0°C during the months of November-March (James, unpublished. data). This temperature profile likely limits growth and activity during most of the season and may result in poor embryo survival following spawning.

Cover is an important feature for the survival of CRCT and appears to be abundant in most streams. LWD, in-stream boulders, and undercut banks have been described as key cover components for cutthroat trout (Giger 1972; Horan et al. 2000). LWD is abundant in most stream reaches providing good cover for CRCT.

The greatest threats to the viability of CRCT in the Gunnison Basin travel analysis area include competition with non-native species, drought, water development and depletion, disease, poor road design, and improper livestock management. The impacts of non-native species on native trout populations, greatly affecting distribution, abundance, and genetic integrity, have been well documented in many native inland cutthroat trout assessments (CRCT Task Force 2001; Gresswell 1995; Kershner 1995; McIntyre and Reiman 1995; Rinne 1995; Young 1995). Severe drought conditions can have significant impacts to localized trout populations, potentially causing populations of CRCT and other trout species to become locally extinct in headwater areas.

Environmental Effects to Colorado River Cutthroat Trout

Direct, indirect and cumulative effects to CRCT by alternative were examined by comparing the number of stream crossings per mile of stream (Table 3-19) and miles of road within the WIZ (Table 3-20). General direct and indirect effects to aquatic biota have been previously discussed.

Reduced number of stream crossings will reduce the number of potential migration barriers, points of entry for road-derived sediment, the risk of direct channel and riparian alteration during construction, reconstruction and maintenance, and impacts resulting from chemical contamination from spills and road treatments. Alternative 3 would provide the greatest average reduction (29 percent) of stream crossings and Alternative 4 would least reduction in the average number of crossings per stream mile (13 percent). The Preferred Alternative reduces the stream crossing density by 19 percent in watersheds supporting CRCT.

The miles of route per square mile of WIZ are reduced in all sub-watersheds supporting CRCT across all action alternatives. Reduced miles of route in WIZ will reduce direct effects from alterations to riparian areas, wetlands and floodplains and will reduce the risk of sediment and other contaminates

delivered to wetlands, riparian areas and in-channel habitats from inadequate buffers. The greatest average percent reduction occurs under Alternative 3, with a 36 percent reduction, and the least is under Alternative 4, with a 15 percent reduction. The Preferred Alternative reduces roads in WIZ by 19 percent. The Clear Fork Muddy Creek subwatershed will have a slight increase (approx. 0.3 miles) of motorized route in WIZ with a conversion of small section of a current non-motorized route into a motorized route. This slight increase will have no measureable effect on the quality or quality of cutthroat habitat in the affected drainage.

Table 3-20. Stream Crossing Density for Watersheds Containing Colorado River Cutthroat Trout

6th Level HUC Watershed Supporting CRCT (designator)	No Action Alternative 1	DEIS Proposed Action Alternative 2	Alternative 3	Alternative 4	Preferred Alternative Alternative 5
	(number of crossings/mile stream)				
Beaver (140200020310)	0.24	0.04	0.04	0.24	0.08
Smith Fork (140200020501)	0.20	0.15	0.15	0.15	0.13
Muddy (140200020502)	1.30	1.22	1.05	1.22	1.22
Upper South Beaver (140200025001)	0.20	0.20	0.09	0.23	0.16
Upper Lake Fork (140200028303)	0.29	0.28	0.30	0.28	0.28
Road Beaver 40200028506 (BLM)	1.21	0.88	0.75	0.86	0.88
Anthracite (140200040701)	0.23	0.20	0.21	0.21	0.21
Clear Fork (140200040903)	0.13	0.13	0.11	0.15	0.13
Average (% Reduction)	0.48	0.39 (19%)	0.34 (29%)	0.42 (13%)	0.39 (19%)

Table 3-21. Water Influence Zone Motorized Route Density in Sub-watersheds Containing Populations of Colorado River Cutthroat Trout within Gunnison Travel Analysis Area.

6th Level HUC Watershed Supporting CRCT (designator)	No Action Alternative 1	DEIS Proposed Action Alternative 2	Alternative 3	Alternative 4	Preferred Alternative Alternative 5
	mi route/mi^2 WIZ				
Beaver (140200020310)	2.17	0.53	0.51	2.04	0.80
Smith Fork (140200020501)	1.06	0.89	0.74	0.89	0.78
Muddy (140200020502)	0.22	0.21	0.20	0.21	0.21
Upper South Beaver (140200025001)	1.91	1.91	0.82	1.94	1.45
Upper Lake Fork (140200028303)	1.60	1.56	1.56	1.71	1.55
Road Beaver 40200028506 (BLM)	16.45	12.60	11.34	12.80	12.60

6th Level HUC Watershed Supporting CRCT (designator)	No Action Alternative 1	DEIS Proposed Action Alternative 2	Alternative 3	Alternative 4	Preferred Alternative Alternative 5
	mi route/mi^2 WIZ				
Anthracite (140200040701)	2.54	2.17	2.15	2.17	2.17
Clear Fork (140200040903)	0.68	0.77	0.57	0.57	0.77
Average (% Reduction)	3.59	2.69 (25%)	2.30 (36%)	3.06 (15%)	2.63 (28%)

Determination of Effect and Rationale — Colorado River Cutthroat Trout

All four action alternatives *may impact CRCT individuals, but not likely to result in a loss of viability in the analysis area, nor cause a trend to federal listing or a loss of species viability range-wide*. While long-term reduction in the number of crossings and acres of motorized routes in WIZ will benefit CRCT, short-term local effects will occur as routes are decommissioned. The greatest long-term benefits for CRCT will occur under Alternative 3 because the number of crossings per stream mile and the miles of road in WIZ are reduced the most. The Preferred Alternative also results in a substantial reduction in crossing density and the miles of road in WIZ.

Bluehead sucker (*Catostomus discobolus*)

Life History and Biology

The bluehead sucker is considered a sensitive species by the Forest Service in Region 2. It is native to the Colorado River Basin and ancient Lake Bonneville in Idaho, Utah, and Wyoming. Populations exist in western Colorado and south-central Wyoming, with known populations found on NFS lands in the GMUG and San Juan National Forest in Colorado. Ptacek et al. (2005) provides a complete description of the systematics, biology, distribution, management considerations, and threats for bluehead sucker.

Population Trends and Conditions

Within the Gunnison Basin travel analysis area, bluehead suckers are known or suspected to reside in nine streams within five watersheds. Displacement of this native sucker in the upper Gunnison River above Blue Mesa Reservoir may have occurred due to introduction of non-native fishes in many areas. Extensive sampling for this species has not been conducted and miles of occupied habitat are not known.

Habitat Conditions and Trends

Little is known concerning bluehead sucker habitat conditions and trends within the Gunnison Basin travel analysis area. In general, the species occupies areas of suitable habitat in larger, low-elevation, main-stem streams and is most commonly collected in small or mid-sized tributaries. Most stream reaches in the Gunnison Basin experience heavy sediment spring loads and high annual peak flows with low base flows. It is not known whether these annual flow events influence bluehead sucker populations locally, but the species persists in other locations where the natural flow regime results in wide annual flow ranges, heavy sediment transport and sediment deposition.

Environmental Effects to Bluehead sucker

Direct, indirect, and cumulative effects to bluehead suckers by alternative were examined using the same metrics used for trout -- comparing the number of stream crossings per mile of stream and miles of road within the WIZ. Bluehead suckers tend to occupy lower elevation streams and have been

documented to occur on federal lands within the analysis area. The effects analysis was completed at the 5th level HUC watershed. The stream crossing and WIZ impacts are shown in Tables 3-22 and 3-23.

All action alternatives reduce the number of stream crossings per mile of stream in watersheds supporting bluehead suckers. Alternative 3 reduces crossings density the most (35 percent reduction) and Alternative 4 the least (17 percent reduction). The Preferred Alternative reduces the number of crossings 24 percent.

All action alternatives reduce the miles of route per mi^2 of WIZ. Alternative 3 reduces miles of motorized routes in WIZ the most (26 percent) and Alternative 2 the least (20 percent). The Preferred Alternative reduces crossing density by 21 percent.

Table 3-22. Stream Crossing Density for 5th Level HUC Field Watersheds Supporting Bluehead Sucker.

5th Level HUC Watershed Supporting Bluehead Sucker	No Action Alternative 1	DEIS Proposed Action Alternative 2	Alternative 3	Alternative 4	Preferred Alterntive Alternative 5
	(number of crossing per mile of stream)				
East Muddy Creek	0.8	0.80	0.73	0.87	0.80
North Fork Gunnison River	1.15	0.67	0.65	0.69	0.69
Taylor River	0.80	0.67	0.62	0.72	0.67
Cochetopa Creek	1.11	0.78	0.72	0.85	0.78
Anthracite Creek	0.23	0.21	0.20	0.21	0.21
Average (% Reduction)	0.83	0.63 (24%)	0.54 (35%)	0.69 (17%)	0.63 (24%)

Table 3-23. Water Influence Zone (WIZ) Motorized Route Density in 5th Level HUC Field Watersheds Supporting Populations of Bluehead Sucker within the Gunnison Travel Analysis Area.

6th Level HUC Watershed Supporting Bluehead Sucker	No Action Alternative 1	DEIS Proposed Action Alternative 2	Alternative 3	Alternative 4	Preferred Alternative Alternative 5
East Muddy Creek	0.86	0.80	0.73	0.87	0.80
North Fork Gunnison River	2.51	1.87	1.84	1.90	1.90
Taylor River	2.69	2.21	2.03	2.35	2.22
Cochetopa Creek	3.45	2.68	2.32	2.77	2.57
Anthracite Creek	0.58	0.52	0.51	0.52	0.52
Average (% Reduction)	2.02	1.62 (20%)	1.49 (26%)	1.51 (25%)	1.60 (21%)

Determination of Effect and Rationale — Bluehead sucker

All four action alternatives *May impact bluehead sucker individuals, but not likely to result in a loss of viability in the analysis area, nor cause a trend to federal listing or a loss of species viability range-wide.* Generally speaking, reduction in the number of crossings, acres of motorized routes in

WIZ, and overall road density in 5th level HUC watersheds will reduce the risk of direct, indirect and cumulative effects to flannelmouth suckers. Alternative 3 would have the greatest positive benefit to bluehead suckers followed by the Preferred Alternative.

Flannelmouth Sucker (*Catostomus latipinnis*)

Life History and Biology

The flannelmouth sucker is considered a sensitive species in USDA Forest Service (USFS), Rocky Mountain Region (Region 2). Flannelmouth sucker are endemic to the Colorado River Basin. Within Region 2, there are populations in western Colorado and south-central Wyoming. Rees et al. (2005) provides a complete description of systematics, biology, distribution, management considerations, and threats for flannelmouth suckers and is included here by reference. A summary of this information and local knowledge of species is provided below.

Distribution and Population Trends

Within the Gunnison Basin travel analysis area, flannelmouth suckers have been documented in two 5th level HUCs in the Upper Gunnison River Basin on both National Forest and BLM lands. However, flannelmouth suckers may be displaced in the main stem of the Gunnison River above Blue Mesa Reservoir, and their status in the Lake Fork of the Gunnison is currently not known (Brauch, pers. comm.). Division of Wildlife is scheduled to complete fisheries surveys in this watershed to determine species status in the summer of 2008 (Brauch, pers. comm.). Because the current status of the species is not known in the analysis area, flannelmouth suckers will be addressed as if they occur.

Habitat Conditions and Trends

Little is known concerning flannelmouth sucker habitat conditions and trends within the Gunnison Basin travel analysis area. In general, flannelmouth suckers usually inhabit the main stem of moderate to large rivers but are occasionally found in small streams. This species frequents pools and deep runs but can also be found in the mouths of tributaries, riffles, and backwaters. Flannelmouth suckers are occasionally found in lakes and reservoirs, but they generally react poorly to impounded habitats, or habitats influenced by impoundments. Habitat association can be attributed to feeding strategies during specific life stages. Larval and young-of-the-year are often associated with backwaters and shoreline areas of slow runs or pools. Larvae drift 8.6 km (5.3 miles) on average after hatching; during this time, they actively seek near-shore habitat. Larvae then congregate in shallow pools and backwater areas.

Environmental Effects to Flannelmouth Sucker

Direct, indirect and cumulative effects to flannelmouth sucker by alternative were examined by comparing the number of stream crossings per mile of stream and miles of road within the WIZ in Tables 3-17 and 3-18. As flannelmouth suckers tend to occupy lower elevation streams and have been document to occur on both NFS and BLM Public lands, analysis was completed at the 5th level HUC watershed. The only watershed with documented flannel mouth sucker is the Blue Mesa/Gunnison watershed.

All action alternatives will reduce the number of stream crossings per mile of stream the Upper Gunnison River watershed. Alternative 3 reduces crossing density the most (25 percent) and Alternative 4 the least (2 percent). The Preferred Alternative reduces the number of crossings by `9 percent.

All action alternatives reduce the miles of route per square mile of WIZ. Alternative 3 will reduce crossings density the most (19 percent) and Alternative 4 the least (13 percent). The Preferred Alternative reduces miles of route in WIZ by 18 percent.

Determination of Effect and Rationale — Flannelmouth sucker

All four action alternatives *May impact flannelmouth sucker individuals, but not likely to result in a loss of viability on the analysis area, nor cause a trend to federal listing or a loss of species viability rangewide.* Generally speaking, reduction in the number of crossings, acres of motorized routes in WIZ, and overall road density in 5th level HUCwatersheds will reduce the risk of direct, indirect and cumulative effects to flannelmouth suckers. Alternative 3 followed by the preferred alternative would have the greatest positive benefit to flannelmouth suckers.

Northern Leopard Frog (*Rana pipiens*)

Life History and Biology

The northern leopard frog is a species with widespread distribution, but it has experienced significant declines across most of its range while remaining abundant in some areas. In Colorado, the northern leopard frog is a protected species. Smith and Keinath (2007) provide a complete description of systematics, biology, distribution, management considerations, and threats for leopard frog.

Population Trends and Conditions

In the western United States, the species has undergone major declines, suffering extinctions in some areas. The current abundance and population trends in Colorado are unknown but are suspected to be in decline. While extensive surveys have not been conducted, leopard frogs have been documented in small ponds and lakes in the North Fork of the Gunnison River watershed (Garrison, pers. com.). Limited surveys conducted in the upper Gunnison River Basin have documented a few populations. Historically, leopard frogs were documented in Big Alkali Lake; however, in recent surveys conducted in 2002 to 2004, no frogs were found at Big Alkali Lake (Jackson, pers. com.). Leopard frogs have not been documented on BLM Public lands within the analysis area (Japuntich, pers. com.).

Habitat Conditions and Trends

Little is known concerning habitat conditions and trends for the northern leopard frog within the Gunnison Basin travel analysis area. In general, northern leopard frogs require a broad range of habitats in close proximity due to their complicated life histories. Three major habitat types have been identified for leopard frogs: winter habitat (overwintering in lakes, streams, and ponds), summer habitat (feeding by adults in upland areas), and tadpole habitat (up to three months spent as tadpoles in shallow breeding ponds).

Environmental Effects to Northern Leopard Frog

Frogs can be directly impacted by vehicles running over them. Frog habitat can be impacted by route construction, reconstruction and maintenance, and poorly designed or drained routes that increase sediment deposits, altering plant communities and reducing the size and depth of ponds supporting frogs. Stream crossings and motorized routes (primarily roads) also inhibit migration patterns and fragment habitat.

The two metrics used to assess direct, indirect and cumulative impacts to other aquatic species, road crossings and miles of road in the WIZ are used to analyze potential impacts to northern leopard frogs. Those results are shown in Tables 3-17 and 3-18. Under all action alternatives, there is a reduction in both metrics, and it can be assumed that such reductions would have a benefit to this species.

Determination of Effect and Rationale – Northern Leopard Frog

All four action alternatives “May impact leopard frog individuals, but not likely to result in a loss of viability on the analysis area, nor cause a trend to federal listing or a loss of species viability range-

wide." While all action alternatives reduce the number of stream crossings per mile of stream and the acres of motorized routes in WIZ, Alternative 3 reduces these attributes the most and Alternative 4 the least. The Preferred Alternative also significantly reduces stream crossing per mile and motorized routes in WIZ. Therefore, Alternative 3 will have the greatest positive effect on leopard frog populations in the Analysis Area.

Boreal Toad (*Bufo boreas boreas*)

Life History and Biology

The life history, biology and threats to boreal toad are available in Loeffler, C., editor. (2001). The primary threat to boreal toad persistence is chytrid fungus *Batrachochytrium dendrobatidis (*Bd)and is believed to be the primary reason toads have declined throughout the southern Rocky Mountains since the 1970s. However, the impact of Bd is compounded by other threats, the most widespread being habitat alteration from human disturbances around wetlands and human-facilitated expansion of natural and introduced predators such as foxes, coyotes, and hawks.

Population Trends and Conditions

In the analysis area, breeding sites are known to occur at five locations (Table 3-24). Sightings of toads have also been documented in other watersheds in the area, but to date, breeding sights have not been located. Of the five known populations, four populations are Bd status negative and one population has not been tested.

Table 3-24. Boreal Toad Breeding Ponds

Location of Breeding Population	Survey Years	Recruitment Documented	Bd Status[1]	Land Management Designation at Breeding Pond Location
GU03 - Magdalene	1999-2005	Yes	Negative	Wilderness
GU1 – Triangle Pass (White Rock Mountain)	1993-2005	Yes	Negative	Wilderness
GU02 – West Brush Creek (White Rock Mountain)	1999-2005	Unknown	Not tested	Wilderness
GU04 – Brush Creek (White Rock Mountain)	2000-2005	Yes	Negative	Active Management
GU05-Upper Taylor River	2004-2005	Yes	Negative	Active Management

[1]*Batrachochytrium* dendrobatidis *(Bd) status – positive test, negative test or not tested.*
Data from Boreal Toad Recovery Team (2005).

Environmental Effects to Boreal Toad

Direct effects to boreal toads are direct impacts by vehicles running over them. Toad habitat can be impacted by route construction, reconstruction and maintenance, and poorly designed or drained routes that deposit sediment altering plant communities and reducing the size and depth of ponds supporting toads. Motorized routes indirectly affect toads by creating barriers to water flow, which can also alter plant communities providing boreal toad habitat. Motorized routes (primarily roads) and poorly located or designed stream crossings can eliminate upstream and downstream movement of boreal toads. As adult boreal toads are known to move as much as 1 to 2 miles from their breeding areas to upland mountain forests, poorly locate roads can disrupt these movement patterns. Impediments to toad movements and alterations of habitats lead to habitat and population fragmentation, which can ultimately result in the loss of a population given a prolonged period of isolation.

Direct, indirect, and cumulative effects to boreal toad by alternative were examined by comparing miles of motorized routes traversing known occupied habitat and miles of road within 1 mile of known occupied habitat (Tables 3-25 and 3-26). As three of the five known populations of boreal toad are located in Wilderness, less than 0.1 miles of motorized route transverse known boreal toad habitat. Conversion of a motorized route to a mountain bike trail in the Brush Creek watershed will eliminate all motorized routes potentially affecting boreal toad habitat. The miles of motorized routes within 1 mile of boreal toad habitat will be reduced across all action alternatives. Alternative 3 will reduce motorized routes the most (38 percent) and Alternative 2 the least (11 percent reduction). The Preferred Alternative reduces the miles of road within 1 mile of occupied habitat by 28 percent.

Table 3-25. Miles of Routes Traversing Occupied Boreal Toad Habitat in Gunnison Basin Travel Analysis Area.

6th HUC Watershed Supporting Boreal Toad (designator)	No Action Alternative 1	DEIS Proposed Action Alternative 2	Alternative 3	Alternative 4	Preferred Alternative Alternative 5
	(miles of route traversing occupied habitat)				
Upper Taylor River (140200019509)	0.03	0.03	0.03	0.03	0.03
Cement Creek (140200019904)	0	0	0	0	0
Farris Creek (140200019905)	0	0	0	0	0
Brush Creek (140200019906)	0.05	0	0	0	0
Middle East River (140200019907)	0	0	0	0	0
Copper Creek (140200019909)	0	0	0	0	0

Table 3-26. Miles of Routes within 1 Mile of Occupied Boreal Toad Habitat in Gunnison Basin Travel Analysis Area.

6th Level HUC Watershed Supporting Boreal Toad (designator)	No Action Alternative 1	DEIS Proposed Action Alternative 2	Alternative 3	Alternative 4	Preferred Alternative Alternative 5
	(miles of routes within 1 mile of occupied habitat)				
Upper Taylor River (140200019509)	8.90	8.74	6.55	10.79	6.55
Cement Creek (140200019904)	0.10	0.10	0.10	0.10	0.10
Farris Creek (140200019905)	0	0	0	0	0
Brush Creek (140200019906)	12.60	11.69	7.14	8.98	9.42
Middle East River (140200019907)	2.35	0.76	0.76	0.76	0.76
Copper Creek (140200019909)	0.82	0.82	0.82	0.82	0.82
Average (% reduction)	4.13	3.69 (11%)	2.56 (38%)	3.58 (13%)	2.96 (28%)

Determination of Effect and Rationale — Boreal Toad

All four action alternatives *may impact boreal toad individuals, but not likely to result in a loss of viability on the analysis area, nor cause a trend to federal listing or a loss of species viability range-wide*. This determination is based upon the following factors:

The miles of road traversing occupied boreal toad habitat is currently low and will not increase under any of the action alternatives.

A motorized route in the Brush Creek watershed will be converted to a bicycle trail. Bicycle trails generally are narrower than motorized routes, so the amount of ground disturbance is lower. The risk of a petroleum leak from motorized vehicles will also be eliminated.

All alternatives reduce miles of roads within 1 mile of known boreal toad habitat. Alternative 3 reduces miles of road the most and Alternative 4 the least.

Motorized routes remaining under all alternatives will continue to have chronic long-term direct, indirect, and cumulative effects to boreal toads and their habitats.

Affected Environment – Aquatic Threatened, Endangered or Candidate Species

Species Information

Greenback Cutthroat Trout (*Oncorhynchus clarki stomias*): Federally Listed Endangered Species

The Gunnison National Forest has prepared and transmitted a biological assessment to Fish and Wildlife Service discussing the effects of route by route decision covered in the Gunnison Travel

Analysis on threatened, endangered, or candidate species. While the potential effects of all action alternatives to greenback cutthroat trout (a federally listed endangered species) are discussed below, an effect determination will only be made based on the preferred alternative in accordance with the Endangered Species Act (ESA) of 1972.

Life History and Biology

Greenback cutthroat trout (GBCT) is native to the headwaters of the South Platte and Arkansas River drainages and a small segment of the South Platte drainage in Wyoming. GBCT distribution and numbers of fish declined rapidly beginning in the 1800s. By 1973, when the ESA was passed into law, GBCT only existed in two small headwater streams (Como Creek and the South Fork, Cache La Poudre River). The subspecies was listed under the ESA as "endangered" in 1973 and downlisted to "threatened" in 1978.

Greenback cutthroat trout and Colorado River cutthroat trout (CRCT) are closely related subspecies. Metcalf et al. (2007), using genetic markers (molecular markers from the mitochondrial and nuclear genomes), discovered that many native populations of GBCT are comprised of CRCT. This error in taxonomy of the GBCT was explained by the introduction of Colorado River cutthroat trout throughout the native range of GBCT in the late 19th century and early 20th century through fish stocking activities. This study also revealed the presence of pure populations of GBCT in Western Colorado, which is outside the historic range of GBCT but within the historic range of Colorado River cutthroat trout. Results of the study indicate that GBCT, within its native range, may be at a higher risk of extinction than ever before despite the intense conservation efforts that have occurred for more than two decades.

Population and Habitat Conditions and Trends

In 2007 and 2008, tissue samples were collected from captured fish from several streams that support cutthroat trout populations on the GMUG and sent to Pisces Molecular in Boulder, Colorado. The amplified fragment length polymorphism (AFLP) technique was used to examine genetic variation. Seventeen of the populations were determined to be genetically "pure" or nearly pure GBCT. In addition, the Greenback Trout Recovery Team identified six additional streams that are thought to support "pure" populations of greenback cutthroat trout based on previous genetic testing or stocking history. Of the 23 populations documented or suspected on the GMUG, 13 occur in the Gunnison Basin travel analysis area (Table 3-27).

Table 3-27. Watersheds with Populations of Greenback Trout.

Subwatershed (6th Level HUC)	Stream Name	Habitat Conditions[1]	Miles of Occupied Habitat	Total Adult Population Estimates (High)[2]	Genetic Purity
Antelope Creek	West Antelope Creek	Good	5	50	Pure – no evidence of hybridization
Upper Hubbard/ Alder Creek	Main Hubbard Creek	Good	2	242	Pure – minor hybridization with other cutthroat subspecies
Upper Hubbard/ Alder Creek	Middle Hubbard Creek	Good	2	150	Pure – minor hybridization with other cutthroat subspecies
Paonia Reservoir	Deep Creek	Good	3	111	Pure – no evidence of hybridization
Upper West Muddy Creek	Dyke Creek	Good	4	116	Pure – minor hybridization with other cutthroat subspecies

Subwatershed (6th Level HUC)	Stream Name	Habitat Conditions[1]	Miles of Occupied Habitat	Total Adult Population Estimates (High)[2]	Genetic Purity
Lower West Muddy Creek	Roberts Creek	Good	2	138	Pure – minor hybridization with other cutthroat subspecies
Terror Creek	East and West Terror Creeks	Good	3	498 (West Fork)	Pure – minor hybridization with other cutthroat subspecies
	Cunningham Creek		2	490	Pure – minor hybridization with other cutthroat subspecies
Lower East Muddy	Henderson Creek	Good	4	Unknown	Unknown but suspected greenback based upon stocking history
Clear Fork East Muddy	Clear Fork Muddy	Excellent	2	NA	Hybridization with other cutthroat subspecies
	Rock Creek	Good	2	17	Pure – minor hybridization with other cutthroat subspecies
Lee Creek	Chair Creek	Good	2	NA	Pure – no evidence of hybridization

[1]*Habitat conditions from Colorado Division of Wildlife 2008 Cutthroat database.*
[2]*Number of fish greater than 150 mm in length.*

Within the analysis area, GBCT are known to occur in 9 subwatersheds. Within these sub-watersheds, approximately 32 miles of stream are known to be occupied by GBCT. All of the occupied streams are small, with a wetted width less than 2 meters and flow less than 2 cubic feet per second (cfs). Habitat conditions are considered good on all occupied reaches. Population estimates for fish over 150mm range from a low of 50 in West Antelope Creek to over 400 fish in West Fork Terror Creek. Streams are generally small (<2m) and have low late summer and winter base flows. Because of their small size and low base flows, streams are often vulnerable to drought.

Most of the streams lack suitable spawning gravel and substrate is frequently dominated by fine sediment (i.e., <2mm).

On stream segments where the riparian area is dominated by trees, large wood is generally abundant and provides adequate overhead cover and in-channel habitat.

Sub-watersheds supporting GBCT generally have low to moderate levels of anthropogenic influence with seven of the nine classified as Activity Class 1 or 2 (Table 3-28). Antelope Creek and Paonia Reservoir sub-watersheds are Integrity Class 3 and 4, respectively. Factors influencing lower integrity classes are motorized route density and percent of canopy removed by past vegetation treatment projects.

Table 3-28. Greenback Cutthroat Trout Watershed Integrity, Sensitivity, and Activity Ratings.

Greenback Streams	Watersheds	Integrity Class	Sensitivity Class	Activity Class	Factor Influencing Integrity Class 3 or 4 results
West Antelope Creek	Antelope Creek	3	2	3	Motorized route density, % canopy removed
Hubbard Creek	Upper Hubbard	2	3	2	

Greenback Streams	Watersheds	Integrity Class	Sensitivity Class	Activity Class	Factor Influencing Integrity Class 3 or 4 results
(Main /Middle)	Creek				
Deep Creek	Paonia Reservoir	4	3	4	Motorized route density
Dyke Creek	Upper West Muddy Creek	1	2	2	
Roberts Creek	Lower West Muddy Creek	1	2	2	
West/East Fork Terror Creek, Cunningham Creek	Terror Creek	2	3	2	
Henderson Creek	Lower East Muddy	1	3	1	
Clear Fork Muddy Rock Creek	Clear Fork East Muddy	1	3	1	
Chair Creek	Lee Creek	1	3	1	

As GBCT are newly discovered species on the GMUG National Forest, the existing Forest Plan does not directly address management objectives for the subspecies. However, the Forest Service has prepared a species and conservation assessment for CRCT that identifies threats and possible target watersheds for expansion of cutthroat trout populations on Forest Service lands. While not explicitly stated in this assessment, these goals also apply to GBCT until such time that more species-specific direction can be developed. Goals for cutthroat trout are:

To assure long-term survival of cutthroat by working to establish two self-sustaining populations in the Gunnison Geographic Management Unit (GMU),

To maintain areas which currently support abundant cutthroat trout populations and manage other areas for increased abundance,

To maintain genetic diversity of the species(s), and

To increase the distribution of cutthroat where ecologically, sociologically, and economically feasible.

Environmental Effects to Greenback Cutthroat Trout

Direct, indirect and cumulative effects to GBCT by alternative were examined by comparing the number of stream crossings per mile of stream (Table 3-29) and miles of road within the water influence zone (WIZ) (Table 3-30). General direct and indirect effects to aquatic biota have been previously discussed.

The numbers of crossings per mile of stream in watersheds supporting GBCT are reduced the most under Alternative 3, with a 35 percent reduction, and the least under Alternative 4 (no change in the average number of stream crossings). The Preferred Alternative reduces the number of crossings an average of 15 percent. The Preferred Alternative results in no change in crossing density in Paonia and Clear Fork watersheds. Reducing the number of stream crossings will reduce potential migration barriers, point of entry for road derived sediment, the risk of direct channel and riparian habitat alteration during construction, reconstruction, and maintenance, and impacts resulting from chemical contamination from spills and road treatments.

The miles of route per square mile of WIZ in watersheds supporting populations of greenback cutthroat trout are reduced the most under Alternative 3, with an average 27 percent reduction, and Alternative 4 the least (a 16 percent reduction). The Preferred Alternative reduces WIZ density an

average of 20 percent. The Preferred Alternative reduces WIZ density in all watersheds except Paonia Reservoir and Lee Creek, which remain the same, and Clear Fork Muddy Creek, with a slight increase. This slight increase (approximately 0.3 miles) of motorized route in WIZ due to the conversion of small section of a current non-motorized route into a motorized route. This increase will have no measureable effect on the quality or quality of cutthroat habitat. A reduction in miles of route in WIZ will reduce direct effects to riparian areas, wetlands, and floodplains from habitat alteration and reduces the risk of sediment and other contaminates delivered to wetlands, riparian areas and in-channel habitats due to inadequate buffers.

Table 3-29. Stream Crossing Density (number of crossings/mile stream) in Watersheds with Greenback Cutthroat Trout.

6th Level HUC Sub-watershed Supporting GBCT (designator)	No Action	DEIS Proposed Action Alternative 2	Alternative 3	Alternative 4	Preferred Alternative Alternative 5
	(number of crossings/mile stream)				
Antelope Creek (140200020311)	0.63	0.38	0.35	0.36	0.38
Upper Hubbard Creek (140200045602)	0.74	0.66	0.66	0.61	0.61
Paonia Reservoir (140200041104)	0.32	0.32	0.21	0.64	0.32
Upper West Muddy Creek (140200045502)	0.56	0.49	0.45	0.48	0.48
Lower West Muddy Creek (140200045501)	0.56	0.56	0.57	0.67	0.56
Terror Creek (140200041103)	0.99	0.88	0.06	0.95	0.91
Lower East Muddy Creek (140200040901)	0.12	0.09	0.06	0.14	0.09
Clear Fork (140200040903)	0.13	0.13	0.11	0.15	0.13
Lee Creek (140200040902)	0.25	0.25	0.28	0.28	0.25
Average (% reduction)	0.48	0.42 (13%)	0.31 (35%)	0.48 (0 %)	0.41 (15%)

Table 3-30. Water Influence Zone Motorized Route Density (mi route/mi^2 WIZ) by Watershed with Greenback Cutthroat Trout.

6th Level HUC Subwatershed) Supporting GBCT (designator)	No Action	DEIS Proposed Action Alternative 2	Alternative 3	Alternative 4	Preferred Alternatiave Alternative 5
	(mi route/mi^2 WIZ)				
Antelope Creek (140200020311)	3.80	2.08	2.07	2.15	1.96
Upper Hubbard Creek (140200045602)	3.46	3.08	3.08	3.08	2.97
Paonia Reservoir (140200041104)	0.74	0.74	0.49	0.74	0.74

6th Level HUC Subwatershed) Supporting GBCT (designator)	No Action	DEIS Proposed Action Alternative 2	Alternative 3	Alternative 4	Preferred Alternatiave Alternative 5
	(mi route/mi^2 WIZ)				
Upper West Muddy Creek (140200045502)	1.76	1.69	1.54	1.66	1.67
Lower West Muddy Creek (140200045501)	4.89	4.78	4.46	4.89	4.78
Terror Creek (140200041103)	1.17	1.07	093	1.11	1.07
Lower East Muddy Creek (140200040901)	0.19	.15	0.12	0.22	0.15
Clear Fork (140200040903)	0.68	0.77	0.57	0.57	0.77
Lee Creek (140200040902)	0.30	0.30	0.30	0.53	0.30
Average (% reduction)	2.34	1.88 (19%)	1.69 (27%)	1.93 (16%)	1.85 (20%)

Specific routes were identified by the ID team as routes of concern to GBCT (Table 3-31). A route of concern is a route that is currently affecting GBCT habitat directly (e.g., the existence of a stream crossing, road, or trail immediately adjacent to occupied GBCT habitat). The designation does not mean these routes must be removed from the system to eliminate or minimize effects. In many cases, routine maintenance or hydrologic upgrading (e.g., improve roadside and runoff drainage) on the route may be sufficient to eliminate or minimize effects to stream, riparian, or wetland habitat. The two routes (UT 7159 and 8181A) identified in the West Antelope subwatershed are proposed for closure under all action alternatives. Three of the four routes in the Terror Creek subwatershed will either have the mode of travel changed or will be closed. Alternative 3 addresses these specific problem routes most restrictively by decommissioning four of the routes and managing travel on one route for administrative use only.

The Preferred Alternative will also reduce route specific impacts by decommissioning three routes and limiting two routes to administrative use only. Two Forest Service roads (#820.0 and #703.0) will not see a change in the type of designated use under any alternatives including the Preferred Alternative. The #820.0 route crosses Deep Creek at one location and #703.0 route crosses West Terror Creek or a tributary creek to West Terror Creek at three locations. These routes will continue to have small chronic impacts associated with their use especially at stream crossings.

Table 3-31. Motorized Use Designation for Routes Directly Affecting Greenback Cutthroat Trout Habitat.

6th Level HUC Subwatershed Supporting GBCT	Route Number	No Action	DEIS Proposed Action Alternative 2	Alternative 3	Alternative 4	Preferred Alternative Alternative 5
Antelope Creek	UT-7159	Motorcycle	Close	Close	Close	Close
	78181A	High-clearance vehicles	Close	Close	Close	Close
Paonia Reservoir	820.0	ATV	ATV	ATV	ATV	ATV
Lower West Muddy Creek	None identified					
Upper Hubbard Creek	None identified					
Terror Creek	703.0	High-clearance vehicles	High-clearance vehicles	High-clearance vehicles	High-clearance vehicles	High-clearance vehicles
	703.2B	High-clearance vehicles	Close	Close	Close	Close
	703.1A (.21 mi.)	High-clearance vehicles	Admin.	Admin.	High-clearance vehicles	Admin.
	703.1A (1.87 mi.)	High-clearance vehicles	Admin.	Close	Close	Admin.
Lower East Muddy Creek	None identified					
Clear Fork East Muddy	None identified					
Lee Creek	None identified					

Cumulative Effects – Greenback Cutthroat Trout

Cumulative effects under the ESA include the effects of future state, tribal, local, or private actions that are reasonably certain to occur in the analysis area. Future federal actions will be analyzed for effects to threatened and endangered species at that time.

The scale for the cumulative effects analysis is a subwatershed. The types of activities occurring in these sub-watersheds include but are not limited to timber harvesting, fuels reduction and management, livestock grazing, energy exploration and development, and residential and commercial development. A broader discussion and evaluation of cumulative impacts at the landscape level can be found at the end of this chapter.

The amount of human activity occurring on private and state lands and its potential effects to watershed and aquatic system health is not easily quantified. As an approximation of the amount of activity and inherent sensitivity of a subwatershed to management, watershed integrity was used. Upper Hubbard Creek, West Muddy Creek, Terror Creek and Lower East Muddy sub-watersheds are either Integrity Class 1 or 2, indicating a relatively low level of anthropogenic influences (Table 3-28). Under all action alternatives, the number of crossings per stream mile and the miles of road in

WIZ will be reduced in these sub-watersheds, thereby reducing anthropogenic activity levels. Integrity levels are expected to remain the same or slightly improved under all alternatives.

Antelope Creek has a watershed Integrity Class 3 rating, and Paonia Reservoir has an Integrity Class 4 rating. The primary factor attributing to these integrity classes is motorized route density. All action alternatives will reduce stream crossing density and acres of roads in the WIZ in the Antelope Creek subwatershed, which will reduce the level of impact and thereby improve watershed integrity. Stream crossing density and miles of routes in WIZ in the Paonia Reservoir watershed only occurs under Alternative 3.

Determination of Effect and Rationale – Greenback Cutthroat Trout

As greenback cutthroat trout are federally listed as threatened, the Endangered Species Act requires federal agencies to consult with USFWS only on the federal action. In the case of the Gunnison Basin travel analysis area, Alternative 5 is the preferred action. Therefore, it was concluded in the biological assessment that Alternative 5 will result in a "may affect, not likely to adversely affect greenback cutthroat trout."

Rationale for a *may affect, not likely to adversely affect* determination as follows:

> The number of stream crossing per mile of stream will be reduced an average of 9 percent across all watershed supporting GBCT. No watersheds supporting GBCT will have an increase in the number of stream crossings.
>
> The miles of route per square mile of WIZ will be reduced an average of 20 percent across all watersheds supporting GBCT. No watershed supporting GBCT will have an increase in miles of routes per square mile WIZ.

Most of the routes believed to be directly affecting greenback trout populations are either being decommissioned or being closed to the public (Table 3-31). The exception in route #703.0, which will remain open to high-clearance vehicles, and route #820.0, which will remain open to ATV use. The #703 route crosses West Terror Creek or tributary of West Terror Creek at three locations high in the drainage, and all three crossings are low-water fords. The #820.0 route is an ATV route that crosses Deep Creek low in the drainage. All four route crossings provide fish passage, and, therefore, the primary mechanism of potential effect is sedimentation from run-off or when vehicles drive through the crossings. To further reduce these potential effects, the following conservation measure will be included as part of the travel decision:

- The four stream crossings in question will be inventoried and measures identified to reduce the amount of fine sediment entering the channel. Measures include, but are not limited to, construction of rolling dips or waterbars or hardening of crossings with riprap. All proposed measures will be coordinated with a fisheries biologist to ensure fish passage is maintained.

WILDLIFE

Affected Environment — General Wildlife Species

The Gunnison Basin travel analysis area is located within the Rocky Mountain Forest Eco-Region of the Highland province and includes four major climatic and vegetation zones: lower montane forest, upper montane forest, subalpine forest, and alpine vegetation. Common vegetation types occurring from low to high elevation are: sagebrush; pinyon-juniper; Gambel oak (oakbrush); ponderosa pine; Douglas-fir; aspen; lodgepole pine; Engelmann spruce/subalpine fir and alpine. These vegetation types provide habitat for a large number of wildlife species. Riparian zones traverse through all of the vegetation types and are the most important single habitat type for wildlife. These riparian zones are

used as travel corridors, foraging areas, cover habitat, and water sources. Generally, a diverse mosaic of vegetation and physical land features provides for excellent habitat for a wide variety of wildlife. A few of the wildlife species in the analysis area are hunted, particularly big game and game birds. The remaining species contribute to the diversity and richness of the ecosystem.

Portions of the NFS lands contain large blocks of spruce/fir, lodgepole pine, mixed aspen/conifer forest habitats, and expanses of alpine. There are many other general vegetation cover types present on the Forest Service and BLM lands. These include Douglas-fir, aspen, ponderosa pine, pinyon/juniper, grassland, mountain shrub, sagebrush, and wet meadow.

The presence of Wilderness and adjacent roadless areas has maintained large tracts of federal land in more native conditions than those areas where human activity is more prevalent. There are large expanses of high elevation alpine ecosystems dominated by rock habitats within the analysis area. The lower elevation mountain passes and saddles provide important connectivity between the remote, high-elevation alpine habitats.

Wetlands within the analysis area are found in association with streams, lakes, ponds, reservoirs, springs, fens, and marshes. These wetlands range from areas which are permanently submerged with emergent vegetation, to areas which are only seasonally saturated at the surface following snowmelt and vegetated by sedges, rushes, and willows. Wetlands provide essential habitat for aquatic and terrestrial wildlife species. Associated riparian vegetation and adjacent uplands provide preferred habitats for many wildlife species.

There are over 300 species of terrestrial wildlife associated with the cover types found in the analysis area. Some species are wide ranging habitat generalists, utilizing a variety of cover types and vegetative structural stages. Other species have limited ranges or utilize specific vegetative cover types and/or structural stages.

Seasonal big-game concentration areas have been mapped for the analysis area. The mapping is based upon long-term aerial flight data and the knowledge of local areas by District Wildlife Managers for the Colorado Division of Wildlife CDOW. The state maps are used to help identify sensitive habitat areas and where conflicts with existing roads, trails, and other users may exist.

Human activities related to roads and trails have varying effects on wildlife species depending on many factors including the level of human use, the type of activities, habitats involved, time of day or season, and the species affected. Basically all activities related to roads and trails will have an effect on wildlife species. The widespread, detrimental impacts of human disturbance on wildlife are well documented in the literature. No positive benefits to wildlife have been identified from increases in travel management access. Direct and indirect effects on wildlife that have been identified in the literature indicate negative impacts on all studied species as motorized, mechanized, foot, and horse uses increase (Joslin and Youmans 1999; Rowland et al. 1996; Wisdom et al. 2004; Kaseloo 2005; USFS 2008; Naylor et al. 2008; Francis et al. 2009). Loss of quality or quantity of habitat, disturbance or displacement of species, physiological reactions to stress, and exploitation of specific wildlife species are examples of general effects of human activities related to roads and trails on wildlife species.

Much of the literature, especially the literature regarding elk, suggests that motorized activities may have a greater impact than non-motorized activities. The literature shows that elk are displaced a greater distance away from motorized routes than non-motorized routes. However, foot, horse, mechanized, and other non-motorized activities related to roads and trails may have as great an impact as motorized use if level of use is high, unrestrained dogs accompany the user, or use is at times of day or season of the year especially critical to the affected wildlife species. In some cases, seasonal closure or restrictions of type of use are means of dealing with these varying impacts.

Requirements to restrain dogs on specified routes are beyond the scope of this project; however, this type of restriction could be applied in the future.

The travel management planning area is currently well routed with a variety of roads and trails for all users. The impacts to wildlife are especially critical where routes are parallel within 1 mile of each other, bisect large (greater than 250 acres) otherwise unroaded areas of habitat, or are adjacent to or through special habitat areas. For instance, the Taylor River bighorn sheep herd primarily utilizes the area flanked by the Taylor River, Taylor Park, and Spring Creek; This herd has been reduced over the years and productivity has declined to near zero; ram herds have been displaced and lambing grounds show minimal use. There are a number of factors that could be the cause of this decline, including disease, increased recreation activity, reduction of suitable habitat, and predation. CDOW is monitoring the herd for disease and predation activity, and the Gunnison Ranger District has proposed activities to enhance habitat. The travel management plan has proposed a number of changes in this area, including closure of routes, seasonal restrictions on some routes to all users, and motorized closures in an effort to block a large segment of contiguous habitat for this species. The Forest Service and CDOW believe that these measures in combination will provide more quality, undisturbed habitat for this species, resulting in increased production, a return of the sheep to their traditional habitats, and herd recovery.

Analysis Methods

Habitat Effectiveness

Habitat effectiveness (HE) is a measure of potential use of suitable habitat that is applicable to all wildlife species, but this analysis, it is used specific to elk. Habitat effectiveness is "the degree to which a physical wildlife habitat is free from man-caused disturbances and therefore attractive to wildlife occupancy" (GMUG Forest Plan Appendix D, pg. D-8). General Direction in the GMUG Forest Plan is to "manage public motorized use on roads and trails to maintain or enhance effective habitat for elk" (GMUG Forest Plan III-76). Standards and guidelines associated with this direction are: a) "Objective level for habitat effectiveness for elk within each analysis/diversity unit is at least 40 percent (i.e., 40 percent or above)," and b) "Habitat effectiveness will be determined by evaluating road density and human activity on roads."

The Forest Service Region 2 Habitat Capability (HABCAP) computer model was used to determine wildlife habitat capabilities for the existing situation (No Action) and the three action alternatives. In this analysis, Lynx Analysis Units (LAU) within the Gunnison and Paonia Ranger Districts and/or 5th level HUC watersheds within adjacent BLM lands were used as analysis/diversity units.

Quantifiable forest plan standards for wildlife related to these management area prescriptions include big-game HE values. HE values are generated using the HABCAP habitat capability model. The model is a computerized tool for quantitative habitat analysis. It provides estimates of the capability of habitats to support wildlife species based on the mix of vegetation cover types and structure (derived from habitat structural stages) present in an area. The model was developed for application at the planning area and project analysis levels for forest plan implementation. It is intended for use in estimating capability at a single point in time. It does not simulate change over time.

HABCAP analysis was done for elk only. The analysis of elk habitat effectiveness is a quantitative analysis. Other issues related to elk and other wildlife habitat requirements related to travel management are geographic (i.e., spatial) in nature. Analysis of these geographic issues was done using the best available resource data from existing geographic information system (GIS) information.

The Forest Service and BLM have mapped existing roads and trails on Forest Service and BLM lands. This mapping is based upon aerial photography, U.S. Geological Survey (USGS) quad maps,

Primary Base Series (PBS) maps, and project maps, as well as field verification. Seasonal big-game concentration areas have been mapped for the analysis area. This mapping is based upon long-term aerial flight data and local CDOW Wildlife Manager's knowledge of the analysis area. From a wildlife perspective, the travel management analysis is based on travel conflicts with winter wildlife concentration areas, summer wildlife concentration areas, elk calving areas, and elk security areas.

A literature review was conducted to research the effects of vehicle use and recreation on wildlife species and habitat. The findings of this research were incorporated in the analysis of travel management and are referenced as environmental consequences. This research was utilized to supplement the results of the quantitative and geographic analysis and to further display the anticipated effects of the types of travel proposed under the alternatives.

The analysis area contains some large tracts of relatively unroaded, unfragmented land, which provide essential habitat to wildlife. Most of these areas are associated with existing Wilderness and lands identified as RARE II areas. Collectively these tracts of lands are referred to as habitat security areas in this document and contribute to the degree of habitat "patchiness" of the landscape.

The area of influence for terrestrial wildlife habitat varies with the species being evaluated. Some animals may have limited distribution and home range, while others may be wide–ranging, with extensive distribution. Habitat associations are used in combination with species biology and distribution to determine the appropriate scale for assessment. For purposes of this analysis, effects to threatened, endangered, or sensitive species viability was determined for the individual and for the population within the area and also range-wide (known distribution).

Special habitats are those areas where habitat features provide an important area for one or more wildlife species. These include: mineral licks, water sources, denning sites, important food production areas (mast, berries), travel corridors, and critical winter ranges. Other important habitat features provide areas for breeding or reproduction. These include areas such as elk calving areas, bighorn sheep lambing ranges, nesting or roosting sites, etc. These risk factors have been established to help prevent the disturbance to these sites and were used, in part, to identify currently open roads that should be closed to public travel. Designations are:

High Risk – The road traverses special habitat(s).

Medium Risk – The road is within 1 mile of special habitat(s).

Low Risk – The road is within 1 to 2 miles of special habitat(s).

No Risk – The road does not meet above criteria.

Many species of wildlife are migratory in nature between their summer and winter habitats. Nearly all big game species move to lower elevations during the winter. These winter ranges provide crucial habitats for the animal's survival.

A rating system of risk factors has been established and is used to evaluate disturbances to wildlife. If a road segment is considered a high risk because of its location (i.e., in threatened or endangered species habitat, big game migration/critical winter range, within ½ mile of known goshawk/eagle nest, within ½ mile of a sage-grouse lek or within a bighorn sheep lambing area), then the entire road rating is considered high risk. Risk factors are described below.

High Risk – The road is open for travel in winter and is within winter range.

Medium Risk – The road is within 1 mile of winter range.

Low Risk – The road is within 1 to 2 miles of winter range.

No Risk – The road does not meet above criteria.

The following risk factors have been established to help prevent the disturbance to mast food production sites.

High Risk – The road traverses summer or fall concentration areas.

Medium Risk – The road is adjacent to summer or fall concentration areas.

Low Risk – The road is within 1 mile of summer or fall concentration areas.

No Risk – The road does not meet above criteria.

Evaluating the effects of actions on MIS represents the effects and influences of land uses on many other wildlife species. The list of MIS species currently includes several species for the Gunnison and Paonia Ranger Districts and adjacent BLM lands.

The following risk factors have been developed for some MIS species, especially elk:

High Risk – The road traverses habitat area or is within ¼ mile.

Medium Risk – The road is within ½ mile of the habitat area.

Low Risk – The road is more than ½ mile of the habitat area.

No Risk – The road does not meet the above criteria.

For the Forest Service, the general direction specified for aquatic and terrestrial habitat management within the GMUG Forest Plan includes "Maintaining habitat for viable populations of all existing vertebrate wildlife species." To maintain habitat for viable populations, the Forest-wide standard and guideline is to "maintain habitat effectiveness." HE is another measure of potential use of suitable habitat that is specific to elk. HE is "The degree to which a physical wildlife habitat is free from man-caused disturbance and therefore attractive to wildlife occupancy" (GMUG Forest Plan Appendix D, pg. D-8).

Forest Plan direction is to "manage public motorized use on roads and trails to maintain or enhance effective habitat for elk" (GMUG Forest Plan page III-76). Standards and guidelines for specific projects associated with this plan direction are: a) to achieve "objective levels for elk habitat effectiveness within each fourth order watershed of at least 40 percent (i.e., 40 or above)." The effects of implementing a project on habitat effectiveness "will be determined by evaluating road density and human activity on wildlife."

To evaluate elk HE, the analysis area was divided into habitat areas established as LAUs. LAUs were used because the habitat requirements for solitude are similar for both lynx and elk. As these two species are highly sensitive to human disturbance, they are analyzed in more detail. Providing secure habitat for elk provides secure habitat for other species. These LAUs were established using watershed boundaries, home range, and transportation systems. Effects to elk HE are evaluated within each LAU.

A Road Density Index is based upon the weighted density of open road and motorized trails within each drainage area or habitat unit. Road and motorized trail densities were determined for each LAU for No Action (existing conditions) and the Preferred Alternative (Table 3-32)[11]. The overall road and trail density was determined first by calculating the miles of road and trails open to motorized use per section (640 acres) for each LAU. The Forest Plan contains a road density/use habitat effectiveness table (GMUG Forest Plan, pg. III-77) as guidance for determining weighted road and motorized trail density (Table 3-32). Adjusted miles are calculated by multiplying the miles of road type by their

[11] *The data for calculating Adjusted Road Densities for LAUs was reevaluated and updated between the DEIS and FEIS. Since the Preferred Alternative was developed for the FEIS, the road densities for the other alternatives evaluated in the DEIS were not included since those Alternatives have already been evaluated and further comparisons are not needed.*

coefficients. The sum of average adjusted miles is then compared to Table 3-33 and the road density/use habitat effectiveness is determined (Table 3-34).

Table 3-32. Adjusted Road Densities* by Lynx Analysis Unit (LAU).

LAU	No Action	Preferred Action Alternative 5
Almont	1.35	1.04
Anthracite	0.07	0.07
Bald Mountain	0.39	0.30
Beckwith Mtn.	0.30	0.28
Black Mesa	1.15	0.94
Brush Creek	0.58	0.49
Castle Pass	0.49	0.44
Cathedral	0.20	0.15
Cebolla	0.40	0.40
Chester	1.20	0.90
Cochetopa	1.54	1.10
Crater Lake	0.87	0.73
Fossil Ridge	0.48	0.39
Gothic	1.10	0.93
Grizzle Peak	0.83	0.68
Huntsman Mtn.	0.13	0.13
Los Pinos Creek	1.40	1.18
Mount Gunnison	0.86	0.72
Mule Park	0.86	0.75
Needle-Razor	0.87	0.58
Peeler Lakes	0.76	0.67
Pitkin	1.81	1.38
Ragged Mtn.	0.49	0.46
Red Creek	1.18	0.88
Rocky Brook	0.93	0.82
Sawtooth Mtn.	0.89	0.68
Slumgullion North	0.23	0.23
Slumgullion South	0.63	0.59
Soap Creek	0.30	0.23
Stewart Creek	0.99	0.77
Tincup	1.68	1.39
Tomichi Dome	2.03	1.39
Trail Creek	0.91	0.67

LAU	No Action	Preferred Action Alternative 5
Upper Taylor	0.60	0.51
Upper Tomichi	1.03	0.92
Whetstone Peak	0.36	0.41
Average % change from No Action	0.81	.67 14% reduction

** Road Density is a measure of road miles for primary, secondary, primitive, and high-clearance vehicle roads and does not include administrative roads.*

Table 3-33. General Guidelines for Identifying Road Class Areas.

Road Type	Average Daily Traffic	Coefficient
Primary	> 5 vehicles /day	1.0
Secondary	1-5 vehicles /day	0.7
Primitive	<1 vehicle /day	.05
Closed	none	0.0

Table 3-34. Average Adjusted Open Route Density and Habitat Effectiveness for Elk.

Average Adjusted Miles of Open Roads and Trails	Route Density/Use Habitat Effectiveness
0	100%
0.5	80%
1.0	60%
2.0	50%
3.0	40%
5.0	20%

The GMUG Forest Plan standard (2A) is to not exceed an average of 2 miles of open road per square miles (GMUG Forest Plan, pg. III-104). One objective is to maintain habitat effectiveness of at least 50 percent throughout the GMUG, 80 percent on areas emphasized for big game management, and 90 percent on winter ranges.

Road and trail classifications were also based on mode of travel, width of clearing, travel speeds, and, to a lesser degree, maintenance levels. Primary roads are the main high-standard, improved roads. Secondary roads are collector roads and main spurs of moderate to high standard. Some secondary roads have designed alignments and may receive irregular maintenance. The influence of open roads and motorized trails upon elk habitat effectiveness is based upon research from Lyon (1983, 1985a, 1985b). In summary, the impact of open road and motorized trail densities varies by use level. Primitive roads and trails have the least impact, primary roads have the greatest impact and secondary roads are between the other two. The higher the road and motorized trail density (for those roads and trails open to public travel), the greater the impact is to elk HE. This research is also the basis for the HE standard and guideline within the GMUG Forest Plan (III-77).

The Gunnison and Paonia Ranger Districts of the GMUG and adjacent BLM lands contain some tracts of relatively unroaded, unfragmented land that provide essential habitat to wildlife. Most of these areas are associated with existing Wilderness and lands identified as roadless areas. Natural disturbance (e.g., fire and avalanche) and man-caused disturbance, such as mining, timber harvest, or private land development, all contribute to the degree of habitat patchiness of the landscape. On a

landscape scale, habitat security areas and Wilderness contribute to regional biodiversity. Regional biodiversity refers to the pattern of habitats and species assemblages across a large area of land. This level of biodiversity has important functional ramifications. For instance, many wide-ranging animals require a variety of habitat types occurring over a large geographic area.

Table 3-35. Elk Habitat Effectiveness for the Preferred Alternative for Each LAU

LAU	No Action	Alternative 5
Almont	0.57	.59
Anthracite	0.87	.96
Bald Mountain	0.85	.84
Beckwith Mountain	0.86	.85
Black Mesa	0.61	.62
Brush Creek	0.55	.76
Castle Pass	0.88	.78
Cathedral	0.91	.91
Cebolla	0.78	.80
Chester	0.56	.63
Cochetopa	0.55	.58
Crater Lake	0.65	.68
Fossil Ridge	0.75	.80
Gothic	0.64	.62
Grizzly Peak	0.63	.69
Huntsman Mountain	0.91	.93
Los Pinos Creek	0.58	.57
Mount Gunnison	0.56	.68
Mule Park	0.65	.67
Needle-Razor	0.59	.73
Peeler Lakes	0.76	.70
Pitkin	0.54	.55
Ragged Mountain	0.78	.77
Red Creek	0.63	.63
Rocky Brook	0.55	.65
Sawtooth Mountain	0.80	.69
Slumgullion North	0.86	.88
Slumgullion South	0.82	.72
Soap Creek	0.89	.88
Stewart Creek	0.71	.66
Tincup	0.54	.55
Tomichi Dome	0.53	.55

LAU	No Action	Alternative 5
Trail Creek	0.56	.69
Upper Taylor	0.69	.75
Upper Tomichi	0.57	.62
Whetstone Peak	0.80	.79
Average % change from No Action	0.69	0.70 1% improvement

Analysis Assumptions

The HABCAP model is simplistic and restricted in its computation of information; therefore, GIS information was also utilized to analyze habitat effectiveness based on the best available resource data. A significant limitation to the HABCAP model is that habitat effectiveness calculations are based only on the total miles of route compared to acres of the analysis area, without consideration for the spatial distribution of these routes.

Road and trail classifications include type or mode of motorized vehicle travel (i.e., passenger cars, full-sized vehicles, OHVs, etc.) and road or trail maintenance levels. Primary routes are the main high-standard, improved roads and trails that receive regular maintenance (maintenance levels 3 and above). Secondary routes are used by high-clearance, full-sized vehicles or OHVs. Primitive routes, open to non-motorized travel only, were not modeled because those routes are assumed to result in undetectable effects by HABCAP. Changes in the volume of travel on routes are assumed to change with seasonal activities like hunting.

The documented elk habitat security areas represent large, relatively non-fragmented tracts of land of a minimum of 250 acres without a road within ½ mile of an outside boundary. Impacts from roads and motorized trails are calculated to be occurring outward of a road for ½ mile. It is believed that habitat security areas are large enough to represent all native ecosystem types and seral stages across their natural range of variation and to provide suitable habitats for species sensitive to fragmentation and disturbance. It is assumed that maintenance of habitat security areas may offset the impacts of high road densities in some areas and contribute to the preservation of viable populations of native species

General Wildlife Species

The following species are analyzed because they represent wildlife that has the potential to be negatively impacted by travel management decisions and because they are economically important. These wildlife species are also representative of a larger group of species utilizing similar habitats.

Mountain goat (*Oreamnos americanus*)

Within the analysis area, mountain goats are found in the Collegiate Range, San Juan Range, and the Elk and West Elk Mountains. Mountain goats roam the high rocky alpine terrain of these and adjacent peaks during the summer and fall. In late fall, the goats move to lower slopes or wind-blown ridges at higher elevations. Breeding usually occurs from November to early December. Mountain goats are generally confined to very steep rocky country where they feed on high elevation grass and grass-like plants. In winter and early spring, they will make use of some mahogany, mountain maple, willow, and aspen. The young, usually one, are born in traditional kidding areas from May 15 to June 15. Key habitats include natural mineral licks, kidding grounds, traditional wintering areas, and perennial migration routes.

Mule Deer (*Odocoileus hemionus*)

Mule deer are the most common big game animal within the analysis area. They can be found at all elevations in summer and fall and concentrate on winter ranges in winter and spring. Mule deer are found in forested habitats, open shrub habitats such as sagebrush, and mixed-browse habitats. Large concentrations can be found in the Gunnison Basin, although the population suffered severe losses during the winter of 2007-2008. The analysis area has had one of the largest mule deer populations in Colorado.

Key habitats include winter ranges, fawning areas, and migration routes. Winter ranges usually feature a combination of browse species, favorable southern exposure, and topographic and vegetative features that provide thermal cover, security, and escape cover. Mule deer concentrate both in small groups and large herds on their winter ranges, where they browse primarily on Gambel oak, sagebrush, mahogany, serviceberry, bitterbrush, chokecherry, juniper, and other browse species. Sagebrush is the key food and cover species during the winter months. In spring, mule deer make a slow migration toward their summer range. Fawning occurs from June 1 to June 15. During this time period, their diet shifts somewhat to include more grasses and forbs. The young, usually twins, are born in lower to middle elevation zones. During the summer, the aspen, spruce-fir, and subalpine habitats are heavily used. The aspen habitat type is by far the most heavily utilized. As fall approaches, a rapid migration movement is made to winter ranges in early October. This process can be accelerated by hunting pressure or weather. During the fall, the oakbrush and juniper habitats are most heavily utilized, especially where these habitats are interspersed with sagebrush.

Pronghorn antelope (*Antilocapra americana*)

Antelope more commonly occurs on BLM lands because of their habitat preference for open grasslands, sagebrush, and shrublands found at lower elevations adjacent to timbered habitat. Forbs, shrubs, and some grasses are the primary food items for this species. Because pronghorn are found at lower elevations, there is not much distinction between summer and winter ranges, and in some areas, the species is a year-round resident. Antelope fawns, usually twins, are born between June 1 and 15. This species also suffered severe losses in the winter of 2007-2008 in the Gunnison Basin. Sagebrush habitats are preferred for fawning because of the cover it provides the young when first born. Antelope will water more than once daily; therefore, water sources are an important feature of their habitat. Key habitat features include winter foraging areas, water sources, and fawning sites.

Black bear (*Ursus americanus*)

The black bear is fairly common throughout the entire analysis area. Oakbrush habitats are the most commonly used habitat type. A large part of the Gunnison Basin does not contain the oak habitat component, although black bear are still present but in smaller numbers than other areas on the entire GMUG. Black bear are especially common in the West Elk Mountains, which for the most part, are outside of the analysis area. Home ranges extend to 200 sq. km for females and 400 sq. km for males. Mast, the fruit acorn of the Gambel oak, is a primary food source for black bears. Berry producing shrubs such as chokecherry, serviceberry, and current are also important components of bear habitat. Black bears den primarily in rock caverns and enter these dens in late October or early November. Young black bear, usually one, are born in these dens in January and remain in the den until emergence in April. Key habitats include: denning habitat, mast producing areas, and secure fall foraging areas. Areas high in acorn mast and berry production are where bears concentrate in late summer and fall.

Mountain lion (*Felis concolor*)

The mountain lion is a relatively common, but seldom seen, species within the analysis area. The healthy mule deer population supports a good mountain lion population, especially in the West Elk area, where deer concentrations occur. The lion occupies all habitat types within the analysis area. Lions, particularly males, have extremely large home ranges, which can encompass territories of up to 100 square miles. Young, two to three, are usually born in mid-summer but may be born during any part of the year. Birthing and rearing of young lions usually occurs in rugged rocky country where natural caves or rock overhangs are present. Key habitats include den sites and mule deer concentration areas.

Moose (*Alces alces*)

Moose have been historically present in the analysis area; they have been re-introduced on the Paonia Ranger District. They subsequently moved into the southern portions of the analysis area from a moose re-introduction area around Creede, Colorado. Moose have been re-introduced on National Forests adjacent to the analysis area and may become more numerous in the future. Moose are generally sedentary animals and are associated with riparian willow habitats. Moose calves, usually one but often two, are born in June. Key habitats include riparian willow, oak hillsides, aspen stands, and shallow lakes and ponds.

Elk (*Cervus elaphus*)

Rocky Mountain elk are found in substantial numbers in all portions of the analysis area where habitat provides security and forage to meet its needs. The elk herd on the Gunnison and Paonia Ranger Districts is one of the largest herds in North America and is extremely important, both from an economic and an ecological standpoint. Elk prefer reclusive habitats with an abundance of thick cover for security, ample forage, and limited accessibility by humans. Habitat effectiveness is strongly influenced by the amount of human use and associated human activities that occur within a particular area. The frequency and timing of disturbances are important factors.

Elk congregate in large herds during the winter at lower elevations on south or southwest facing slopes. Their preferred food is grass throughout the entire year. Winter herds may number up to 300 animals or more and are frequently found wintering on bare grassy ridges or hillsides in pinyon-juniper, sagebrush, or Gambel oak habitat types. Elk calving occurs from mid May to mid June. The oakbrush, sagebrush, and aspen ecosystems comprise most of the calving areas. Aspen and oak areas interspersed with small ponds are important calving and nursery sites. After calving, the cows and calves gather into large nursery groups at higher elevations because the disturbance from humans there is typically very low. Fall breeding activity occurs in the fall at the higher elevations where the cows gather. Spruce-fir habitats with few roads or minimal human intrusions are the preferred habitat. Elk can easily be prematurely moved to their winter ranges by human-related activity, early snowfalls, or a lack of forage. Migration to winter ranges is often occurs quickly utilizing distinct migration routes. These migration routes have been mapped in locations where they have been identified. Key habitats include elk wallowing areas, winter ranges, migration routes, calving areas, and fall breeding areas.

Several key elk calving areas are located within the Gunnison and Paonia Ranger Districts. The calving grounds identified in the analysis area are typically used annually by local elk herds. In the analysis area, elk calving occurs from early May to the end of June, with peak activity around late May to early June.

Elk summer concentration areas are generally areas with available cover, food, water, and space and are highly influenced by road density, human activity, forage availability, and presence of cattle. During the hunting seasons (late August through mid November), elk seek security areas on NFS

lands and on adjacent BLM and private lands. Security areas are remote, unroaded tracts of at least 250 acres of undisturbed land whose boundaries are more than ½ mile from a road. These areas reduce elk vulnerability to disturbance and potential harvest, and they provide stable habitat for elk, rather than having the animals move to adjacent private lands.

Although portions of the Gunnison Ranger District provide significant big-game winter range, overall, less than 10 percent of the winter range is located within National Forest boundaries. Most winter range occurs at lower elevations (6,000 to 8,000 feet) on adjacent private and BLM lands. The winter range identified by the CDOW has been mapped and included in this analysis. Animals concentrate on winter range from as early as October until late March or April. Elk prefer grass but will use browse when grass is unavailable during periods of heavy snow.

Elk are easily conditioned to patterns of human activity within their home range but are also keenly aware of deviations from those patterns (Thomas et al. 1982). Ward (1973) showed that elk seldom are alarmed at normal disturbance-type activities such as vehicular traffic, camping, fishing, or other recreational activities beyond a threshold distance of ½ mile. Activities within this distance, however, resulted in evasive movement by elk to reestablish and maintain a ½-mile buffer between themselves and the human activity (Ward and Cupal 1979). A number of studies have established the consistent year-round influence of motorized vehicles on elk use of preferred habitats (Thomas et al. 1982). Ward (1976), Perry and Overly (1977), Lyon (1979), and others have documented a decline in elk use of areas adjacent to roads. The width of the area avoided by elk has been reported as ranging from 0.25 to 1.8 miles, depending on the amount and kind of traffic, quality of the road, location, and density of the cover adjacent to the road. For the purposes of this analysis, the ½ mile threshold distance was used to evaluate impacts to elk.

Motorized use during the fall big-game hunting seasons increases measurably. There are seasonal restrictions to mitigate motorized use impacts in key use areas already in place, and the restrictions will be retained unless otherwise noted. The carrying capacity of habitat on Forest Service lands is limited in some areas by vegetative conditions, and distribution of elk is influenced by vehicular travel. The vulnerability of elk to harvest is greater in roaded habitats than in unroaded habitats (Leptich and Zager 1990, Unsworth and Kuck 1990, Hurley and Sargeant 1990). Studies have documented that bull elk in roaded habitats are more than twice as likely to be killed during the fall hunting seasons as those in areas with very few roads (Unsworth and Kuck 1990). This rise of hunting success usually only lasts one year, however, as the male segment of the population is diminished rather quickly. The annual harvest influences the population structure of big-game herds as well as hunter opportunities (Olterman, pers. comm.). Areas with high harvest have fewer mature bulls within the population, which can ultimately affect herd genetics.

Increased traffic volume occurs on forest roads and trails during the big-game hunting seasons. The primary change in use and the corresponding impacts to HE is on the primitive roads and motorized trails. Elk habitat effectiveness is adversely influenced by the presence of roads and trails that are open to vehicular traffic (Thomas et al. 1979, Hoover et al. 1984). In general, habitat effectiveness decreases in proportion to the amount of open (motorized) routes per square mile of habitat (Lyon 1983). Existing use levels easily exceed the HE threshold of fewer than 1 vehicle per day (see Analysis Methods, below). This level of use would increase to at least secondary road status, receiving average daily traffic use of 1 to 5 vehicles per day. This increased use represents a significant impact on HE for elk. As shown above, the coefficient for primitive roads is 0.05, whereas the coefficient for secondary roads is 0.7 (see Analysis Methods, below). Secondary roads have a high degree of influence on HE due to their intensity of use. This represents a significant reduction in HE during the big-game hunting seasons. Therefore, additional analysis has been done to display the increased effects of travel during the hunting seasons.

Elk avoid areas adjacent to roads with vehicular traffic, especially during the hunting seasons. Elk movements are generally confined to habitats within a traditionally used home range, but they spend more time in dense cover during hunting season than they do before the hunting season. Elk also respond to hunting pressure by moving to adjacent undisturbed areas or refuges such as National Parks (Thomas and Toweill 1982) or large tracts of private land closed to hunting (Bennett, pers. comm).

The existing road densities in LAUs vary from 0 mile per square mile in some Wilderness areas to 2.58 miles of road per square mile in the Tomichi Dome LAU. These road density values are used to generate habitat effectiveness values using the HABCAP analysis. The HE values range from a low of 0.53 in the Tomichi Dome LAU to 0.94 in the Cathedral LAU (largely Wilderness) for spring and summer use periods. During fall hunting seasons, HE values are reduced due to the higher number of travelers on the more primitive roads. Under all alternatives, travel by motorized vehicles and bicycles off of designated routes will continue to be restricted. This is considered to be a baseline condition for the purposes of this analysis. This restriction, in place since 2001, appears to have shown improved wildlife security and reduced disturbance.

The habitat security areas that meet criteria have been mapped for the Gunnison Basin and represent large, relatively unfragmented tracts of land that contain the full range of vegetation types common on Forest Service and adjacent BLM lands. These habitat security areas are large enough to represent all native ecosystem types and seral stages across their natural range of variation and to provide suitable habitats for those species sensitive to fragmentation and disturbance. Habitat security areas, if present, can offset the impacts of intensively roaded portions of the analysis area and contribute to maintaining viable populations of native species in natural patterns of abundance and distribution.

Over the last two decades many elk herds in Colorado have changed their habits due to the ever-increasing degradation of habitat through private development and the increasing disturbance by humans in their natural habitats. To avoid disturbance, many elk herds move to winter ranges on private lands early in the season. Game-related damage problems have become common in areas where elk use large tracts of private land to avoid hunting pressure or other disturbances such as motorized travel. Numerous factors may influence elk habitat preference, seasonal distribution, and habitat use. These include snow depth, forage quality and availability, competition with domestic livestock, and disturbance from human activity, all of which in turn may influence population numbers and cause population fluctuations. Impacts on elk that occupy the analysis area include: habitat alteration from recreational activities, motorized travel, logging, oil and gas/mineral development, and, livestock grazing. If habitat alteration or disturbance is severe enough, areas may become unsuitable, forcing elk into less-disturbed areas or onto private lands. The shift from public to private lands during the hunting seasons can cause below objective harvest, thus allowing elk numbers to increase above CDOW objectives in some areas.

Road and trail densities and the mode of travel on those routes have the greatest influence on elk HE. The route miles open to public travel does change by alternative; therefore, the HABCAP model was used to compare these changes by alternative elk HE. The analysis/diversity units used in the model are based on existing LAUs. These analysis units are related to the biological needs of a species and represent biologically acceptable units of analysis for elk. Table 3-35 summarizes the HABCAP results for elk HE for the Preferred Alternative[12] by analysis/diversity unit.

[12] *The data for calculating Adjusted Road Densities for LAUs was reevaluated and updated between the DEIS and FEIS. This information is used to calculate HE, therefore only updated HE information by LAU for the Preferred Alternative is presented int the FEIS. The HE results for the other alternatives evaluated in the DEIS were not included since those Alternatives have already been evaluated and further comparisons are not needed.*

Environmental Effects – General Wildlife Species

Vehicular traffic is expected to increase in the analysis area regardless of the decisions to be made concerning the designation of routes open to the public. This is due to the expectation that motorized travel will continue to be a popular form of recreational activity on federal lands. With an increasing population in Colorado and increasing recreational visitation on federal lands, it can be expected that vehicle trips and traffic counts will continue to increase: this would be adverse to wildlife as there would be direct mortality from vehicle collisions and more users traveling the existing routes would increase the potential for poaching and more frequent human/wildlife encounters resulting in disturbance or displacement. As the frequency of human encounters increase, wildlife will move off federal lands to private lands where access is more controlled or prohibited.

Road and trail maintenance would continue and these actions can remove vegetation or widen the actual footprint of the road or trail travel surface. Loss of vegetation along roads may be minor in the overall vegetative landscape, but often, the vegetation adjacent to roads may provide important cover for wildlife to escape vehicles and to hide.

For the analysis of effects of roads and trails on wildlife, road density can be used to compare alternatives. Road density provides a quantifiable measure of roads and trails that can be linked to impacts on wildlife. In general, the greater the road density over a given unit of wildlife habitat, the more potential adverse effect the road has on wildlife. For this reason, this metric was used to track potential wildlife impacts by alternative for each of the LAUs that defined habitat areas on the federal lands within the analysis area.

Environmental Effects of No Action (Alternative 1)

Under the No Action alternative, habitat conditions and wildlife populations would be expected to remain the same as the currently existing condition. Vehicular travel would continue on the existing routes, and where those routes currently impact wildlife, those impacts would continue. The effects of travel on big game and their habitat vary considerably depending on the degree of disturbance. Activity that is of short duration and has minimal habitat disturbance will generally cause a temporary displacement of big game animals because of their wide ranging mobility. Animals will move back into preferred habitat sites once all activity has ceased and habitat security is once again present. Repeated disturbance may eventually result in the habitat becoming unoccupied.

Keeping motorized and mechanized travel to designated routes would benefit wildlife as this would limit the travel related disturbance to the ½ mile zone on either side of the existing routes. Road density is most critical to the elk and, to a lesser extent, mule deer. Other terrestrial wildlife species in this analysis are also impacted by human intrusions into their habitats and habitat fragmentation. Those existing intrusions would continue. Displacement from preferred habitat and traditional home range forces the animals to move into marginal habitats or onto already occupied optimum habitat. This results in overcrowding of this habitat, resulting in over utilization of the range, and greatly increases the threat of disease transmittal. Direct mortality due to traffic on roads and trails is always present due to animal/vehicle collisions, and there continues to be the potential for poaching of game.

Proliferation of new user-created routes would most likely continue. The Forest Service and BLM would continue to take steps to control the creation of user- created routes. It is the intrusion of such routes into wildlife security areas, increased fragmentation of habitats, and disturbance during key breeding and rearing seasons that would have the most impact on terrestrial wildlife species. Under the No Action Alternative unauthorized or unplanned creation of new routes may have a greater impact on wildlife than the existing road and trail routes open to public travel.

Environmental Effects of the DEIS Proposed Action (Alternative 2)

Alternative 2 would reduce the road density in many areas. Adjusted road densities would be reduced by 17 percent from the existing situation. Reducing road densities has a beneficial consequence to all terrestrial wildlife species but would be clearly most beneficial to the elk. Closure of existing roads would provide renewed security but not to the extent of that area when it was unroaded. Even closed roads provide an avenue for human encroachment as an easy route for foot travel or horseback. Maintaining roadless areas has a positive impact on wildlife due to the preservation of large, un-fragmented habitats and security areas. Under this alternative, there would be fewer miles of road and motorized trail, and elk would be more likely to remain on federal lands rather than be displaced to adjacent private lands.

HE, for example would improve for most LAUs in the analysis. Mean HE is 0.71: this represents a 2 percent increase over the existing condition (0.69). This would be of general benefit to wildlife at the landscape-scale of analysis. As with the No Action alternative, there would continue to be new user-created routes. The consequences of such unauthorized or unplanned route proliferation would be similar to those impacts identified for No Action.

Vehicular travel is expected to increase even if there are actually fewer miles of road and trail open to the public because of the continued increased demand for recreational travel. Some areas may not experience increased traffic because roads and trails may be closed to the public and access to some areas may only be by foot or horseback, which typically creates less of an intrusion to wildlife. With more vehicles, the impacts to wildlife are expected to be similar, though of less impact than the current situation, and there would be more chance for road related mortality of wildlife.

Under Alternative 2, about 4 miles of road that have been decommissioned by some form of closure under the existing conditions would become open for motorized travel. These 4 miles of road are to be for administrative use rather than open to the general public for travel. There are approximately 10 miles of trail where, under this alternative, motorized travel would be allowed that was not allowed under existing management. Of the 10 miles, 4 miles would be new construction. The alternative would plan for approximately 45 miles of new, non-motorized trail, which would require construction in the future. While new construction and the opening up of road and trails previously not open for travel could adversely impact wildlife, the amount of miles being considered for new motorized travel is extremely small when compared to the 4,400 miles of road and trail open under existing conditions. The adverse impacts associated with opening up new routes for travel should be more than offset by the closure of some 1,400 miles of existing roads and trails currently open to motorized travel in this alternative. New route construction will be thoroughly analyzed under a separate National Environmental Policy Act (NEPA) process.

Alternative 2 would reduce road density in many areas . Adjusted road densities would be reduced from the existing situation. Closure of existing roads would provide renewed security but not to the level of that area when it was un-roaded. Even closed roads provide an avenue for human encroachment as an easy route for foot travel or horseback. Maintaining the roadless areas has a positive impact on wildlife due to the preservation of large, un-fragmented habitats and security areas.

HE would improve for most LAUs in the analysis area . In general, while the calculated HE examines the effectiveness of habitat for elk, habitat would likely be improved for all wildlife species due to reduced road density and/or reduced use of roads through administrative closures or change in the type of use. Under Alternative 2, HE is expected to improve by approximately 2 percent across the affected LAUs.

Vehicular travel is expected to increase on the remaining open routes because of the continued increased demand for recreation travel and due to displacement of existing traffic from routes proposed for closure. With more vehicles, the impacts to wildlife are expected to be similar, though of

less impact than the No Action alternative, and there would be more chances for wildlife to be hit and killed by vehicles. Human disturbance related to the use of roads and trails could disturb individuals, but the levels of disturbance would be reduced because of the decrease in road densities and the improvement in HE values. For species that use an area on a recurring basis, their pattern of use may be established, and they may adapt to the existing environmental baseline.

Environmental Effects of Alternative 3

Under this alternative, there is a further reduction in road density for roads open to public travel. Adjusted road densities would be reduced by 27 percent from the existing situation. Further reductions in road densities would benefit wildlife similarly or to a greater extent than those positive impacts identified under Alternative 2. Habitat effectiveness would be further improved over the existing conditions associated with the No Action alternative and the proposed closures in Alternative 2. Under this alternative, more closures of secondary roads to motorized use would establish more miles of administrative use roads. Most administrative roads have daily traffic counts typically averaging less than one trip/day and would not be as adverse to wildlife as roads open to the public where daily traffic counts are higher, especially during hunting season. The mean HE under this alternative is 0.74, which is a five percent increase over the existing condition (0.69).

The miles of decommissioned roads that would become open to motorized travel is almost eliminated under this alternative compared to Alternative 2. There would be about 3 miles of non-motorized trail open to motorized use under this alternative compared to the 10 miles proposed in Alternative 2. Of these 3 miles, there would be 1 mile of planned new construction required to implement this alternative. As with Alternative 2, there would be about 23 miles of new non-motorized mountain bike trail planned that would require new construction in the future. New route construction will be thoroughly analyzed under a separate NEPA process.

Under Alternative 3, HE is expected to improve by approximately 5 percent across the affected LAUs.

The consequences of user-created routes and increase vehicular traffic are expected to be similar to those identified under the DEIS Proposed Action. Human disturbance related to the use of roads and trails would be reduced. The miles of road open to motorized travel is the lowest under this alternative and would have the least impact on wildlife. Implementation of Alternative 3 would reduce impacts to these species below the existing baseline conditions. Expected levels of human disturbance related to the use of roads and trails under this alternative could still disturb individuals. This alternative is expected to improve the habitats of these species over No Action and the DEIS Proposed Action alternatives.

Environmental Effects of Alternative 4

Under this alternative, road densities are lower than in the No Action alternative (adjusted road densities are reduced by 15 percent), but in several LAUs, the road densities are higher than the DEIS Proposed Action and Alternative 3. This is due to an increase in motorized trail miles in some areas. Under this alternative, the greatest number of elk calving and wildlife security areas would be impacted. As with Alternative 2, the habitat effectiveness ratings are the same or better than under existing conditions . Under this alternative, for both road density and HE ratings, there is a benefit to wildlife over the existing conditions at the landscape scale but not to the degree as the DEIS Proposed Action or Alternative 3. Habitat effectiveness is the same or better than under existing conditions. The mean HE under this alternative is 0.72, which is a 3 percent increase over the existing condition (0.69).

There would be about 4 miles of road decommissioned under this alternative that would become open for motorized travel. Essentially, all of these 4 miles of road are to be for administrative use rather

than open to the general public for travel. There are approximately 10 miles of trail on which, under this alternative, motorized travel would be allowed that was not allowed under existing conditions. Of the 10 miles, 4 miles would be new construction. Again, under this alternative, there would be a plan for approximately 90 to 110 miles of new trail that would require construction in the future. New route construction will be thoroughly analyzed under a separate NEPA process. Consequences to wildlife under this alternative would be similar to but more adverse than those impacts identified for the DEIS Proposed Action and Alternative 3.

The mean road density under Alternative 4 is 0.66 miles/square mile. This represents a reduction in mean road density of 15 percent compared to the existing condition (0.78 miles/square mile). HE is expected to improve by approximately 2 percent across the affected LAUs. The consequences of user-created routes and increased vehicular traffic are expected to be similar to those identified under the DEIS Proposed Action.

Consequences to wildlife under this alternative would be similar to but slightly more adverse than those impacts identified for DEIS Proposed Action. The greatest number of elk calving and wildlife security areas would be impacted when compared to the DEIS Proposed Action and Alternative 3. Under this alternative, human disturbance related to the use of roads and trails could disturb individuals. Impacts to wildlife under this alternative are similar to the other action alternatives, but with more miles of motorized trail there may be greater issues with noise and access into security areas. Implementation of Alternative 4 would reduce impacts to wildlife species below the existing baseline conditions. Expected levels of human disturbance related to the use of roads and trails under this alternative would be higher than all other action alternatives.

Environmental Effects of the Preferred Alternative (Alternative 5)

Under this alternative, there is a further reduction in road density for roads open to public travel (Table 3-32). Adjusted road densities would be reduced by 27 percent from the existing situation. Further reductions in road densities would benefit wildlife similarly or to a greater extent than those positive impacts identified under the DEIS Proposed Action. Habitat effectiveness would be further improved over the existing conditions associated with Alternative 1 and the proposed closures in the DEIS Proposed Action. Under this alternative, there would be more closures of secondary roads to motorized use, but there would be more miles of administrative use roads, more miles of single-track motorized, and fewer miles of ATV routes than in the DEIS Proposed Action. Most administrative roads would have very low daily traffic counts, typically averaging less than one trip/day, which would not be as adverse to wildlife as roads open to the public where daily traffic counts are higher, especially during hunting season. The mean HE under this alternative is 0.70, which is a 1 percent increase over the existing condition (0.69).

Similar to the DEIS Proposed Action, under this alternative, about 4 miles of road that have been decommissioned by some form of closure under the existing conditions would become open for motorized travel. These 4 miles of road will be for administrative use rather than open to the general public for travel. There are approximately 10 miles of trail on which, under this alternative, motorized travel would be allowed that was not allowed under existing conditions. Of the 10 miles, 4 miles would be new construction. The alternative would plan for approximately 45 miles of new non-motorized trail that would require construction in the future. While new construction and the opening up of road and trails previously not open for travel could adversely impact wildlife, the amount of miles being considered for new motorized travel is extremely small when compared to the 4,400 miles or road and trail open under existing conditions. The adverse impacts associated with opening up new routes for travel should be more than offset by the closure of some 1,400 miles of existing roads and trails currently open to motorized travel in this alternative. New route construction will be thoroughly analyzed under a separate NEPA process.

Under this alternative, HE is expected to improve by approximately 1 percent across the entire analysis area.

The consequences of user-created routes and increased vehicular traffic are expected to be similar to those identified for the DEIS Proposed Action. Human disturbance related to the use of roads and trails would be reduced where routes are closed. The number of miles of road open to motorized travel are lower than the DEIS Proposed Action but greater than Alternative 3. Implementation of the Preferred Alternative would reduce impacts to these species below the existing baseline conditions. Expected levels of human disturbance related to the use of roads and trails under this alternative could still disturb individuals. This alternative is expected to improve wildlife habitats over No Action, the DEIS Proposed Action.

Affected Environment-Management Indicator Species (MIS)

Certain wildlife species found in specific vegetation types have been selected to represent the habitat needs of a larger group of species requiring similar habitats. These are called MIS (management indicator species). The terrestrial wildlife MIS for the Gunnison Basin travel analysis area have been identified as elk, American marten, Abert's squirrel, northern goshawk, wild turkey, Brewer's sparrow, and red-naped sapsucker (Table 3-36).

Table 3-36. MIS found on the GMUG National Forest, including Habitat Requirements, and Potential for Occurrence in the Analysis Area*

Common Name	Habitat Association as Described by CVU	Habitat or Species Present Within the Analysis Area?
Rocky Mountain elk, *Cervus elephus*	Early succession spruce-fir, Douglas-fir, lodgepole, aspen, mountain shrub.	Yes
Abert's squirrel, *Sciurus aberti*	Late-succession ponderosa pine	Yes
American marten, *Martes americana*	Late-succession spruce-fir, lodgepole pine	Yes
Northern goshawk, *Accipiter gentilis*	Late-succession aspen	Yes
Brewer's sparrow, *Spizella breweri*	Sagebrush	Yes
Red-naped sapsucker, *Sphyrapicus nuchalis*	Aspen	Yes
Merriam's turkey, *Meleagris gallopavo*	Pinyon and juniper woodland, gambel oak	Yes
Trout species, *Oncorhynchus spp.*	Aquatic and riparian	Yes (see fisheries specialist report)

**This information is based on June 2001, July 2005 Management Indicator Species Assessment.*

MIS species with documented occurrence or habitat within the allotment planning area include American marten, Brewer's sparrow, northern goshawk, red-naped sapsucker, trout species, and Rocky Mountain elk. Detailed descriptions of the above species habitat needs, distribution, habitat and population condition, status, and trend are available in Management Indicator Species Assessment, Grand Mesa, Uncompahgre and Gunnison National Forests, June 2001 and May 2005.

Environmental Effects – Management Indicator Species (MIS)

The environmental effects common to all wildlife are listed in the previous section for general wildlife species. These environmental effects would be very similar for the MIS species. Impacts specific to the MIS are listed below for each of the alternatives.

Abert's Squirrel

Determination

All alternatives may impact individuals, but are not likely to cause a trend towards federal listing or result in loss of viability in the planning area. All action alternatives (2 – 5) will have long-term beneficial impacts. The proposed project is consistent with Forest Plan direction as it relates to Abert's squirrel.

Detailed descriptions of this species habitat needs, distribution, and habitat and population condition, status, and trend are available in Management Indicator Species Assessment, Grand Mesa, Uncompahgre and Gunnison National Forests, June 2001 and May 2005.

The Abert's squirrel is highly dependent on ponderosa pine to meet all of its life history requirements. As an obligate species of ponderosa pine forests, the Abert's squirrel is an indicator species useful to managers in assessing the effects of management activities on ponderosa pine habitat.

The Abert's squirrel is found on the south end of the Gunnison Basin in ponderosa pine areas around the Cochetopa Pass and Lake City areas. The Abert's squirrel is unique in that it is almost totally dependent on the ponderosa pine – it's food and cover requirements are met solely by this species of pine. Stands that average between 11 and 13 inches diameter at breast height and have a basal area of between 150 and 200 square feet/acre are preferred nesting sites (Patton 1977). Ideal habitat for this squirrel may be an older stand with all ponderosa pine age classes represented. They prefer to build their nests 30-50 feet above the ground in mature ponderosa pine trees. Home range size in one study area was approximately 5 acres in winter to 24 acres in summer (Pederson 1976). Abert's squirrels have and use more than one nest in their home range. Abert's squirrel young (3-4) are born in May or early June. Stick nests, tree cavities, and "witches brooms" (clumps of dwarf mistletoe) are used for rearing of the young. The primary foods of the Abert's squirrel include seeds, buds, terminal twigs, cones, and inner bark of ponderosa pine. The majority of ponderosa pine within the Gunnison Basin Analysis Area occurs on NFS lands and BLM lands. In the Gunnison Basin, 30 squirrel observations have been documented south of U.S. Highway 50 on NFS, BLM, and private lands. Sixty-three (63) nests have been located south of U.S. Highway 50 during a period between 2001 and 2004. Twenty three (23) sites were on BLM lands and 40 were on NFS lands. At this time, no squirrels have been located north of U.S. Highway 50. All Abert's squirrel sightings and nests have been located within ponderosa pine stands.

Primary factors influencing Abert's squirrel mortality and population viability include a combination of forest management activities and natural events. Timber harvesting and prescribed fire, without implementing design criteria to maintain or enhance Abert's squirrel habitat, leads to a decrease in the availability of high quality foods (Keith 1965, Patton et al. 1985, Pederson et al. 1987, Keith 2003) and may reduce the number of interlocking canopy trees. The major impact to these squirrels related to travel management is direct mortality due to collisions with motor vehicles and hunting. The Abert's squirrel is a hunted species in Colorado; as such, impacts to Abert's squirrel populations not related to habitat are primarily controlled by the CDOW. As squirrel populations in the Gunnison basin are relatively small and scattered, hunting is sporadic and mortalities are minimal.

The No Action alternative would maintain existing road and trail densities. Recreational activity related to roads and trails and associated mortality due to collision with motorized vehicles or hunting

would continue. No opportunity to reduce road densities would occur. Reduction of road densities proposed in Alternatives 2, 3, 4, and 5 would have a beneficial impact on the species by reducing the potential for vehicle-related mortality. The greatest benefit is seen with Alternative 3, followed by Alternative 5 (the Preferred Alternative); a lesser benefit is seen with the DEIS Proposed Action; and the least benefit is seen with Alternative 4. The introduction of new routes into backcountry areas with Alternative 4 may offset its beneficial impact where this species is present. Implementation of all action alternatives would reduce cumulative impacts below the existing baseline. No other direct, indirect, or cumulative impacts are expected.

Merriam's Turkey

Determination

The project may temporarily displace or alter how individuals use affected habitats through habitat alteration and/or disturbance, but these effects will not result in a change in population numbers or trends at the project or National Forest scales. The proposed project is consistent with Forest Plan direction as it relates to Merriam's turkey.

Detailed descriptions of this species habitat needs, distribution, and habitat and population condition, status, and trend are available in Management Indicator Species Assessment, Grand Mesa, Uncompahgre and Gunnison National Forests, June 2001 and May 2005.

Merriam's turkeys are susceptible to human disturbance at nest and roost sites. Route construction through suitable occupied habitat could disturb individuals and result in modified or lost nesting and/or foraging habitat. However, new route construction will be analyzed under a separate NEPA process. Road closures have the potential for disturbance and displacement of the species during closure activities depending on the level of closure utilized. Level of closure will be determined at the time of the activity. A separate NEPA process may be required. If level of closure is such that equipment is used or habitat is impacted, a short term disturbance or displacement of the species could occur.

The No Action alternative would maintain existing road and trail densities. Human disturbance related to roads and trails would continue. No opportunity to reduce road densities would occur. Reduction of road densities as proposed in Alternatives 2, 3, 4, and 5 would have a beneficial impact on the species by reducing human disturbance. The greatest benefit is seen with Alternative 3, followed by Alternative 5 (the preferred alternative); a lesser benefit is seen with the DEIS Proposed Action; and the least benefit is seen with Alternative 4. The introduction of new routes into backcountry areas with Alternative 4 may offset its beneficial impact where this species is present. Implementation of all action alternatives would reduce cumulative impacts below the existing baseline. No other direct, indirect, or cumulative impacts are expected.

Red-Naped Sapsucker

Determination

No impact. The proposed project is consistent with Forest Plan direction as it relates to red-naped sapsucker.

Detailed descriptions of this species habitat needs, distribution, and habitat and population condition, status, and trend are available in Management Indicator Species Assessment, Grand Mesa, Uncompahgre and Gunnison National Forests, June 2001 and May 2005.

Documented and anecdotal sightings of red-naped sapsucker occur in suitable habitats across the planning area. The Breeding Bird Survey (BBS) monitors bird populations over large geographic

areas and tracks the status and trends of North American bird populations. According to the BBS, red-naped sapsucker populations in North America have been in a significant upward trend from 1966 to 2004. Within the Southern Rockies ecosystem and the State of Colorado, red-naped sapsuckers have exhibited similar long-term significant increases.

From 1999 to 2004, red-naped sapsucker density estimates and counts have gone up within the Monitoring Colorado Birds (MCB) survey area (all of Colorado, portions of Wyoming and New Mexico, and Deer Lodge County in Montana) in both aspen and high-elevation riparian habitat types where they were detected. Within the MCB survey area, data reveals that the highest red-naped sapsucker density estimates occurred in high elevation riparian areas that contained aspen and willow habitat components, with estimated densities in 2004 at 1.5 birds per acre. At this time, MCB data for their entire survey area, including the GMUG, is insufficient to detect population trends due to the relatively short time-period (7 years) that data has been collected.

Primary threats to red-naped sapsucker include logging and fire suppression. The species is not known to be susceptible to human disturbance from general use of roads and trails, so red-naped sapsucker habitat would not be impacted by any of the travel management alternatives. There would be no direct impact on red-naped sapsucker habitat under any of the alternatives being considered. These birds have not been documented to be detrimentally affected by general use of roads or trails. No disturbance impacts are expected to occur under any of the alternatives. As no habitat will be affected and the species will not experience disturbance impacts, the determination for all alternatives is “no impact.” No direct, indirect, or cumulative impacts are expected.

Rocky Mountain Elk

Determination

The project may temporarily displace or alter how individuals use affected habitats through habitat alteration and/or disturbance, but these effects will not result in a change in population numbers or trends at the project or National Forest scales. The proposed project is consistent with Forest Plan direction as it relates to Rocky Mountain elk

Detailed descriptions of this species habitat needs, distribution, and habitat and population condition, status, and trend are available in Management Indicator Species Assessment, Grand Mesa, Uncompahgre and Gunnison National Forests, June 2001 and May 2005.

Essentially, all habitat types within the allotment area are suitable elk habitat. Elk prefer habitats with a mix of large cover patches interspersed with grassy meadows that are relatively free from human disturbance. Much of the allotment provides such habitat.

The planning area provides elk summer, spring, and fall transition range and winter range. Calving areas occur within the planning area. The Natural Diversity Information Source (NDIS), using CDOW information as a source, has mapped seasonal activity areas within the state, including the Gunnison Basin and the Paonia area. Winter and summer activity areas, including productions (calving) areas, winter and summer concentration areas, and overall winter and summer range have been mapped. Elk use of available habitat is highly influenced by available forage, presence of cattle, and lack of human activity. Elk seek areas with abundant forage and water and low levels of human activity.

Elk populations are intensively monitored by the CDOW. Annual harvest and census data is used to estimate elk populations within specified geographic areas known as Data Analysis Units (DAUs). The planning area includes all or a portion of elk DAU E-43, which includes Game Management Units (GMU) 55 and 551; DAU E-25, which includes GMU’s 66 and 57; DAU E-41, which includes GMU 54; a portion of DAU E-14, including part of GMU 521; and a portion of DAU E-52, including

parts of GMU's 53 and 63. Population data for these DAUs from years 1980 to 2008 indicate that the elk population has remained at or above objectives.

Elk habitat preference, seasonal distribution, and use of the project area are influenced by many factors, including human disturbance. Human disturbance has increased proportionally with increases in recreational use of roads and trails.

Route construction through suitable occupied habitat could disturb individuals and result in movement to less-desirable habitats. However, potential new route construction will be analyzed under a separate NEPA process. Road closures have the potential for disturbance and displacement of the species during closure activities depending on the level of closure utilized. Level of closure will be determined at the time of the activity. A separate NEPA process may be required. If level of closure is such that equipment is used or habitat is impacted, a short term disturbance or displacement of the species could occur.

The No Action alternative would maintain existing road and trail densities. Human disturbance related to roads and trails would continue. No opportunity to reduce road densities would occur. Reduction of road densities as proposed in Alternatives 2, 3, 4, and 5 would have a beneficial impact on the species by reducing human disturbance. The greatest benefit is seen with Alternative 3, followed by Alternative 5 (the Preferred Alternative); a lesser benefit is seen with the DEIS Proposed Action; and the least benefit is seen with Alternative 4. The introduction of new routes into backcountry areas with Alternative 4 may offset its beneficial impact where this species is present. Implementation of all action alternatives would reduce cumulative impacts below the existing baseline. No other direct, indirect, or cumulative impacts are expected.

Forest Plan Consistency

The current GMUG Plan (1991) management emphasis for the planning area is split between emphasis areas. A relatively small percentage of the planning area contains riparian and wetland areas intermingled within all prescription areas.

Quantifiable forest plan standards for wildlife related to these management area prescriptions include minimum habitat capability index (HCI) and big-game HE values. HCI and HE values are generated using the HABCAP habitat capability model. The model is a computerized tool for quantitative habitat analysis. It provides estimates of the capability of habitats to support wildlife species based on the mix of vegetation cover types and structure (derived from habitat structural stages) present in an area. The model was developed for application at the planning area and project analysis levels for forest plan implementation. It is intended for use in estimating capability at a single point in time. It does not simulate change over time. The model generates an HCI value that is a measure of overall habitat value of an area based on forage and cover quantity and quality. An HCI value of 1.0 represents optimum habitat. HE values for mule deer and elk are derived from HCI values that incorporate road densities into the calculation.

Minimum standard for HCI across all management areas is 0.40 or habitat capability at 40 percent of potential. All action alternatives maintain HE at levels at or above 40 percent. As travel management is not expected to change habitat structural stages, no impact on HCI or HE will occur.

Affected Environment — Sensitive Wildlife Species

Sensitive species or their habitat potentially affected by activities, decisions, or actions that are authorized and/or funded by the Forest Service must be protected. Under the authority of the National Forest Management Act, the Forest Service Rocky Mountain Region (Region 2) has developed and maintains a list of sensitive species located within its boundaries. The biological evaluation (BE)

addresses the potential impacts of the Gunnison Basin Federal Land Travel Management Planning on Region 2 Sensitive Species.

The Regional Forester-approved list of sensitive species was updated on April 30, 2007. The following list of species may occur on the NFS lands within the analysis area. Of the 12 sensitive mammal species found on the GMUG list, nine can be found in the analysis area. Of the 23 sensitive bird species found on the GMUG list, 16 can be found in the analysis area. There is one butterfly on the GMUG list but it is not found in the analysis area. Many of these species are associated with rare or unique habitats or are isolated, remnant populations.

The purpose of the BE is to document the likely effects on Forest Service listed sensitive species from the Preferred Alternative of action for travel management planning. The action area for the BE are federal lands within the analysis area. Decisions for travel management addressed in this document would pertain to both NFS lands and BLM lands. Lands under private ownership are outside the scope of the Proposed Action or alternatives and are not discussed further.

Sensitive Wildlife Species

The following species are on the Forest Service Region 2 list of Sensitive Species. There is a brief description of their range, habitat requirements, and special needs that define their environment in the analysis area.

Table 3-37 Sensitive Species Known or Suspected to Occur on the GMUG National Forest, including Habitat Requirements in the Travel Analysis Area.

Species	Habitats	Potential for habitat/occurrence
Mammals		
American marten, *Martes americana*	Old-growth spruce and lodgepole pine forests with abundant dead and downed trees.	**Suitable** habitat exists within the planning area.**
desert bighorn sheep, *Ovis canadensis nelsoni*	Open or semi-open, often precipitous, terrain characterized by a mix of steep or gentle slopes, broken cliffs, rock outcrops, and canyons and their adjacent river benches and mesa tops.	**No** suitable habitat, no potential for occurrence.
fringed myotis, *Myotis thysanodes*	Desert, grass, woodlands, spruce/fir from 3,500–8,500ft. caves, abandoned mines, and and buildings	**Suitable** habitat exists within the planning area.
Gunnison's Prairie dog, (*Cynomys gunnisoni*)	High mountain valleys and plateaus, grasslands	**Suitable** habitat exists within and adjacent to the planning area.
kit fox, *Vulpes macrotis*	Semi-desert shrublands and pinyon-juniper	**No** suitable habitat, no potential for occurrence.*
pygmy shrew, *Sorex hoyi montanus*	Wetlands/riparian and forest–meadow transition areas.	**Suitable** habitat exists within the planning area.
river otter, *Lontra canadensis*	Riparian systems w/10cfs permanent water and and abundant food base of fish and crustaceans	**Suitable** habitat exists within the planning area.
Rocky Mountain bighorn sheep, *Ovis canadensis canadensis*	Open or semi-open, often precipitous, terrain characterized by a mix of steep or gentle slopes, broken cliffs, rock outcrops, and canyons and their adjacent river benches and mesa tops.	**Suitable** habitat exists within the planning area.

Species	Habitats	Potential for habitat/occurrence
spotted bat, *Euderma maculatum*	Rough, arid, desert terrain. Variety of scrub and forest habitats. Mines, caves, buildings, rock fissures. 1,829–2,438 meters (6,000–8,000 feet).	**Suitable** habitat exists within the planning area.
Townsend's big-eared bat, *Plecotus townsendii*	Shrublands, pinyon-juniper woodlands, open montane forests, caves, and mines. 1,829–2,438 meters (6,000–8,000 feet).	**Suitable** habitat exists within the planning area.
white-tailed prairie dog, *Cynomys leucurus*	Lower elevation valleys and plateaus, grasslands	**No** suitable habitat, no potential for occurrence.
Wolverine, *Gulo gulo luscus*	Dense, mixed forest, tundra.	**Suitable** habitat exists within the planning area.
BIRDS		
American bittern, *Gotaurus lentiginosus*	Cattail marshes or wetlands, tall emergent vegetation, and adjacent wet meadows. Below 2,835 meters (9,300 feet).	**No** suitable habitat, no potential for occurrence.
black swift, *Cypseloides niger*	Waterfalls, cliffs.	**No** suitable habitat, no potential for occurrence.
black tern, *Chilidonias niger*	Lakes, marshes.	**No** suitable habitat, no potential for occurrence.
boreal owl, *Aegolius funereus*	Mature, old-growth spruce-fir, lodgepole pine, aspen. Above 2,804 meters (9,200 feet).	**Suitable** habitat exists within the planning area.
Brewer's sparrow, *Spizella breweri*	Sagebrush, pinyon-juniper/sagebrush	**Suitable** habitat exists within the planning area.
burrowing owl, *Athene cunicularia*	Prairie dog towns below 2,743 meters (9,000 feet).	**Suitable** habitat exists within the planning area.
ferruginous hawk, *Buteo regalis*	Plains, grasslands.	**Suitable** habitat exists within the planning area.
flammulated owl, *Otus flammeolus*	Old-growth and mature coniferous forests, mixed conifer, aspen, and pinyon-juniper. Elevation of 6,000-10,000 ft.	**Suitable** habitat exists within the planning area.
grasshopper sparrow, *Ammodramous savannarum*	Grasslands w/scattered shrubs, prairies	**No** suitable habitat, no potential for occurrence.
Gunnison sage-grouse, *Centrocercus minimus*	Later successional sagebrush and associated riparian habitats	**Suitable** habitat exists within the planning area.
Lewis' woodpecker, *Melanerpes lewis*	Lowland and foothill riparian forests and agricultural areas, urban areas w/ tall deciduous trees. Prefers understory of grasses for insects.	**Suitable** habitat exists within the planning area.
long-billed curlew, *Numenius americanus*	Riparian, short-grass meadows. Below 1,524 meters (5,000 feet).	**No** suitable habitat, no potential for occurrence.
loggerhead shrike, *Lanius ludovicianus*	Plains, low valleys, shrub lands.	**No** suitable habitat, no potential for occurrence.
northern bald eagle,	Usually found below 8,000 ft, although they utilize suitable habitat above 8,000 ft in the	**Suitable** habitat exists within the

Species	Habitats	Potential for habitat/occurrence
Haliaeetus luecocephalus	Gunnison Basin. Reservoirs and rivers. Occurs along the East, Taylor, and Gunnison Rivers during winter. Also uses semi-deserts, grasslands near prairie dog colonies and big game winter ranges.	planning area.
northern goshawk, *Accipiter gentiles*	Aspen, mature conifer. Remote areas.	**Suitable** habitat exists within the planning area.
northern harrier, *Circus cyaneus*	Grasslands, pastures	**Suitable** habitat exists within the planning area.
northern three-toed woodpecker, *Picoides tridactylus*	Spruce-fir. 2,438–3,505 meters (8,000–11,500 feet).	**Suitable** habitat exists within the planning area.
olive-sided flycatcher, *Contopus borealis*	Old-growth conifers, aspen, openings with snags. Abundant dead trees bordering meadows, bogs.	**Suitable** habitat exists within the planning area.
peregrine falcon, *Falco peregrinus*	Rock, cliff, cave, canyon.	**Suitable** habitat exists within the planning area.
purple martin, *Progne subis*	Old growth aspen mixed with ponderosa pine, Douglas-fir. Especially near water and open foraging area.	**Suitable** habitat exists within the planning area.
sage sparrow, *Amphispiza bellii*	Large patches (320 acres) of sagebrush generally below 1,700 meters (5,600 ft.)	**No** suitable habitat, no potential for occurrence.
trumpeter swan, *Cygnus buccinator*	Riverine wetlands, lakes	**No** suitable habitat, no potential for occurrence.
white-tailed ptarmigan, *Lagopus leucurus*	Alpine tundra	**Suitable** habitat exists within the planning area.
yellow billed cuckoo *Coccyzus americanus*	Open woodland w/dense undergrowth, parks, riparian woodlands, urban areas w/tall trees	**No** suitable habitat, no potential for occurrence.

**A finding of "no potential for occurrence" of a species is based on lack of current occurrence and unsuitable habitat for future occurrence. As the species does not have potential for occurrence, no impacts on the species will be incurred from the project. No further analysis is required.*
***Sensitive Species with potentially suitable habitat and potential for occurrence in the planning area include the American marten, wolverine, pygmy shrew, river otter, fringed myotis, spotted bat, Townsend's big-eared bat, Brewer's sparrow, boreal owl, burrowing owl, ferruginous hawk, flammulated owl, Gunnison sage-grouse, Lewis woodpecker, northern bald eagle, northern goshawk, northern harrier, northern three-toed woodpecker, olive-sided flycatcher, peregrine falcon, purple martin, and white-tailed ptarmigan. These species will be discussed later in this document.*

Although the presence of the above species with potentially suitable habitat in the analysis area may not have been positively confirmed, suitable habitat conditions may exist to support these species. For this reason, the potential effects of the alternatives will be evaluated as if these species were present.

General Environmental Effects on Sensitive Wildlife Species

The majority of sensitive species would not be directly affected by the decisions to keep roads and trails open for public travel. There would be little or no direct effects to the majority of these species in terms of their populations, loss of habitat, or long-term viability.

The anticipated impacts from maintaining roads and trails open to the public for travel to individual animals would be short-term, limited in scope and would not result in a loss of species viability within the analysis area nor cause a trend toward federal listing or a loss of species viability range-wide.

Sensitive species that may be most affected by decisions regarding public travel due to human disturbance include the American marten, Gunnison prairie dog, Rocky Mountain bighorn sheep, Gunnison's sage grouse, northern goshawk, and white-tailed ptarmigan. Many wildlife species are impacted by human intrusions into their habitats, particularly during those lifecycle periods (e.g., breeding, nesting, and rearing) where solitude and security are critical. Vehicular travel affords humans greater or easier access to much of the federal lands within the analysis area. This condition has existed for many years and some wildlife species may have shifted to other, less-impacted areas or have adapted to human presence. This could result in habitats becoming unsuitable, thereby reducing overall carrying capacity. Increases in the density of roads and trails can impact many of these species. Raptors and other birds are sensitive to human presence but can easily move to less-traveled areas. There needs to be some unroaded or security areas maintained to avoid additional loss of habitat or declines in species populations. Based on the anticipated consequences of keeping roads and trails open to public use, it is expected that bighorn sheep, northern goshawk, and Gunnison sage-grouse may be the most impacted sensitive species.

Use of existing roads and trails by the public can impact the habitats of these particular species because many of these existing roads and trails intrude into their habitats often fragmenting the landscapes or lessening the solitude the species seeks.

It is expected that the amount of traffic on routes open to public travel would increase due to increased recreational demand for motorized recreational travel, growing population within the state, and other factors that make the analysis area more desirable for non-motorized recreational travel. The potential for increased traffic on open routes would be adverse to species preferring solitude and seclusion during critical lifecycle periods (e.g., breeding, lambing, rearing, etc.), such as the wolverine and bighorn sheep. Additionally roads can act as barriers or obstacles to movement for species such as the pygmy shrew. Openings caused by roads and OHV routes may result in greater susceptibility to predation when crossed or the species may be reluctant to cross the open area, thus limiting available habitat.

Species Effect Determinations and Rationale

American Marten, Pygmy Shrew (MIS and Sensitive Species)

Determination: All alternatives may impact individuals, but are not likely to cause a trend towards federal listing or result in loss of viability in the planning area. All action alternatives will have a long-term beneficial impact.

Current levels of human disturbance related to motorized routes could disturb these species during some time-periods. However, adjacent habitat could provide adequate cover to avoid disturbance during periods of use on roads and trails. Should the species be using an area on a recurring basis, they would be adapted to the existing environmental baseline and their pattern of use of the area would be established. Roads can have a wide range of effects on these species, including mortalities from vehicle collisions, displacement near active roads, removal of fuel wood and vegetation near roads, and increasing exposure to pets and human foods.

Route construction through prime habitat and removal of existing vegetation could disturb individuals and result in modified or lost denning and/or foraging habitat. However, new route construction will be analyzed under a separate NEPA process. Road closures have the potential for disturbance and

displacement of pine marten and pygmy shrew during closure activities depending on the level of closure utilized. Level of closure will be determined at the time of the activity. A separate NEPA process may be required. If level of closure is such that equipment is used or habitat is impacted, a short-term disturbance or displacement of the species could occur.

Reduction of road densities as proposed in Alternatives 2, 3, 4, and 5 would have a beneficial impact on the species. The greatest benefit is seen with Alternative 3, followed by the Preferred Alternative (Alternative 5); a lesser benefit is seen with the DEIS Proposed Action (Alternative 2); and the least benefit is seen with Alternative 4. The introduction of new motorized routes into backcountry areas with Alternative 4 may offset its beneficial impact where these species are present. Implementation of all action alternatives would reduce cumulative impacts on pine marten below the existing baseline. No other direct, indirect, or cumulative impacts are expected. Applicable standards and guidelines are considered sufficient and no additional conservation measures are recommended.

Fringed Myotis (Sensitive Species)

Determination: no impact.

This is a colonial bat that lives primarily in caves. Little is known of the population status of this bat in the area. It may not be abundant anywhere within its range. This bat gives birth in the spring to one young per year. It prefers coniferous forests, woodlands, and shrublands up to 2,290 meters (7,500 ft) (Armstrong 1972; Fitzgerald et al. 1994). Habitats include ponderosa pine, pinyon-juniper woodlands, greasewood, oakbrush, and saltbush shrublands.

The fringed myotis is not common in Colorado. These bats begin to forage shortly after sunset, although most of their activity occurs after dark. Foraging occurs along lake edges, creek bottoms, and over intermittent streams (Schmidt 2003). These bats are gleaners and they forage close to the plant canopy, where they pick prey off the vegetation during a slow, maneuverable flight. The fringed myotis has a relatively broad diet, feeding on moths, beetles, caddis flies, ants, bees, wasps, and other insects. Caves, mines, and buildings are used as both day and night roosts. Localized migrations are thought to occur but firm data are lacking. Hibernation sites include caves and buildings from November to March. The few records of this species from Colorado are widely scattered both east and west of the Continental Divide (Barrett and Overly 1992, CDOW 1984, Fitzgerald et al. 1994). It is known to occur in Rio Blanco, Garfield, and Mesa counties (Ellison et al. 2003). Very little information is available concerning fringed myotis populations on the National Forest. Based on the lack of information, it is assumed that they may occur where suitable habitat is found. This would include those areas of the forest supporting pinyon-juniper and shrublands associated with karst topography.

Roads and trails in coniferous forests and woodlands occur within fringed-myotis habitat primarily on the Paonia portion of the planning area. The No Action alternative would maintain existing road and trail densities. Human disturbance related to roads and trails would continue. No opportunity to reduce road densities would occur. The routine use is well established and will not change existing environmental baseline conditions. Current levels of human disturbance could disturb finged-myotis should they be present. However, such disturbances would generally not disrupt nocturnal foraging activities and are not expected to occur in day roost areas.

Should fringed-myotis be using the area on a recurring basis, they would be adapted to the existing environmental baseline and their pattern of use of the area would be established. Use of equipment and removal of existing vegetation in the construction of new roads or trails could disturb individuals and result in modified or lost roosting and/or foraging habitat. However, new route construction will be analyzed under a separate NEPA process. Road closure activities are not expected to disturb or displace the species or impact habitat. Implementation of the action alternatives will not increase

cumulative impacts above the existing baseline. Local forest management activities and mine closures have been suggested threats to this species globally. This travel plan is not expected to alter local habitats. Applicable Forest Plan standards and guidelines are considered sufficient and no additional conservation measures are recommended.

Spotted Bat (Sensitive Species)

Determination: no impact.

Status is largely unknown. The spotted bat may be found in a variety of habitats including open ponderosa pine, desert shrub, and pinyon-juniper woodlands. They roost alone in rock crevices high up on steep cliff faces. The elevational range of this species is broad, from below sea level up to 10,600 feet. Colorado represents the eastern edge of the spotted bat's range (Fitzgerald et al. 1994). Cracks and crevices 1–2" wide in limestone or sandstone cliffs are important roosting sites. They are found in relatively remote, undisturbed areas, suggesting that they may be sensitive to human disturbance. This bat apparently breeds in late February to early April and gives birth to one young in late May to early July. Little is known of this bat's food habits except that it may feed primarily on moths. It may return annually to the same roosting areas. This bat migrates south for winter hibernation. The spotted bat is rare and may be limited by available roosting sites. Limestone cliffs, canyon walls, caves, and mine shafts are important to this species of bat.

Roads and trails in ponderosa pine woodlands and pinyon-juniper woodlands may occur within spotted bat habitat. Routine use would be well established and will not change existing environmental baseline conditions. The No Action alternative would maintain existing road and trail densities. Human disturbance related to roads and trails would continue. No opportunity to reduce road densities would occur. Current levels of human disturbance related to the use of open routes could disturb spotted bats during periods of operation, should they be present. However, such disturbances would generally not disrupt nocturnal foraging activities and are not expected to occur in day roost areas. Should spotted bats be using the area on a recurring basis, they would be adapted to the existing environmental baseline and their pattern of use of the area would be established. Use of equipment and removal of existing vegetation in the construction of new roads or trails could disturb individuals and result in modified or lost roosting and/or foraging habitat. However, new route construction will be analyzed under a separate NEPA process. Road closure activities are not expected to disturb or displace the species, or impact habitat. Implementation of the action alternatives will not increase cumulative impacts above the existing baseline. Applicable Forest Plan standards and guidelines for this species are considered sufficient and no additional conservation measures are recommended.

Townsend's Big-Eared Bat (Sensitive Species)

Determination: no impact.

This bat is colonial in nursery groups and in hibernation; otherwise, it may be solitary. These bats are late fliers and can remain undetected in an area unless they are trapped (Lechleitner 1969). They roosts in caves, abandoned mines, rocky cliffs, or buildings. Females have one young per year, usually in June. Little is known of the population distribution of this bat in the area. Records show a documented occurrence in the Gothic area. *P. townsendii* occurs in lower elevation, pinyon-juniper woodlands, semi-desert shrublands, and montane forests of the western United States south into Mexico. The range of the subspecies *P. t. pallescens* in Colorado represents the edge of this species' range (Fitzgerald et al. 1994; Armstrong et al. 1994; Armstrong 1972). Several occurrences are within federal lands, including: Dinosaur National Monument, Mesa Verde National Park, and Colorado National Monument.

Roads and trails in stream corridors and grassland openings within open, montane forested habitats in proximity to cave formations may occur within Townsend's big-eared bat habitat. The No Action alternative would maintain existing road and trail densities. Human disturbance related to roads and trails would continue. No opportunity to reduce road densities would occur. Current levels of human disturbance related to travel use could disturb Townsend's big-eared bats during periods of operation, should they be present. However, such disturbances would generally not disrupt nocturnal foraging activities and are not expected to occur in day roost areas. Use of equipment and removal of existing vegetation in the construction of new roads or trails could disturb individuals and result in modified or lost roosting and/or foraging habitat. However, new route construction will be analyzed under a separate NEPA process. Road closure activities are not expected to disturb or displace the species, or impact habitat. Implementation of the action alternatives will not increase cumulative impacts above the existing baseline. Applicable Forest Plan standards and guidelines are considered sufficient and no additional conservation measures are recommended.

Gunnison Prairie Dog (Sensitive and Candidate Species)

Determination: No Action alternative will likely to result in a loss of viability in the planning area or in a trend toward federal listing. All action alternatives may impact individuals, but are not likely to cause a trend towards federal listing or result in loss of viability in the planning area. Alternatives 2, 3, 4, and 5 will eventually have a long term beneficial impact.

The Gunnison prairie dog is currently a candidate species under the Endangered Species Act. It is found throughout the Gunnison Basin. Prairie dog populations and habitats are significantly reduced from the landscape they once occupied. There has been an estimated 95–98 percent decline in occupied habitat since the early 1900s (Miller 1994). The Gunnison's prairie dog is extinct over much of its historical range due to many factors, such as poisoning, plague, and habitat degradation. The Gunnison's prairie dog is a keystone species, enhancing diversity of an area by providing prey for other animals.

Little is known about the population of Gunnison's prairie dog in the Gunnison Basin. There was a reported 15,569 acres of prairie dog towns in 1980. There was a 98.3 percent decrease in the number of acres by 2002. In 2007, the Forest Service and BLM surveyed known colonies to determine whether the colonies were active. The following shows the results from the survey:

Table 3-38. Numbers of Active, Inactive, and Defunct Gunnison's Prairie Dog Colonies in the Gunnison Basin in 2007.

	Number of Active Colonies	Number of Inactive Colonies	Number of Defunct Colonies
Forest Service	4	18	1
BLM	11	10	2

Gunnison prairie dogs are generally not susceptible to human disturbance. Many colonies occur adjacent to existing roads, campgrounds, and within city limits in the town of Gunnison. The greatest threats to prairie dogs within the planning area include habitat degradation, disease, and shooting. The closing of roads should increase usable habitat for the prairie dog, reduce the potential for shooting, and benefit the population as a whole.

Route construction through prime habitat and removal of existing vegetation could disturb individuals and result in modified or lost habitat. However, new route construction will be analyzed under a separate NEPA process. Road closures have the potential for disturbance and displacement of the species during closure activities depending on the level of closure utilized. Level of closure will be determined at the time of the activity. A separate NEPA process may be required. If level of closure is

such that equipment is used or habitat is impacted, a short-term disturbance or displacement of the species could occur.

The No Action alternative will maintain existing road and trail densities. Habitat fragmentation and susceptibility of the species to shooting associated with roads and trails would continue. No opportunity to reduce road densities would occur. This alternative will continue to adversely impact Gunnison prairie dog. Reduction of road densities as proposed in Alternatives 2, 3, 4, and 5 will have a beneficial impact on the species. The greatest benefit is seen with Alternative 3, followed by Alternative 5 (the proposed action and preferred alternative), a lesser benefit is seen with Alternative 2, and the least benefit is seen with Alternative 4. Implementation of all action alternatives would reduce cumulative impacts on Gunnison prairie dog below the existing baseline. No other direct, indirect, or cumulative impacts are expected.

Rocky Mountain Bighorn Sheep (Sensitive Species)

Determination: Impact dependent on selected alternative. The No Action alternative and Alternative 4 may impact individuals but are not likely to cause a trend towards federal listing or result in loss of viability in the planning area. The DEIS Proposed Action, Alternative 3, and the Preferred Alternative (Alternative 5) are expected to have a beneficial impact.

Bighorn sheep are found in several locations in the analysis area. Reasons for the historic decline may be attributed to vegetative changes, intensive livestock grazing in the 1950s, poaching, and diseases transmitted by domestic sheep. Because the species is in decline across its range, the entire range of this species is considered critical for its survival. Winter ranges for the species generally are located at lower elevations, although some herds winter on wind-blown slopes above timberline.

During the winter, the bighorns are concentrated at lower elevations where grasses, forbs, and browse species are plentiful. Breeding usually occurs on traditional areas between October and February, but the peak period is in late November to mid-December. Young, usually one, are born on established lambing grounds after a slow spring migration toward their summer range. The same bedding grounds are used every year on their summer-fall ranges and are easily disrupted by disturbance. Key habitats include: migration routes, lambing ranges, winter range, bedding sites, breeding sites, sources of water, and mineral licks.

Disturbance to bighorn sheep has the potential to have the greatest effect on this species, especially on winter ranges, lambing areas, and breeding areas. There would be no direct habitat changes to bighorn sheep habitat under any alternative. Alternative 4 would result in the addition of a few new routes that somewhat counteract the closing of other routes. The DEIS Proposed Action and Alternative 3 identify seasonal route closures and closure of motorized routes in the range of the Taylor Canyon sheep herd.

The Taylor Canyon sheep herd is one of the few native herds in the state. Production in this herd has declined steadily and it is currently the subject of CDOW research projects. It is thought that a combination of human disturbance in key habitats, disease transmission from domestic livestock, and habitat changes are some of the factors responsible for the herd's decline. The No Action alternative and Alternative 4 leave motorized routes open, subjecting the herd to continuing human disturbance. The DEIS Proposed Action, Alternative 3, and the Preferred Alternative would have a beneficial impact on the sheep due to reduced route densities in sheep habitat and specific closures within the range of the Taylor Canyon sheep herd. A current prescribed burn project within the herd range has been developed specifically to address the habitat problem. This project, in conjunction with Alternatives 2, 3, or 5 in the Gunnison Basin travel analysis area, addresses the habitat and human disturbance factors of the Taylor Canyon sheep herd.

The No Action alternative and Alternative 4, because of their potential impacts on the Taylor Canyon sheep herd, may impact Rocky Mountain bighorn sheep, but are not likely to cause a trend towards federal listing or result in loss of viability in the analysis area, although loss of viability of the Taylor Canyon sheep herd could occur due to continued disturbance. Alternatives 2, 3, and 5 will have a beneficial impact due to reduced road densities and the elimination of motorized routes in bighorn sheep habitat primarily within the range of the Taylor River herd. No other direct, indirect, or cumulative impacts are expected.

Wolverine (Sensitive Species)

Determination: No impact.

Historical, wolverine range in Colorado extends the length of the state along the Rocky Mountains and the west slope of the Rockies. The Colorado Latilong study (CDOW 1982) states that wolverine populations are found along the central Rocky Mountain region of Colorado and that a breeding population can only be assumed. Despite historical sightings in Colorado, the status and distribution of wolverine populations is not known. A status survey by Halfpenny (1981) did not confirm a viable population. Wolverines are a low-density species throughout their range. They maintain a solitary existence except during the breeding season and when females are with young.

Unlike other species for which habitat alteration and prey base reduction would impact their existence, the wolverine is better able to tolerate these impacts. Their large home range size and geographic isolation make it difficult for one project to impact a population, although an accumulation of developments may create a negative impact. The wolverine is an inhabitant of remote Wilderness areas where development is unlikely to occur. Although they probably follow their prey to lower winter elevations, their large home range and diversity in diet allow them to avoid conflicts with man. Wolverines consume such a large diversity of prey species that a reduction in one species would create a shift to a more abundant prey source.

There are no known, documented occurrences of wolverine within the analysis area. Road and trail management activities are not expected to impact wolverine habitat due to their large home range size. Wolverines are thought to be extirpated from the southern Rocky Mountains; thus, activities are not expected to disturb or displace wolverine or impact wolverine prey. No direct, indirect, or cumulative impacts on wolverine are anticipated.

Northern Bald Eagle, Northern River Otter (Sensitive Species)

Determination: No impact.

Bald eagles migrate through the Gunnison Basin during the spring and fall. Approximately 70 bald eagles are winter residents in the Gunnison Basin and may stay until spring. No known nesting occurs on the Gunnison Ranger District, although two historical, inactive nest sites occur within the Gunnison Basin. Bald eagles are found primarily along large rivers and reservoirs, where it feeds primarily on fish, waterfowl, and occasional carrion (typically big-game mortalities from vehicle collisions). Bald eagles occasionally use areas outside of large river corridors. Such use usually occurs close to lakes, rivers, and streams where adequate perching sites and foraging habitat are available or along open road corridors and big-game winter ranges where carrion may be found.

Historically, the northern river otter inhabited aquatic ecosystems throughout much of North America. Human encroachment, habitat destruction, and over-harvest have eliminated river otters from the marginal portions of their range (Mehlquist and Dronkert 1987). In Colorado, the river otter occurred in most of the major river drainages and was subsequently extirpated. Starting in 1976,

Colorado initiated restoration efforts. Reintroductions have been made in the Gunnison River. Otter activity has been documented on federal lands within the analysis area.

As bald eagles and river otters are primarily associated with larger river and stream systems that are generally not subject to impacts due to motorized routes other than the existing baseline, no impacts on northern bald eagle or river otter are anticipated. Existing Forest Plan riparian and aquatic standards and guidelines will provide adequate protection for these species. No direct, indirect, or cumulative impacts are expected

Boreal Owl, Lewis Woodpecker, Northern Three-toed Woodpecker, Olive-sided Flycatcher, Purple Martin (Sensitive Species)

Determination: No impact.

These species are generally not greatly impacted by motorized routes or human disturbance or the current pattern of travel is well established and will not change existing environmental baseline conditions. Current levels of human disturbance related to the use of motorized routes may disturb these species during certain time periods, should they be present. Habitat adjacent to open routes should be adequate to avoid the area during periods of disturbance. Should these species be using the area on a recurring basis, they would be adapted to the existing environmental baseline and their pattern of use of the area would be established. Breeding, nesting, and foraging activities will occur regardless of the presence of motorized routes or human activities.

Activities resulting in vegetation changes are the primary impacts on these species. As no vegetation changes are expected with road and trail management activities, there would be no direct impact on these species or their habitats under any of the alternatives being considered. No disturbance impacts are expected to occur under any of the alternatives. No direct, indirect, or cumulative impacts are expected.

Brewer's Sparrow (Sensitive Species and MIS)

Determination: All alternatives may impact individuals, but are not likely to cause a trend towards federal listing or result in loss of viability in the planning area. All action alternatives (2 – 5) would have a long-term beneficial impact.

Detailed descriptions of the Brewer's sparrow habitat needs, distribution, and habitat and population condition, status, and trend are available in Management Indicator Species Assessment, Grand Mesa, Uncompahgre and Gunnison National Forests, May 2005.

The distribution of Brewer's sparrow is largely determined by the distribution of sagebrush (Holmes and Johnson 2005). The GMUG is well within the distribution range of the Brewer's sparrow. They breed regularly within sagebrush shrub-steppe habitats and less-commonly in mountain shrub habitats on the Forest and throughout western, central, and eastern portions of Colorado. The current breeding distribution of the Brewer's sparrow in all of North America is assumed to be similar to the historical distribution (Dobkin and Sauder 2004), which is largely tied to the distribution of sagebrush throughout the western states.

The Brewer's sparrow is considered an obligate of sagebrush communities. Throughout most of its breeding range, the Brewer's sparrow is most closely associated with landscapes dominated by big sagebrush (Weins and Rotenberry 1981), which is also evident on the GMUG. Factors that influence Brewer's sparrow occupancy and abundance include the amount of sagebrush cover, sagebrush patch size, spatial distribution of patches, and the extent of disturbance and fragmentation. Observations and detections of Brewer's sparrow on the National Forest have been consistent with reports

documented in the literature. From 1999 to 2004, the Rocky Mountain Bird Observatory detected 82 Brewer's sparrows on 11 transects in the National Forest, primarily in grassland and sagebrush dominated habitat types.

Route construction through prime habitat and removal of existing vegetation could disturb individuals and result in modified or lost habitat. However, new route construction will be analyzed under a separate NEPA process. Road closures have the potential for disturbance, displacement, or direct mortality of Brewer's sparrow during closure activities depending on the level of closure utilized. Level of closure will be determined at the time of the activity. A separate NEPA process may be required. If level of closure is such that equipment is used or habitat is impacted, a short-term disturbance or displacement of the species could occur. The project may temporarily displace or alter how individuals use affected habitats through habitat alteration and/or disturbance, but these effects will not result in a change in population numbers or trends at the project or National Forest scales. The proposed project is consistent with Forest Plan direction as it relates to Brewer's sparrow.

The No Action alternative would maintain existing road and trail densities. Human disturbance related to roads and trails would continue. No opportunity to reduce road densities would occur. Reduction of road densities as proposed in Alternatives 2, 3, 4, and 5 would have a beneficial impact on the species by reducing habitat fragmentation and potential for disturbance. The greatest benefit is seen with Alternative 3, followed by Alternative 5 (the Preferred Alternative); a lesser benefit is seen with the DEIS Proposed Action; and the least benefit is seen with Alternative 4. The introduction of new routes into backcountry areas with Alternative 4 may offset its beneficial impact where these species are present. Implementation of all action alternatives would reduce cumulative impacts below the existing baseline. No other direct, indirect, or cumulative impacts are expected. Applicable standards and guidelines are considered sufficient and no additional conservation measures are recommended.

Western Burrowing Owl (Sensitive Species)

Determination: All alternatives may impact individuals but are not likely to cause a trend towards federal listing or result in loss of viability in the planning area. All action alternatives (2 – 5) would have a long-term beneficial impact.

This small owl of prairies and meadows may be a summer resident on the GMUG or surrounding areas within the analysis area. This owl is commonly associated with active or abandoned prairie dog colonies. Mountain parks and grasslands can also provide habitat for the burrowing owl. At the present time, no nests have been discovered on the GMUG although nesting is known to occur on BLM lands within the Gunnison Basin. This owl is not known to be sensitive to disturbance (Klute et al. 2003), but has been the target of illegal shooting because of its visibility in open country and its association with prairie dog colonies. Primary threats to the species are habitat loss and fragmentation primarily due to intensive agriculture and urban development and habitat degradation due to declines in populations of burrowing mammals. This species has been most impacted by declines in Gunnison's prairie dogs within the planning area.

The routine use of travel routes will not change existing environmental baseline conditions. Current levels of human disturbance are unlikely to disturb burrowing owls during periods of use. However, adjacent habitat should be adequate for individuals to avoid the area during periods of disturbance. Should burrowing owls be using an area on a recurring basis, they may be adapted to the existing environmental baseline and their pattern of use of the area would be established.

Route construction through prime habitat could disturb individuals and result in modified or lost nesting and/or foraging habitat. However, new route construction will be analyzed under a separate NEPA process. Road closures have the potential for disturbance and displacement of burrowing owl

during closure activities depending on the level of closure utilized. Level of closure will be determined at the time of the activity. A separate NEPA process may be required. If level of closure is such that equipment is used or habitat is impacted, a short-term disturbance or displacement of the species could occur.

The No Action alternative would maintain existing road and trail densities. Human disturbance related to roads and trails would continue. No opportunity to reduce road densities would occur. Reduction of road densities as proposed in Alternatives 2, 3, 4, and 5 will have a beneficial impact on the species by reducing habitat fragmentation and reducing the potential for shooting losses. The greatest benefit is seen with Alternative 3, followed by Alternative 5 (the Preferred Alternative), a lesser benefit is seen with the DEIS Proposed Action, and the least benefit is seen with Alternative 4. The introduction of new motorized routes into backcountry areas with Alternative 4 may offset its beneficial impact where these species are present. Implementation of all action alternatives would reduce cumulative impacts below the existing baseline. No other direct, indirect, or cumulative impacts are expected. Applicable standards and guidelines are considered sufficient and no additional conservation measures are recommended.

Ferruginous Hawk (Sensitive Species)

Determination: All alternatives may impact individuals but are not likely to cause a trend towards federal listing or result in loss of viability in the planning area. All action alternatives (2 – 5) would have a long-term beneficial impact.

The ferruginous hawk inhabits grassland prairies, plains, and broken hills. Within the analysis area, this habitat is found in open habitats primarily on BLM lands. No nests have been identified on the GMUG or BLM lands at this time. Breeding pairs are extremely sensitive to human activity near their nests and will easily abandon their nests if disturbed before eggs hatch. Loss of native grassland and shrubland habitat has resulted in the decline of this species. These birds migrate to more southerly latitudes during the winter. Ferruginous hawk nesting and fledging habitat is occupied during the time period from February 1 to August 15. The sensitivity of the ferruginous hawk to human associated disturbance activities requires a 1-mile buffer zone to avoid nest abandonment (BLM 1991).

Current levels of human disturbance could disturb ferruginous hawk during periods of use. Should a ferruginous hawk be using the area on a recurring basis, they would be adapted to the existing environmental baseline and their pattern of use of the area would be established. Reduction of road densities will benefit this species by reducing human disturbance. There should be no significant direct habitat alterations under any alternative. As the ferruginous hawk is documented from the GMUG and BLM only during migration, no disturbance to breeding or nesting individuals will occur. Normal recreation use of the roads and trails could affect some individuals using the National Forest or BLM lands for foraging areas during the breeding season.

Route construction through prime habitat could disturb individuals and result in modified or lost nesting and/or foraging habitat. However, new route construction will be analyzed under a separate NEPA process. Road closures have the potential for disturbance and displacement of the species during closure activities depending on the level of closure utilized. Level of closure will be determined at the time of the activity. A separate NEPA process may be required. If level of closure is such that equipment is used or habitat is impacted, a short-term disturbance or displacement of the species could occur.

The No Action alternative would maintain existing road and trail densities. Human disturbance related to roads and trails would continue. No opportunity to reduce road densities would occur. Reduction of road densities as proposed in Alternatives 2, 3, 4, and 5 will have a beneficial impact on the species by reducing habitat fragmentation and potential for disturbance. The greatest benefit is

seen with Alternative 3, followed by Alternative 5 (the Preferred Alternative); a lesser benefit is seen with the DEIS Proposed Action; and the least benefit is seen with Alternative 4. The introduction of new motorized routes into backcountry areas with Alternative 4 may offset its beneficial impact where these species are present. Implementation of all action alternatives would reduce cumulative impacts below the existing baseline. No other direct, indirect, or cumulative impacts are expected. Applicable standards and guidelines are considered sufficient and no additional conservation measures are recommended.

Flammulated Owl (Sensitive Species)

Determination: All alternatives may impact individuals but are not likely to cause a trend towards federal listing or result in loss of viability in the planning area. All action alternatives (2 – 5) would have a long-term beneficial impact.

The flammulated owl is an uncommon to common owl that uses a variety of mid-elevation montane mixed pine habitats. It is most closely associated with old-growth and mature ponderosa pine forest, but it is also found in old and mature Douglas-fir, lodgepole pine, mixed conifer, aspen, spruce/fir, pinyon-juniper, and hardwood forests at elevations ranging from 6,000 to 10,000 feet. Large-diameter (especially over 20”) trees with cavities are important for nesting. Flammulated owls avoid young, dense timber stands as they are not suitable for foraging. Open, mature forests are preferred for nesting and foraging, while more dense stands are utilized for roosting. Flammulated owls, being insectivorous, are summer residents only, probably migrating from the Gunnison Basin by mid-October. Suitable aspen, Douglas-fir, and ponderosa pine stands on south facing slopes provide habitat within the planning area. Disturbance from road and trail use and recreational activities is not supported by the literature. Primary threats to the species include timber harvest and firewood cutting that result in the loss of large trees for nesting. Firewood cutting is the primary threat within the planning area due to human ease of access to suitable habitat.

Route construction through prime habitat and removal of existing vegetation could disturb individuals and result in modified or lost habitat. However, new route construction will be analyzed under a separate NEPA process and the likelihood of losing large nest trees is remote. Road closures have the potential for disturbance or displacement of flammulated owl during closure activities depending on the level of closure utilized. Level of closure will be determined at the time of the activity. A separate NEPA process may be required. If level of closure is such that equipment is used or habitat is impacted, a short-term disturbance or displacement of the species could occur.

The No Action alternative would maintain existing road and trail densities. Human disturbance related to roads and trails would continue. No opportunity to reduce road densities would occur. Reduction of road densities as proposed in Alternatives 2, 3, 4, and 5 will have a beneficial impact on the species by reducing habitat fragmentation and potential for disturbance. The greatest benefit is seen with Alternative 3, followed by Alternative 5 (the Preferred Alternative); a lesser benefit is seen with the DEIS Proposed Action; and the least benefit is seen with Alternative 4. The introduction of new motorized routes into backcountry areas with Alternative 4 may offset its beneficial impact where these species are present. Implementation of all action alternatives would reduce cumulative impacts below the existing baseline. No other direct, indirect, or cumulative impacts are expected. Applicable standards and guidelines are considered sufficient and no additional conservation measures are recommended.

Gunnison Sage-Grouse (Sensitive Species)

Determination: Impact dependent on alternative. The No Action alternative is likely to result in a loss of viability in the planning area or in a trend toward federal listing. All action alternatives

may impact individuals but are not likely to cause a trend towards federal listing or result in loss of viability in the planning area. Alternatives 1 - 5 would eventually have a long-term beneficial impact.

The Gunnison sage-grouse has a limited distribution and a relatively small population size. The species is endemic to southwestern Colorado and far southeastern Utah, with the largest area of contiguous distribution and, consequently, population size occurring in the Gunnison Basin (Gunnison Sage Grouse Conservation Plan 1997). The Gunnison sage-grouse depends largely on sagebrush-dominated ecosystems for all their life processes, and they use seasonal habitats that differ in sagebrush plant composition and structure (Remington and Braun 1985). Sagebrush dominates sage grouse diet during late autumn, winter, and early spring and is essential for survival of this species (Schroeder et al. 1999). During winter, slopes with southwest aspects, drainages, and shallow depressions with exposed sagebrush provide preferred winter feeding sites, roosting sites, and escape cover. Lek sites (display sites and breeding grounds) are small to large, open or sparsely vegetated areas with an abundance of sagebrush within 300-650 feet for escape cover. Nests are most often placed at the base of a live sagebrush shrub, with nest sites typically in taller, denser-than-average sagebrush stands with abundant herbaceous production, particularly residual cover, to provide screening cover. Depending on habitat conditions, hens commonly nest within 2 miles of lek sites. Brood-rearing habitat includes sagebrush and associated riparian areas, and grassy meadows with abundant forbs and insects. Sagebrush habitats within the range of the Gunnison sage grouse occur on Forest Service and BLM lands within the planning area.

Threats include habitat loss, fragmentation, and degradation of sage lands by development, agriculture, wildfire, and grazing. Large scale treatments of sagel ands with herbicide and fire have negatively impacted sage-grouse habitat (Braun et al. 1994). Existing populations have become smaller and more fragmented. In Colorado, display and mating occurs from mid-March through late-May, depending on elevation. Breeding and nesting times are critical life-history periods for Gunnison sage-grouse.

The population estimate for grouse in the Gunnison Basin using the Range-wide Population Model was 4,615 in 2007. Status of leks in 2007 showed 45 active leks, 28 inactive leks, and 14 leks of unknown use located throughout the Gunnison Basin on BLM, Forest Service, CDOW, State of Colorado, and private landholdings (CDOW 2007).

When analyzing road densities within sage- grouse occupied habitat, the following lek buffers were used (Note: Active, Inactive, and Unknown lek designations were combined in the analysis as the status of a lek can change over time):

Buffer of 0.6 miles from a lek: the distance that sage grouse have direct disturbance effects (GSGCP 1997);

Buffer of 2.0 miles from a lek: the distance that sage grouse normally move from a lek to nest (Commons 1997, Connelly et al. 2000b, Apa 2003b); and

Buffer of 4.0 miles from a lek: breeding habitat within 4 miles of a lek (GSGRCP 2005).

There are some areas proposed for seasonal closures for sage grouse (spring lek season) within the travel management plan. These were not included as closed routes within the analysis because, although they will help with disturbance at lek sites, they will not decrease fragmentation from existing roads or reduce human disturbance in breeding and brood-rearing habitats.

Table 3-39. Sage Grouse Lek Road Impacts by Alternative and Distance to Roads

Alternative #	Miles of Road 0.6 Miles from Leks	Miles of Road 2 Miles from Leks	Miles of Road 4 Miles from Leks

No Action	370	935	1274
DEIS Proposed Action	251	577	777
Alternative 3	224	488	631
Alternative 4	272	651	876
Preferred Alternative	222	539	719

All action alternatives reduce miles of road within buffer areas and overall road densities. The Preferred Alternative provides the greatest reduction within the 0.6 mile buffer and Alternative 3 provides the greatest benefit within the 2-mile and 4-mile buffers.

Route construction through prime habitat and removal of existing vegetation could disturb individuals should they be present and result in modified or lost habitat. However, new route construction will be analyzed under a separate NEPA process. Road closures have the potential for disturbance, displacement, or direct mortality of Gunnison sage-grouse during closure activities depending on the level of closure utilized. Level of closure will be determined at the time of the activity. A separate NEPA process may be required. If level of closure is such that equipment is used or habitat is impacted, a short-term disturbance or displacement of the species could occur. The project may temporarily displace or alter how individuals use affected habitats through habitat alteration and/or disturbance, but these effects will not result in a change in population numbers or trends at the project or National Forest scales.

The No Action alternative would maintain existing road and trail densities. Human disturbance related to roads and trails would continue. No opportunity to reduce road densities would occur. Existing seasonal closures will have a positive effect on lekking sage-grouse but will not reduce habitat fragmentation or human disturbance in nesting or brood-rearing habitats. The No Action alternative would continue to adversely impact Gunnison sage-grouse. Reduction of road densities as proposed in Alternatives 2, 3, 4, and 5 would have a beneficial impact on the species by reducing habitat fragmentation and potential for disturbance. The greatest overall benefit is seen with Alternative 3, followed by Alternative 5 (the Preferred Alternative); a lesser benefit is seen with the DEIS Proposed Action; and the least benefit is seen with Alternative 4. Implementation of all action alternatives would reduce cumulative impacts below the existing baseline. No other direct, indirect, or cumulative impacts are expected.

Northern Goshawk (Sensitive Species and MIS)

Determination: All alternatives may impact individuals but are not likely to cause a trend towards federal listing or result in loss of viability in the planning area. All action alternatives (2 – 5) would have a long-term beneficial impact. Alternative 3 will have a more immediate beneficial effect.

Detailed descriptions of northern goshawk habitat needs, distribution, and habitat and population condition, status, and trend are available in Management Indicator Species Assessment, Grand Mesa, Uncompahgre and Gunnison National Forests, June 2001 and May 2005.

The northern goshawk is located throughout mountainous habitats of North America. The summer breeding range of the northern goshawk extends from most of Alaska, Yukon, Northwest Territories, and provincial Canada southward into the United States along three distinct peninsulas: the Pacific coast and Sierra-Nevada Mountains, the greater Rocky Mountains, and the northeastern states along the greater Appalachian Mountains to West Virginia. Winter range covers the same area as summer range but extends further southward to include the western states, mid-western states (to Nebraska, Iowa, central Illinois and Indiana, and Ohio), and along the Appalachian Mountains (into Tennessee and North Carolina). Every 9 to 11 years during the fall and winter, there are periodic movements of

this species southward as far as the Gulf of Mexico. A few immature goshawks migrate south of the breeding range every winter or, in the West, to a lower elevation. The species is known to breed and winter in Colorado west of the Continental Divide.

Goshawks utilize primarily coniferous and deciduous forest habitat, especially in mountains. In the West, goshawks commonly nest in the lower portions of mature Douglas-fir, ponderosa pine, lodgepole pine, or aspen canopies, and prefer old-growth structure. Preferred habitat on the Gunnison National Forest appears to be large blocks of mature and old growth aspen, mixed aspen and spruce-fir, spruce-fir with remnant open crowned aspen trees, lodgepole pine, and ponderosa pine. Nesting and post-fledging habitat areas are most dependent upon large unfragmented blocks of mature or old-growth forest. Nest trees are large, opened crowned trees with large limbs that can provide a base for their stick nest. Nests are typically 2 to 4 feet in diameter, located against the trunk 30 to 60 feet above the ground, and consist of a mixture of small and large twigs. The same nest may be used for several seasons. Most nests in Colorado are located on gentle slopes (0 to 40 percent) with a north- to east-facing aspect on benches or basins surrounded by much steeper slopes. Most nest sites in Colorado have only a very slight understory, which contrasts with dense, multi-leveled understory observed in nesting habitats in Oregon. Mature trees serve as perch sites while plucking posts are frequently located in denser portions of the secondary canopy.

Goshawks typically lay three to four eggs but may lay two or, rarely, five. Eggs are deposited from mid-April to early May and are typically incubated until mid-June. Nestlings hatch between late May and mid-June. The male supplies food while the female incubates and broods, but both parents hunt as the young grow and demand more food. Adults exhibit size dimorphism, with females averaging approximately 1,100 grams and males averaging 860 grams. Goshawks are renown as fierce defenders of nest areas and will even strike humans, usually on the head or back. Goshawks soar periodically, almost every day, typically in the morning; they often use soaring flight when migrating. Goshawks prey primarily on small to medium-sized birds and mammals such as mice, ground squirrels, pocket gophers, chipmunks, red squirrels, jackrabbits, snowshoe hare, ruffed grouse, and a variety of other small- to medium-sized birds. Goshawks hunt from a perch or while flying through the forest or pursue prey on the ground, but usually fly low to attack animals by surprise.

Trail or road development through prime habitat coupled with the removal of existing aspen and aspen-conifer vegetation could disturb individuals and result in modified or lost nesting and/or foraging habitat. Current levels of human disturbance related to roads could disturb the goshawk or its ability to nest during the breeding periods. However, adjacent habitat could provide adequate cover for goshawk to avoid the area during periods of disturbance. Should the goshawk be using an area on a recurring basis, it may be adapted to the existing environmental baseline and their pattern of use of the area would be established.

Goshawks have been known to successfully nest adjacent to motorized routes. There are currently two known goshawk territories with nests adjacent to motorized routes. Although these sites have been successful in the past, there have been years when nesting activity does not occur at all. It is not known whether human disturbance associated with these motorized routes is the cause of the birds' failure to nest. As goshawks are known to be highly sensitive to human disturbance, leaving these routes open to motorized use could impact the species ability to successfully nest.

The No Action alternative maintains the current level of recreational activity in northern goshawk habitats. There is no opportunity to reduce disturbance at nest sites near or adjacent to motorized routes. Reduction of road densities as proposed in Alternatives 2, 3, 4, and 5 would have a beneficial impact on the species. Reducing road densities in suitable goshawk habitat could increase nesting opportunity over the long term. The greatest benefit is seen with Alternative 3, followed by Alternative 5 (the Preferred Alternative); a lesser benefit is seen with the DEIS Proposed Action; and the least benefit is seen with Alternative 4. The introduction of new motorized routes into

backcountry areas with Alternative 4 may offset its beneficial impact where this species is present. Alternative 3 closes both routes adjacent to existing goshawk nests to motorized use. Alternatives 2 and 5 close one of those routes. The No Action alternative and Alternatives 2, 4, and 5, because they leave motorized routes adjacent to goshawk nests, may impact individual northern goshawks but are not likely to cause a trend towards federal listing or result in loss of viability in the analysis area. Alternative 3 would have a more immediate beneficial impact due to reduced road densities and the elimination of motorized routes adjacent to existing goshawk nests. No other direct, indirect, or cumulative impacts are expected.

Northern Harrier (Sensitive Species)

Determination: All alternatives may impact individuals but are not likely to cause a trend towards federal listing or result in loss of viability in the planning area. All action alternatives (2 – 5) would have a long-term beneficial impact.

The northern harrier nests in a wide variety of open grasslands, wet meadows, and shrublands at all elevations. Most nests are at elevations, from 6,000 to 8,000 feet, but harriers also nest at other elevations, from below 5,000 feet to mountain grasslands to more than 10,000 feet. For breeding and hunting, harriers select parts of the habitat with dense cover such as swales, draws, fencerows, and canal banks. Because of their well-developed auditory capability, harriers can find their prey in dense vegetation. They fly low over a field listening and watching for prey. Harriers arrive from winter grounds in March and April and depart in October and November. They nest from April through July.

Northern harriers generally arrive in northern breeding areas in March-April (and May in Alaska). Northward migration may continue in an area even after local nesting has begun. Southward migration in the U.S. and Canada occurs August-November. Northern breeders may migrate farther south than do some more sedentary populations breeding at lower latitudes. Main components of northern harrier habitat include native and non-native grasslands, agricultural lands, and marshes. In fall, they also may range up to the alpine tundra, where an adequate prey base, comprised primarily of small mammals and birds, is available. Northern harriers nest in a variety of habitats from grasslands to marshes, with the only requirement being abundant cover for their ground nests, such as that provided by tall reeds, cattails, and grasses. Nesting sites are chosen based on their availability and the abundance of prey in adjacent areas.

Northern harriers are susceptible to human disturbance at nest sites. Route construction through nesting habitat could disturb individuals and result in modified or lost nesting and/or foraging habitat. However, new route construction will be analyzed under a separate NEPA process. Road closures have the potential for disturbance and displacement of the species during closure activities depending on the level of closure utilized. Level of closure will be determined at the time of the activity. A separate NEPA process may be required. If level of closure is such that equipment is used or habitat is impacted, a short-term disturbance or displacement of the species could occur.

The No Action alternative would maintain existing road and trail densities. Human disturbance related to roads and trails would continue. No opportunity to reduce road densities would occur. Reduction of road densities as proposed in Alternatives 2, 3, 4, and 5 would have a beneficial impact on the species by reducing human disturbance. The greatest benefit is seen with Alternative 3, followed by Alternative 5 (the Preferred Alternative); a lesser benefit is seen with the DEIS Proposed Action; and the least benefit is seen with Alternative 4. The introduction of new motorized routes into backcountry areas with Alternative 4 may offset its beneficial impact where this species is present. Implementation of all action alternatives would reduce cumulative impacts below the existing baseline. No other direct, indirect, or cumulative impacts are expected.

Peregrine Falcon

Determination: no impact

Peregrine falcons occur throughout western Colorado as a spring and fall migrant in western valleys, foothills, lower mountains, and mountain parks. Peregrines nest on high precipitous cliffs and river gorges. They forage over adjacent coniferous and riparian forests and at times in other habitats. Peregrine falcons prefer to nest in a shallow depression scraped in gravel or debris on high cliff ledges. They will also use old stick nests created by ravens and hawks. These falcons nest from March to June, arriving in March and departing in October. Migrants and winter residents occur mostly around reservoirs, rivers, and marshes; however, they may also be seen in grasslands, agricultural areas, and, less often, in other habitats. The peregrine is a habitat specialist concerning nesting habitat and somewhat of a generalist in choice of foraging habitats. They nest only on high cliffs but feed over a wide range of habitats. It was not possible to identify specific habitats for GIS analysis for this species.

No Action alternative would maintain existing road and trail densities. Human disturbance related to roads and trails would continue. No opportunity to reduce road densities would occur. Overall, there would be reduced road/trail density across the planning area for all action alternatives when compared to the current situation. Nesting peregrines are susceptible to nest-site disturbance from recreational rock climbers. None of the alternatives are expected to increase this type of activity or disturbance. General public use of roads and trails across the National Forest is not expected to lead to increases in any type of activity that would be detrimental to nesting or foraging peregrine falcons. No direct, indirect, or cumulative impacts are expected.

White-Tailed Ptarmingan (Sensitive Species)

Determination: All alternatives may impact individuals, but are not likely to cause a trend towards federal listing or result in loss of viability in the planning area. All action alternatives (2 – 5) would have a long-term beneficial impact.

White-tailed ptarmigan occur primarily in alpine tundra above tree line and occupy areas such as moist meadows, willow stands, and rock outcrops. During the summer, birds are widely distributed across the alpine tundra, especially in rocky areas with sparse vegetation. Areas that are mostly snow free early in the season are used for breeding, and females with broods generally occupy rocky, wet tundra. Nesting occurs in alpine tundra in rocky areas or sparsely vegetated, grassy slopes. White-tailed ptarmigan have a high fidelity to breeding territory in successive years (NatureServe 2005). Males generally winter above timberline in areas of short willow thickets, while females often winter at or below timberline in taller, denser willow thickets and along willow-dominated watercourses. Females in the higher mountains and in areas of western Colorado where snowfall is heavy may winter below timberline (NDIS 2005c). During fall and winter, ptarmigan populations can become concentrated, leaving large surrounding areas unoccupied. To avoid the most severe low temperatures, ptarmigans huddle in close groups and will often dig snow burrows. They will nest on the ground in slight depressions among rocks lined with fine grasses, leaves, and lichens. Ptarmigan usually will glean and pick the buds, stems, seeds, fruits, and flowers of willows and other alpine plants. Construction of high-elevation reservoirs, wild herbivore grazing, domestic livestock grazing, road construction along stream courses, and outdoor recreation such as ski area development and snowmobile activity can all reduce the availability of white-tailed ptarmigan winter forage (Andrews and Righter 1992, Kingery 1998).

Route construction through nesting habitat could disturb individuals and result in modified or lost nesting and/or foraging habitat. However, new route construction will be analyzed under a separate

NEPA process. Road closures have the potential for disturbance and displacement of the species during closure activities depending on the level of closure utilized. Level of closure will be determined at the time of the activity. A separate NEPA process may be required. If level of closure is such that equipment is used or habitat is impacted, a short-term disturbance or displacement of the species could occur.

Reduction of road densities as proposed in Alternatives 2, 3, 4, and 5 will have a beneficial impact on the species by reducing human disturbance. The greatest benefit is seen with Alternative 3, followed by Alternative 5 (the Preferred Alternative); a lesser benefit is seen with the DEIS Proposed Action; and the least benefit is seen with Alternative 4. The introduction of new motorized routes into backcountry areas with Alternative 4 may offset its beneficial impact where this species is present. Implementation of all action alternatives would reduce cumulative impacts below the existing baseline. No other direct, indirect, or cumulative impacts are expected.

The No Action alternative would maintain existing road and trail densities. Human disturbance related to roads and trails would continue. No opportunity to reduce road densities would occur. Within alpine habitats, all action alternatives decrease motorized routes over the existing condition. Reduction of road densities as proposed in Alternatives 2, 3, 4, and 5 will have a beneficial impact on the species by reducing human disturbance. The greatest benefit is seen with Alternative 3, followed by Alternative 5 (the Preferred Alternative); a lesser benefit is seen with the DEIS Proposed Action; and the least benefit is seen with Alternative 4. Planned decommissioning of routes would reduce open routes densities in all the alternatives when compared to the current situation. Over time, many of these decommissioned routes will be reclaimed to native vegetation, which will improve habitat characteristics for ptarmigan and other alpine-dwelling species. Of the alternatives, Alternative 3 would result in the least recreational use, which would be the most beneficial for wildlife species using these areas. This type of use is not expected to lead to direct impacts on populations or individuals of white-tailed ptarmigan. Some disturbance to ptarmigan is possible because of the continued recreation use of suitable habitats by motorized, mechanized, and foot/horse travel. The determination for all action alternatives in the long term is beneficial impact. No other direct, indirect, or cumulative impacts are expected.

Affected Environment — Terrestrial Threatened, Endangered, and Proposed Species

The BLM and Forest Service have not completed consultation on the effects of route-by-route decisions in the Gunnison Basin travel analysis area on ESA threatened, endangered, or candidate species. Public comments were used to modify the proposed action. The Forest Service and BLM have entered into informal consultation with the USFWS on the Preferred Alternative (modified DEIS Proposed Action). A final Biological Assessment (BA) will be prepared and submitted to USFWS. Concurrence by the USFWS on the BA would be required prior to the issuance of a ROD for this travel management action.

Affected Environment

Table 3-40 depicts the list of threatened, endangered, and proposed species, or their habitats, that are located on federal lands where roads and trails could potentially affect those species. Prior to field review, a search of available information, occurrence records, descriptions of habitat needs and ecological requirements was completed to determine whether field reconnaissance will be needed to complete the analysis.

Table 3-40. Terrestrial Threatened and Endangered Species*.

Species; Status	Habitat Type	Potential for Habitat/Species Occurrence
Black-footed ferret, (*Mustela nigripes*) Endangered	Grasslands associated with prairie dog colonies.	No suitable habitat; no potential for occurrence.* Outside the suspected range of the species.
Canada lynx, (*Felis lynx canadensis*) Threatened	Early successional spruce/fir and lodgepole pine forests used for foraging; mature and old growth spruce/fir and lodgepole pine containing large downed woody debris used for denning; riparian areas, mixed aspen/conifer, mature spruce/fir, and shrublands to forested lynx habitat also used for foraging.	Suitable habitat exists within and adjacent to the planning area.
Gunnison's prairie dog, (*Cynomys gunnisoni*) Candidate	High mountain valleys and plateaus, grasslands.	Suitable habitat exists within and adjacent to the planning area. Addressed as sensitive species in biological evaluation.
Mexican Spotted Owl, *Strix occidentalis lucida* Threatened	Below 9,100 feet. Large steep canyons with exposed cliffs and dense old growth mixed coniferous forests dominated by Douglas-fir and/or white fir, or canyons in pinyon-juniper areas with small and widely scattered patches of old Douglas-fir.	No suitable habitat; no potential for occurrence.** Outside the suspected range of the species.
Uncompahgre fritillary butterfly (*Boloria acrocnema*) Endangered	Above 12,000 feet. Snow willow patches ¼-acre or larger on north, northeast, east, and southeast aspects, often below a melting snow drift.	Suitable habitat exists within and adjacent to the planning area.
Yellow billed cuckoo (*Coccyzus americanus*) Candidate	Open woodland w/dense undergrowth, parks, riparian woodlands, and urban areas w/tall trees	No suitable habitat; no potential for occurrence.*

**Federally Listed and candidate species are determined from a unit species list of federally listed and candidate species and their status in Colorado, USFWS, Ecological Services, Colorado Field Office, ES/CO:FS/GMUG-MS 65412 GJ, updated May 2009.)*
***Species without habitat and that do not occur within the planning area will not be directly, indirectly, or cumulatively affected by proposed activities. No further analysis is required.*

Under the ESA, species that have sufficient information on their biological status and threats to warrant a proposal to list as Endangered or Threatened, but development of a listing regulation has been precluded by other higher priority listing activities are called "candidate" species. Species that are candidates for listing under the ESA are automatically placed on the Forest Service Region 2 Forester's Sensitive Species list. No further analysis is typically needed for threatened, endangered, and proposed or candidate species that are not known or suspected to occur in the project area, and for which no suitable habitat is present. If suitable but unoccupied habitat is present, then potential effects are evaluated.

Canada Lynx

On February 3, 1999, the CDOW released 51 lynx in an attempt to reintroduce wild lynx back into the State of Colorado. Lynx were released in the San Juan Mountains near Creede, Colorado, approximately 15 miles south of the proposed Perfecto Creek Timber Sale. Additional lynx were released in the spring of 2000, 2003, 2004, 2005, and 2006. A total of 218 lynx have been released in

Colorado as part of this reintroduction program to reestablish a viable lynx population in the Southern Rocky Mountain Ecosystem. No additional releases have occurred since these. Many of the lynx released remain in the core research area in southwest Colorado (New Mexico north to Gunnison, west as far as Taylor Mesa, and east to Monarch Pass), with some movement of lynx in Colorado north of I-70 and into New Mexico, Utah, Wyoming, Montana, and Nebraska (CDOW 2009a).

CDOW researchers are currently tracking 42 out of 103 reintroduced lynx and seven of nine Colorado-born lynx that are possibly still alive (CDOW 2009a). Reproduction was first documented in 2003 with the discovery of 16 kittens. Reproduction was documented during 2003 – 2006 but none documented in 2007 or 2008. Another 10 kittens were discovered in 2009 (CDOW 2009b). Through radio-telemetry, CDOW researchers have confirmed lynx presence and dispersal on the Grand Mesa, Uncompahgre, and Gunnison National Forests. From February 4, 1999, through February 1, 2005, 121 individual lynx were located within the Grand Mesa, Uncompahgre, and Gunnison National Forests (Shenk 2005). With reproduction confirmed and concentrated lynx activity documented in some areas of the National Forest, there are likely resident lynx present on the Gunnison Ranger District.

The lynx is a rare and elusive animal that uses large remote interior tracts of subalpine coniferous forest (generally from 8,000 feet in elevation up to treeline) with little human intrusion. Lynx habitat consists primarily of two very different forest types: early successional forests that contain relatively high numbers of prey for foraging, and late successional forests for denning and cover for kittens. Intermediate successional stage forests, while not required by lynx, provide lynx travel cover and connectivity between foraging and denning habitat (Ruggiero et al. 1994). The lynx is a specialized predator of snowshoe hares but will also eat grouse, mice, voles, shrews, squirrels, marmots, beaver, fish, porcupine, and ptarmigan, particularly when snowshoe hare abundance is low. However, even in periods of snowshoe hare scarcity, the hare still provides the highest percentage of biomass of the lynx diet, with low percentages of biomass provided by other species (Ruggiero et al. 1994; Ruediger et al. 2000). Lynx abundance, reproduction, survival, and demography are highly dependent on snowshoe hare availability.

Snowshoe hares feed on grasses, forbs, and berries when they are available in the summer and, in winter, browse on buds, twigs, and bark of conifer seedlings and saplings, willow, alder, aspen, and other shrubs. Snowshoe hares often seek dense conifer thickets to feed on woody seedlings and saplings and to escape predators and winter cold. Areas of early successional vegetation with tree seedlings and shrubs are good habitat for snowshoe hares and thus form important foraging areas for lynx. In Colorado, snowshoe hare most commonly occupy dense stands of subalpine fir-Engelmann spruce and Douglas-fir. In Washington, dense stands of lodgepole pine are occupied most often. In the Rocky Mountains, dense stands of aspen are found to be marginal habitat for snowshoe hares. Conifer cover is critical for snowshoe hare survival during winter: conifer stands provide greater concealment from predators, lighter snowpack, and warmer temperatures in winter than aspen stands. During snow free months, snowshoe hares will use more open habitats where hardwoods and herbaceous vegetation provide alternate sources of food. Thick stands of willow and alder in riparian habitats are used by snowshoe hares and thus are considered foraging areas for lynx (Ruggiero et al. 1994; Ruediger et al. 2000).

Mature and old-growth conifer forest stands that contain abundant large woody debris and heavy concentrations of downed logs are used by lynx for denning, travel corridors, and cover for young. Denning sites have been described as having a high density of downed and suspended trees that provide both vertical and horizontal structure. Other important characteristics of denning sites are forest stands of at least 2.5 acres in size, proximity to early successional foraging habitat, and minimal human disturbance. Lynx are mostly solitary and have large home ranges (6 to 8 square miles commonly, but vary from 5 to 94 square miles), being capable of moving extremely long distances in search of food. They are well adapted to a snow-covered environment, having wide furry paws that

allow them to travel lightly over snow much better than bobcats, mountain lions, or coyotes (Armstrong 1987, Finch 1992, Halfpenny 1986, Hoover and Wills 1987, McKay 1991, Murray 1987, Patton 1998, Ruggiero et al. 1994, USDA Forest Service 1991, USFWS 1998, Zeveloff 1988).

Lynx have relatively narrow habitat preferences (Koehler 1990, Mckelvey et al. 2000, Gaines 2002), and to assess the effects of activities on lynx habitat, LAUs have been identified. These areas contain adequate suitable habitat to support resident lynx and are an appropriate scale for addressing cumulative effects (Ruediger et al. 2000, Gaines et al. 2002). Continued threats to the lynx include forest fragmentation caused by roading and logging of timber. Roads result in increased direct mortality of lynx and other wildlife; roads also provide access to other predators that normally would not be able to access lynx range, thus making competition for lynx prey species more intense.

The project area contains all or portions of 42 LAUs on both Forest Service and BLM lands. Much of the project area overall is considered to be potential habitat for the lynx, including with lynx denning, winter foraging, and “other” lynx habitats. “Other” lynx habitat is defined as capable lynx habitat but currently not used for winter foraging or denning (GMUG 2001). Stands mapped as “other” lynx habitat offer additional foraging opportunities during non-snow seasons and are within a matrix of higher-quality habitat but lack the structural attributes necessary to sustain year-round snowshoe hare populations (GMUG 2001). Other lynx habitat often consists of stands that are in close proximity to high-quality snowshoe hare habitat.

Direct and Indirect Effects

Reduction of road densities as proposed in the Preferred Alternative may have a beneficial impact on the species in the long term by reducing the potential for human disturbance and reducing habitat fragmentation. Total road densities across all LAUs are reduced by 0.19 mi/mi^2 to 0.99 mi/mi^2. Out of 42 LAUs, 35 have a reduction in road density, 6 have an increase in road density, and one LAU remains the same. Two LAUs, Tincup and Pitkin, show reduced road densities, but are still above 2.0 mi/mi^2 and should be considered for additional route closures in the future. None of the LAUs that show an increase in road densities are increased above 2.0 mi/mi^2. Road closures in an area could displace traffic to existing open routes resulting in an increase in traffic. This increase in traffic could result in additional disturbance and possibly displacement over time of individual lynx. Increased traffic on existing open routes, while possibly further reducing the quality of lynx habitat adjacent to these routes, is not expected to compromise the function of any LAU. Traffic counts on key routes would continue across the planning area. No increase in major route (currently high traffic counts) traffic is expected. Abundant lynx habitat will remain within each LAU to provide potential lynx denning, winter foraging, and travel habitat.

Key lynx linkage areas within the planning area will see reduced routes under this alternative. Total route densities will be reduced from 1.65 to 1.39 mi/mi^2. Motorized route density would be reduced from 1.42 to 1.21 mi/mi^2. Connectivity between major drainages, across mountain ranges and the Continental Divide, and between LAUs would be maintained and enhanced due to reduced fragmentation and potential for human disturbance. No loss of lynx habitat is anticipated due to travel management activities. Route construction through prime habitat and removal of existing vegetation could disturb individuals and result in modified or lost denning and/or foraging habitat. However, new route construction will be analyzed under a separate NEPA process and will be subject to ESA analysis. Road closure activities have the potential for disturbance and displacement of lynx if present during closure activities depending on the level of closure utilized. Level of closure will be determined at the time of the activity. A separate NEPA and ESA process may be required. If level of closure is such that equipment is used or habitat is impacted, a short-term disturbance or displacement of the species could occur. The Preferred Alternative is unlikely to change lynx habitat to unsuitable status, impair lynx home ranges, disrupt habitat connectivity, or compromise the function of any of the affected LAUs. No other direct or indirect effects are expected.

Cumulative Effects

The lynx is a boreal forest predator that uses very large territories of mature and old-growth forest (as well as early successional forest), and may be influenced by the cumulative effects of changes to forest habitat from timber harvest, large-scale forest fire, open road density, and other human activities on a larger scale. The planning area has a history of such changes to forest habitat. It is likely that such cumulative actions influence whether the planning area forms high-quality habitat for the lynx. Although no changes in lynx habitat are anticipated with the Preferred Alternative, reductions in route densities will occur and will likely reduce the potential impacts of roads and trails on lynx.

Considering all the past, present, and projected activities occurring in the planning area, it is unlikely that the existing condition or the project would add cumulatively to existing impacts on the lynx to the point that an individual lynx or its home range (LAU) would be impaired. The function of any of the LAUs will not be compromised by the proposed activities. Abundant lynx habitat will remain within the planning area to provide potential lynx denning and travel habitat. No loss of lynx habitat is anticipated. Habitat connectivity within and between LAUs will be maintained with mature forest habitats within the planning area and affected LAUs.

Private and other non-federal lands adjacent to and within LAUs within the planning area are plentiful. There are four recreation-oriented towns located within close proximity to the federal lands within the analysis area, which are sources of intense recreational activity. The towns of Crested Butte, Mt. Crested Butte, and Gunnison are economically dependent upon the Crested Butte Ski Area and other year-round tourist activities, such as motorcycle, OHV, and snowmobile riding, mountain biking, climbing, hiking, and backpacking. The activities centered in these towns result in high levels of human activity and disturbance to the surrounding federal lands. This amount of activity is likely to reduce the effectiveness of habitat for Canada lynx, although the level of effect is difficult to determine.

Known future development that may occur on private or State lands includes potential leasing for geothermal development. Although future development on private lands across such a large area cannot be easily determined, the potential exists for additional development in the form of home construction, mine development, ski resort development, and an increase in size of existing communities. If development should occur in previously undeveloped areas, lynx habitat quality may be reduced, but whether development will change lynx habitat to unsuitable, impair lynx home ranges, disrupt habitat connectivity, or compromise the function of any of the affected LAUs is unknown at this time.

ESA Determinations

SRM Lynx Project Decision Tree

On July 1, 2004 the USFWS re-authorized the Programmatic Agreement for Canada lynx in Colorado. The criteria and conditions under which the programmatic section 7 concurrence from the USFWS applies to this project was reviewed, and the Forest Service determined that this project is not subject to this process. After reviewing the pre-screen A&B activities in the Lynx Conservation Assessment and Strategy (Ruediger, et.al., 2000), the project (Travel Management Plan decisions) was determined to be outside the blanket concurrence criteria (OBCC) and should be submitted to USFWS for concurrence.

The No Action alternative describes the existing condition that maintain existing road and trail densities. Human disturbance and habitat fragmentation related to roads and trails would continue. No opportunity to reduce road densities would occur. The Preferred Alternative and the DEIS Proposed Action reduces adjusted road densities in the Gunnison Basin travel analysis area. Any planned new

routes are subject to additional NEPA and requirements of the ESA prior to implementation. Site specific analysis of effects on Canada lynx will be addressed at that time.

Based upon the above rationale, it was determined that the existing condition (No Action) and the DEIS Proposed Action and the Preferred Alternative (Alternative 5) may affect, but are not likely to adversely affect the Canada lynx in the analysis area. While reductions in adjusted route density with the Preferred Alternative should reduce the level of human disturbance and habitat fragmentation, effects are not expected to be completely beneficial due to proposed new routes and the potential for increased use on existing routes as closures occur.

Uncompahgre Fritillary Butterfly

The Uncompahgre fritillary butterfly is an endangered alpine species that is closely associated with patches of snow willow (*Salix reticulata nivalis*) at or above 12,500 feet. Extensive areas of suitable alpine habitat are located within the San Juan and La Garita Mountains of southwestern Colorado. Potential habitat within the planning area includes the La Garita Wilderness and surrounding alpine habitat. All known suitable habitat within the planning area has been surveyed for this species. At the present time, there are eleven known colonies containing fourteen populations of butterflies located in the San Juan and La Garita Mountains. Five colonies within the planning area are located on GMUG federal lands within the La Garita Wilderness and one colony occurs within the Wilderness Study Area on BLM Public lands southwest of Lake City.

This species, because of its small home range area and low mobility, is susceptible to human disturbance. The primary threats to known populations of the Uncompahgre fritillary butterfly are collecting pressure, intensive grazing or trampling by domestic sheep, and periods of prolonged drought conditions. The Recovery Team has identified trails on Uncompahgre and Red Cloud Peaks that bisect occupied butterfly colonies. A recommendation was made by the team to relocate these sections of trail to avoid the site, and this has been accomplished. Other concerns related to domestic sheep grazing and trailing have been mitigated through modifications of the grazing permits, although some problems still exist in some years.

Additional potential impacts to butterflies or butterfly habitat include road and trail construction and use, off-route travel, and development of recreational facilities, sheep grazing in areas where they are not supposed to be, and dispersed camping and hiking. As all known colonies within the planning area are in designated Wilderness or Wilderness Study Areas, no motorized or mechanized activity occurs within or adjacent to any known colony. Foot and horse routes occur within these areas. Any routes that may have occurred through known colonies have been previously rerouted to avoid the colony sites and routes adjacent to or near existing colonies have been posted to deter off-route travel. While the potential exists for occasional disturbance by humans to occur due to off-route travel, such disturbance will not be due to current route density or road and trail locations.

Direct and Indirect Effects

There is no planned development of new routes or decommissioning of existing routes in known or potential Uncompahgre fritillary butterfly habitat. While the potential exists for occasional disturbance by humans to occur, this will not be due to existing or proposed route density or locations.

Cumulative Effects

Implementation of any alternative would have no cumulative effects on Uncompahgre fritillary butterfly above the existing baseline.

Determination

As there are no known routes through existing Uncompahgre fritillary butterfly colonies and there is no planned development of new routes or decommissioning of existing routes in known or potential butterfly habitat, there will be no effect on the Uncompahgre fritillary or its habitats by either of the alternatives under consideration in this document.

RECREATION OPPORTUNITY

Introduction

Recreation opportunities and recreational impacts associated with travel management decisions are very critical components of the environmental assessment for the action alternatives being evaluated; therefore, this section was separated into two distinct evaluations. One section covers recreational opportunities on NFS lands within the Gunnison Basin travel analysis area and the other covers similar recreation related components on BLM lands.

These two sections present recreation opportunities and impacts based on the recreational uses that occur on the federal lands but from the regulation and policy perspectives mandated for each of the two land-management agencies. There are some similarities in the management objectives, regulations, and policies between the agencies, but there are differences as well. Separating the environmental assessment for the federal lands affected by the Gunnison travel management planning from each agency's perspective provides a more comprehensive evaluation of opportunities and effects. At the end of this section, there is a brief summary or overview of the cumulative recreational opportunities and impacts for the federal lands within the analysis area.

Background — National Forest Recreation

The GMUG is the 4th most-visited National Forest in the Region 2 (Kocis et al. 2004). With the exception of the White River National Forest, the GMUG is the most heavily-visited National Forest on the western slope of Colorado. Using data from 2003, GMUG visits totaled approximately 3.4 million visits—there is no good data on how many of those visits occurred specifically on the Gunnison and Paonia Ranger Districts. The Kocis et al. (2004) report makes the interesting observation that about 46 percent of the GMUG visits are from GMUG local communities (within 50 miles of the National Forest) and, combined with other Colorado residents (i.e., Colorado Front Range residents), almost 70 percent of GMUG visitors are Colorado residents. Neighboring states contribute another 25 percent of all GMUG visits.

The Gunnison and Paonia Ranger Districts currently have 2,125 miles of forest roads and 557 miles of forest trails officially open to motorized recreational use in the summer. For non-motorized trail opportunities outside of designated Wilderness, these two districts offer approximately 400 miles of forest trails. Within designated Wilderness on the Gunnison and Paonia Ranger Districts, there are an additional 438 miles of managed hiker/horse trails. (NOTE: Trails within Wilderness areas are not within the scope of this analysis.)

New and Changing Uses

Technology has contributed to significant changes in the amount and types of uses placed on the National Forest transportation system. Off-highway vehicles (OHV) were just coming onto the scene when the original 1983 GMUG Forest Plan was amended in 1991. As stated earlier, OHV registrations in Colorado soared between 1991 and 2007, from 12,000 OHV registrations in 1991 to around 131,000 OHV registrations in 2007. The changes in technology for these machines allow them

to travel into more areas with less rider skill than was required in the past. The price of OHVs has dropped substantially in the past decade due in part to the growth of the industry, and, because of the high number of participants, there are more second-hand machines available for sale than ever before, allowing many people and families to participate in this activity.

The capability of OHV vehicles to go nearly everywhere, coupled with their increasingly widespread use, has resulted in hiking, mountain bike, and motorcycle trails being converted to OHV trails by the OHV users. New routes are still being pioneered by OHV users in places where none have ever existed before. Utility Terrain Vehicles (UTV's), or side-by-side ATVs, are relatively new to public land recreation.

In addition, mountain biking in certain areas of the analysis area has increased dramatically due in part to better technology, such as full-suspension and disc brakes for bicycles.

In 2003, an estimated 116,000 visits on bicycles occurred on the GMUG, with the use dominated by mountain biking (Kocis et al. 2004). According to the 2008 draft of the 2008 Colorado Statewide Comprehensive Outdoor Recreation Report (SCORP), approximately 35 percent of Coloradoans (1.2 million people) participated in some form of bicycling in 2005.

Cycling downhill and cross-country at ski areas is becoming a major recreation attraction and a significant source of revenue for ski areas. In 2002, over half of all summer visitors to the ski area resorts biked at one of the ski areas in Colorado. Seventy percent of the bicyclists at ski areas were from out of state (CDPOR 2003). Extreme sports have become popular for several activities; downhill (fall-line) mountain biking is just one example of this trend.

Technological advancements in hiking, camping, and mountaineering equipment have allowed a greater range and number of individuals to more easily participate in these activities. Trail running, a relative new sport to public lands recreation, has exploded in popularity in the last 5–10 years, and with it has come an increase in the number of competitive events and ultra-endurance events on public lands. Mountain bike races and ultra-endurance events have increased dramatically on public lands in the past 5–10 years.

All of these new and changing technologies and uses contribute to the complexity of travel management on federal lands. Recreational travel is a legitimate use of the federal lands and contributes to the overall health of society.

The Forest's Role in Meeting Future Demand

The Colorado Recreation Strategy directs the National Forest to provide visitors with a focused, high-quality outdoor recreation program based on prioritized needs, resource sensitivity, and within the capacity of existing human and financial resources. Coordination with other agencies that provide outdoor recreation opportunities is necessary in order to identify respective roles and niches.

On the GMUG, the recreation focus for the coming decade is on providing high-quality opportunities for the following outdoor recreation activities:

- Dispersed recreation (e.g., dispersed camping, ATV riding on designated routes, bicycling, single-track motorcycle and mountain bike riding, hiking, driving for pleasure and scenery, horseback riding, hunting, and fishing);
- Non-motorized backcountry and Wilderness experiences (e.g., hiking, backpacking, climbing, hunting, horse packing);
- Viewing scenic corridors (e.g., driving for pleasure, viewing scenery, developed campgrounds as needed to protect the resource);

Winter recreation (e.g., snowmobile riding on and off groomed trails, cross-country skiing, snowshoeing, downhill skiing, heliskiing, Nordic skiing, and ice climbing (RFA 2008)).

The Forest Service's multiple-use mission often contributes to an incorrect belief by the public that each National Forest is expected to meet all current and future demand for recreational activities allowed on any National Forest. As demand continues to increase, there will ultimately be limits on the amount of use that can be sustained. Increased use often requires additional managerial controls, which translate to additional agency personnel and funding. Increasing pressures from use of sensitive resource areas may require regimentation and control of visitation (e.g., permit systems) to protect the integrity of the opportunity and to ensure its use and sustainability into the future.

By not actively managing some uses in the past, a change in users and use patterns on the forest has resulted. More than 20 years ago, researchers documented a process of "invasion and succession" (Clark et al. 1971, from ROS, pgs. III-24), in which changing circumstances (e.g., increased use) affects available opportunities and experiences (Forest Service, 1986 ROS). Existing users are displaced because they are no longer receiving their desired experience, and the new users fill the void left by the displaced, or departing, users. Quite often, these changes occur more slowly over time, and the agencies make no conscious management decisions to address the change, Although some users are vocal about these changes, the loss of recreational opportunities largely goes unnoticed until well into the future, when the new and sometimes less desirable use pattern is set.

Recreation Setting

One of the key opportunities provided on NFS lands is outdoor recreation. Recreation on NFS lands provides healthy opportunities to enjoy the outdoors, connects people to their federal lands, and represents a significant contribution to the economy of many rural areas (Holtrop 2008). Given the increasing pace and stress of everyday life, it seems likely that outdoor recreation will continue to grow in importance and that public lands will likewise escalate in importance for their role in providing public recreation (Manning and More 2002).

Research suggests that people engage in recreation to satisfy a variety of motivations, such as appreciating nature, learning about culture and history, and enhancing family togetherness (Brown and Haas 1980, Manning and More 2002). Resource managers have two primary goals in providing recreational opportunities: the first is to provide opportunities for people to obtain those recreation objectives and experiences; the second is to minimize the impacts of outdoor recreation use on the natural resources.

In the past, user impacts and conflicts on NFS lands focused on issues such as timber harvest, grazing, and mining. Currently, the greatest demand on public land is for recreation, primarily due to the proximity of these lands to urban population centers with affluent, mobile populations seeking the recreational amenities these lands offer (Holtrop 2008).

Recreation opportunities in the Gunnison Basin travel analysis area are truly a national resource. The diversity of terrain ranging from broad sagebrush draws to serpentine creek bottoms and jagged snow-covered peaks of the high country offer outstanding recreation opportunities to users of these public lands. With about 1.8 million acres of NFS lands in the analysis area, the opportunities for diverse recreational opportunities are truly impressive.

The Gunnison Ranger District, in particular, is well known for excellent single-track trails. This includes both motorcycle and mountain bike single-track, which attract throngs of riders from all over the country. Both of these activities elicit a strong following from many Gunnison Basin locals as well. The Paonia Ranger District is more well-known for horseback recreation opportunities, and the majority of horseback trail miles in the analysis area occur on the western side of the analysis area.

The entire analysis area is also well-known for tremendous hunting opportunities, and these lands are heavily utilized during the hunting season.

PART A. AFFECTED ENVIRONMENT — NATIONAL FOREST SYSTEM LANDS

Recreation Trends

The 2008 SCORP) accurately describes outdoor recreation in Colorado: "With elevations ranging from 3,350 feet to 14,431 feet, a high percentage of public land (42 percent), close to 300 days of sunshine a year, and year-round recreation opportunities, Colorado is an outdoor recreation mecca."

Listed below are recreation trends from the 2008 SCORP applied to nature-based activities in Colorado:

> Day hiking is the most popular activity in the nature-based land activity category for Colorado residents, with over 50 percent of residents indicating they participated in a day hike at least once within the last year. Similarly, the second most popular activity in this category is visiting a Wilderness or primitive area, with 49 percent of residents participating.
>
> Among land-based pursuits that occur in developed settings, walking for pleasure is the most popular activity, with over three million residents enjoying this pursuit, followed by family gatherings (77 percent), photographing natural scenery (74 percent), and driving for pleasure (61 percent).
>
> According to the Outdoor Industry Foundation (OIF), trail-related activities are the most popular outdoor pursuits among Coloradans, with over 1.4 million people using unpaved trails to run or day hike, backpack, and rock climb. Approximately 35 percent of residents bicycle, 33 percent watch wildlife, and 28 percent camp.
>
> Since 1991, when Colorado State Parks first began managing the Off-highway Vehicle Registration Program, registrations have increased from nearly 12,000 to almost 131,000 in 2007. Of the 254,000 total motorized recreation vehicles registered through Colorado State Parks, which include OHVs, boats, and snowmobiles, OHVs comprise nearly half of all registrations.
>
> Almost 14 percent of Colorado residents indicate they actively participate in hunting. Of the hunting categories, big-game hunting is the most popular, followed by small-game hunting and migratory bird hunting (28 percent of Colorado hunters).
>
> Long-term trends indicate that fishing and hunting license sales have remained fairly consistent throughout the years, declining less than 1 percent since 1985.
>
> The most popular water-based activities in Colorado are fresh-water fishing and swimming in an outdoor pool, with 37 percent of residents indicating they went swimming and fishing within the last year. Swimming in lakes and streams and soaking in hot springs is the state's third most popular water-based activity (36 percent), followed closely by boating, with 34 percent of Coloradans heading out in a canoe, raft, sailboat, or motorboat. Among anglers, most preferred coldwater fishing (32 percent), likely because of high-quality trout fisheries throughout the state, followed by warm water fishing (17 percent). The most popular type of boating is motor boating (22 percent), followed by rafting (12 percent), canoeing (6 percent), sailing (4 percent), and kayaking (4 percent).
>
> While nearly 75 percent of anglers who fish in Colorado are residents, hunting activities are equally popular among residents and nonresidents.

Most outdoor vacationers in the state are Colorado residents who are primarily taking driving trips.

The average distance traveled to recreate outdoors was 17 miles during the week, while average distance traveled on the weekend increased to 41 miles. Approximately 54 percent of people typically travel at least 20 miles on the weekends to get outdoors, and nearly 20 percent travel more than 100 miles on Friday, Saturday, or Sunday.

Nearly half of Coloradans seem to prefer recreation sites with basic services, which consist of toilets, shelter, water, and picnicking areas.

When Colorado residents travel specifically to pursuing outdoor recreation, the majority prefer to camp in a tent or recreational vehicle (56 percent), while 42 percent stay in a hotel or motel.

Just over 35 percent of Coloradans camped in developed areas in 2006, while 30 percent camped in primitive areas.

The following population data was provided from the 2008 SCORP report:

Between 1990 and 2000, the Colorado population increased 31 percent, or just over 3 percent annually. Since 2000, the Colorado population has averaged annual growth of about 1.75 percent, reaching an estimated total of 4.75 million people in 2006. Overall, Colorado's population increased by 68 percent between 1995 and 2006.

The Colorado State Demography Office estimates the state will reach a population of 7.3 million by 2030.

The largest segments of outdoor recreationists are "Baby Boomers" (those born between 1946 and 1964) and "Millennials" (those born from 1978 to 2003). With more leisure time, comparably high disposable income, and concern for health and fitness, baby boomers are expected to increase the demand for recreation services. Millennials generally respond to recreation activities that are "accessible" (i.e., those visual in the media and practical in terms of how much time the activity requires). Millennials are also more technologically sophisticated than past generations.

Between 2007 and 2030, the Southwest Region (i.e., Archuleta, Delta, Dolores, Gunnison, Hinsdale, La Plata, Montezuma, Montrose, Ouray, San Juan, and San Miguel counties) is projected to grow by 134,000 people, a 71 percent increase that will impact the demand for outdoor recreation and public land use in this region.

People in Gunnison County have access to more than 788 acres open to the public per capita, the largest per capita amount in the Southwest Region.

The following economic data was provided from the 2008 SCORP report:

The Outdoor Industry Foundation's *2006 Active Outdoor Recreation Economy Report* indicates that economic impacts in Colorado associated solely with "active" outdoor recreation (which includes bicycling, camping, fishing, hunting, paddling, snow sports, wildlife viewing, trail-running, hiking, and climbing) amount to more than $10 billion annually (including both resident and non-resident expenditures).

Off-highway vehicle use, which includes ATVs, dirt or dual purpose motorcycles, snowmobiles, and four-wheel-drive vehicles, contributes more than $540 million to Colorado's economy each year, according to the Colorado Off-highway Vehicle Coalition (COHVCO 2009).

Hunting and fishing are part of Colorado's heritage and an important contributor to the economy, generating nearly $1.6 million in fishing- and hunting-related expenditures in 2006.

According to National Visitor Use Monitoring report (Kocis et. al. 2004), the top five primary recreation activities occurring on the GMUG in 2003 were downhill skiing, snowmobiling, hunting, hiking/walking, and viewing natural scenery. Other activities included viewing wildlife and relaxing (et al. 2004).

The findings from the GMUG study are consistent with data from the SCORP, inclusive of hiking/walking as an important recreational activity for a majority of visitors. Furthermore, in the National Visitor Use Monitoring (NVUM) report, forest trails were the 2nd ranked facilities/areas (after downhill ski areas) most used by visitors (Kocis et al. 2004). The percentage difference between visitor utilization of downhill ski areas and forest trails is only 0.06 percent, which indicates that forest trails are an important component for offering outdoor recreation opportunities.

In the 2008 SCORP, local government agencies (i.e., counties, municipalities, etc.) in the Southwest Region reported that trails (e.g., community trails, bike trails, pedestrian trails, and trails connecting to public lands) are their greatest priority recreation need.

Recreation Opportunities on NFS Lands

Hunting

Southwest Colorado is a nationally popular destination for big-game hunting. Hunters use vehicles extensively to access camping sites, search for game, and retrieve game using the existing road and trail network. Big-game hunting brings the highest number of visitors and the highest number of conflicts between motorized and non-motorized users. According to the NVUM study (Kocis et al. 2004), hunting was the 3rd primary recreation activity for GMUG visitors after downhill skiing and snowmobiling. According to the 2008 SCORP, almost 14 percent of Colorado residents actively participate in hunting.

The analysis area includes all or portions of the following Game Management Units (GMUs): 53, 54, 55, 66, 67, 521, and 551. The CDOW (2008) reported the following hunter numbers over the last four years for the GMUs mentioned above (applies to all manners of take):

Table 3-41. Deer and Elk Harvest, 2004–2007.

	2004	2005	2006	2007
Deer (Total Hunters)	2,811	3,440	3,921	4,073
Elk (Total Hunters)	21,526	20,994	20,010	19,592

Many hunters, both local and out-of-state, visit the area. Many of these hunters bring OHVs to the analysis area and rely on them as part of their hunting experience. The capability of OHVs to go nearly anywhere impacts wildlife (game and non-game) and the hunting experience of hunters using more traditional methods of access, such as by foot and horse. With the increased number of hunters, the proliferation of user-created routes, and the expanding modes of travel that occur on and off roads and trails, it is becoming increasingly difficult for individuals and groups to find secluded hunting locations without frequent encounters with other hunters.

Many hunters who hunt in remote terrain with the use of backpacks and/or horses provided public comments with their concerns about OHV use. Even hunters who use OHVs to access hunting areas or retrieve game have complained about the amount of OHV use in some areas. On the Gunnison and Paonia Ranger Districts, agency hunter patrol have observed that a majority of illegal travel off of designated or established routes occurs from OHV use during the hunting season.

In 2003, the Congressional Sportsmen's Foundation sponsored a study specifically to collect information related to "Access to Federal Hunting Lands in Colorado." The following captures just some results from this study:

Access to Forest Service lands ranked highest (73 percent rated it excellent or good) when compared to other lands generally available for recreation (e.g., BLM lands; other federal, state, local, or private lands; etc.).

Those respondents who have hunted on federal land in the past 10 years in Colorado were asked to indicate whether more, less, or the same level of access should be provided to federal lands in Colorado by various modes of transportation (e.g., by foot, horse, and ATV) (Access to Federal Hunting Lands in Colorado 2003). The highest percentage indicated that "Access by foot" should receive more access (49 percent). "Access by horse" responses also has a relatively high percentage favoring more access (32 percent). The highest percentages indicating that less access should be provided specified three motorized modes of access: 70 percent of the respondents said there should be less motorbike (i.e., motorcycle) access, 56 percent said there should be less ATV access, and 29 percent said there should be less truck access.

The most common interference problem addressed those on ATVs (18 percent of respondents reported interference by ATVs), with resident hunters being slightly more likely than nonresident hunters to have experienced a conflict with ATV users. The second highest conflict was with mountain bikes (10 percent).

Dispersed Camping

Dispersed camping is widespread throughout the analysis area, predominately occurring along streams and near lakes, typically adjacent to existing public roads and trails. These types of camping sites were developed by users based on accessibility and the type of camping experience sought. Dispersed campsites often have no basic services (i.e., water, bathroom, or shelter) and visitors must come prepared for that. Many sites have existed for years, but each year, existing sites are enlarged and there is the potential for new camping sites to be created. Current direction on the GMUG allows motorized travel 300 feet off of existing routes for camping and forest product gathering as long as that use does not result in resource damage. Dispersed camping is currently restricted in Taylor Canyon along Hwy 742 and is limited to designated sites only in the Gothic corridor along road #317. A Forest Service special order restricts camping within 100 feet of the high water line of the Taylor River from the point where it enters Taylor Park Reservoir, upstream to Dorchester Campground. Dispersed camping is also prohibited within 500 yards of Mosca Campground and Dinner Station Campground. Otherwise dispersed camping opportunities on NFS lands are generally allowed along all of the existing Forest Service roads in the analysis area.

Full-Size Passenger Vehicle Travel

This vehicle class includes licensed highway motor vehicles. The routes utilized by this vehicle class are classified as roads, not as trails. Approximately 407 miles are currently maintained for typical passenger vehicles across the NFS lands in the analysis area. Passenger vehicle roads are typically the main arteries to access many parts of the analysis area and would not change substantially in any of the alternatives because these roads typically provide needed public access to developed facilities and residences. The miles of road in this category do not include the additional 1,680 miles of county, state, and federal highway road miles available to passenger vehicles in the analysis area. Generally, passenger vehicles are not intended to travel on the more primitive native-surfaced roads because of the need for higher vehicle clearance, the rough nature of the road surface, and the need for greater traction during inclement weather conditions. As more and more passenger vehicles are coming

equipped with four-wheel drive, many primitive roads have become more accessible to a greater number of drivers.

"Driving for pleasure" is a recognized recreational activity in which many Colorado residents and other visitors take part, especially during the fall colors season. In the last NVUM study (Kocis et al. 2004), 17 percent of interviewed visitors took part in "driving for pleasure," which ranks that activity as 6th for GMUG activity participation. Furthermore, in the same study, forest roads and scenic byways were the 3rd and 4th ranked facilities/areas most used by visitors interviewed.

Full-Size High Clearance Vehicle Travel

This vehicle class includes OHVs greater than 50 inches in width (e.g., Jeeps™, four-wheel-drive pickups, sport utility vehicles—SUVs—etc.). These vehicles may be highway legal or not.

When roads are designated for OHVs greater than 50 inches in width (e.g., Jeeps™, "rock crawlers," and UTVs) and maintenance is limited to preventing resource damage only, these routes can be managed as trails and are referred to as "jeep trails" in the Preferred Alternative and action alternatives.

Currently, there are 3,168 miles suited to full-size, high-clearance motor vehicles across the analysis area (both NFS and BLM lands), of which about 1,718 miles are on NFS lands. A majority of these roads are considered "primitive" roads and offer more challenging driving opportunities. These roads receive limited maintenance and are not managed for user comfort. Under current conditions, none of these rougher primitive roads are managed as "jeep trails."

In the 2003 NVUM study (Kocis et al. 2004), visitors could have selected more than one activity in which they participated in during their visit to the forest. OHV use was ranked 8th for GMUG activity participation and OHV use ranked 9th for the primary activity of the visit (i.e., the sole reason for coming to the National Forest).

ATV Travel (OHVs 50 inches or less in width)

The routes available for these OHVs 50 inches or less in width (commonly referred to as ATVs or "quad runners") are designated as motorized trails. Only those side-by-side UTV's that are 50 inches or less in total width would be allowed to operate on these specific OHV trails. In this document, those OHV trails restricted to OHVs (50 inches or less in width) are referred to as "ATV trails."

There are approximately 209 miles of trails throughout the analysis area on NFS lands managed for ATV use. In addition, the 1,718 miles of primitive roads on NFS lands cited in the full-size, high-clearance vehicle category are generally available to ATV riders. In many cases, full-size, high clearance roads are the destinations and desired experiences for ATV riders. For example, many of the high elevation roads (e.g., Taylor Pass, Pearl Pass, Reno Ridge, Tincup Pass, and Alpine Tunnel Road) are highly desirable to ATV riders although they are managed as full-size, high–clearance vehicle roads and not as ATV trails. In many cases, beginner to intermediate ATV riders actually prefer to ride on full-size high–clearance vehicle roads instead of ATV trails.

ATV use is widespread in the analysis area, especially in the Taylor Park area. Through scoping, many individuals commented that they no longer camp or recreate in the Taylor Park area because of the increase in ATV use and parallel increase in dispersed camping. ATV use is also high in the Cement Creek and Spring Creek drainages and in the Tincup, Mirror Lake, Pitkin, and Alpine Loop areas.

Motorcycle Travel

Motorcycle use is very popular on the Gunnison Ranger District, and the single-track motorized trails are well known at the local, regional and national level. It is common to have many out-of-state visitors come to the Gunnison Ranger District with the primary purpose of riding motorized single-track trails.

Quality opportunities currently exist for single-track motorized vehicle use in the area between Brush Creek and Taylor Park, in and around the Fossil Ridge Recreation Management Area, the Pitkin-Whitepine area, and in the southern part of the National Forest in the Sargents-Long Branch-Needle Creek area.

There are currently 348 miles of single-track trails across the NFS lands within the analysis area managed for motorcycle use. This figure does not include ATV trails and roads also open to motorcycle use. It is important to recognize that many motorcycle riders also utilize ATV trails and full-size, high–clearance vehicle roads for their desired experiences. They do not rely on single-track motorcycle trails alone for their desired experiences. For example, Reno Ridge Road, Taylor Pass Road, and other high mountain pass roads are also very popular with motorcycle enthusiasts and are complementary to designated motorcycle trails. In many cases, novice to intermediate motorcycle riders prefer to ride on ATV or full-size, high–clearance vehicle roads to achieve their desired recreation experience and expectation.

Motorized single-track trails are primarily designed and intended for the off-highway type of motorcycle, although highway legal (i.e., licensed) motorcycles are allowed. The motorcycle vehicle class is generally described as a two-wheeled motor vehicle on which the wheels are situated in a line rather than side by side. The maximum tread width for motorized single-track trails is generally 24 inches.

In some areas, ATV riders are using single-track trails (illegally), thereby widening the trails. Razor Creek Trail in the Needle Creek area is an example of a trail managed as a motorized single-track, but due to repeated ATV use, it has been widened to an ATV trail width. Once the use becomes established, it is difficult for the land managing agencies to change it without daily enforcement. As with other user-created trails, these widened trails can cause additional resource damage because they are neither aligned nor designed for the wider travel surface. Additionally, there may be rider safety issues.

Mountain Bike Use

The popularity of mountain bike use has rapidly increased during the past decade. Crested Butte is considered by many as the cradle of mountain bike recreation and mountain bike trails in the Crested Butte area are celebrated and revered by the mountain bike community at the local, regional, and national levels. To emphasize this point, the draft 2008 SCORP characterizes the mountain bike trails around Crested Butte as “legendary.”

There are currently 87 miles of non-motorized, single-track trail managed for mountain bike use across the Forest Service portion of the analysis area. This figure does not include BLM-managed lands and other single-track motorized trails, ATV trails, and roads in the analysis area, all of which are generally available for mountain bike use. The maximum tread width for mountain bike trails is generally 24 inches. A bicycle is defined by Forest Service Manual direction (FSM 2300, Ch. 2350) as a “pedal-driven, human-powered device with two wheels attached to a frame, one behind the other.”

It is important to recognize that many mountain bike riders also utilize motorcycle and ATV trails and full-size, high–clearance vehicle roads for their desired experiences. They do not rely on single-track non-motorized trails alone for their desired experiences. Many popular mountain bike rides in the

analysis are also open to motorcycle use (e.g., Monarch Crest, Agate Creek, Dutchman's, Canyon Creek, Horseshoe Creek, Teocalli Ridge, Strand, Farris, Canal, Flag Creek, Bear Creek, Deadman, Doctor Park, etc.). Many of the popular mountain bike trails in the analysis area are multiple-use trails shared with motorcycles, hikers, and horseback riders. Mountain bikers also utilize full-size high clearance rides to achieve their desired experiences. Gothic Road, Brush Creek, Cement Creek, and Reno Ridge Road are just a few roads utilized by mountain bikers. In some cases, novice to intermediate mountain bike riders prefer to ride on full-size, high–clearance vehicle roads to achieve their desired recreation experience.

In the NVUM study (Kocis et al. 2004), bicycling use ranked as 10th for the primary activity of the visit (i.e., the sole reason for coming to the National Forest). Furthermore, in the same study, forest trails were the 2nd ranked facilities/areas (after downhill ski areas) most used by visitors interviewed.

Mountain biking on the Monarch Crest Trail (which overlays the Continental Divide National Scenic Trail) is extremely popular and is one of International Mountain Biking Association's (IMBA) "classic" mountain bike rides of North America. Mountain bikers also utilize the Monarch Crest Trail to loop back on the Agate Creek Trail as well as on trails in the Salida Ranger District (San Isabel National Forest) west of the analysis area. The single-track motorized trails in the Needle Creek area and other parts of the analysis area are also gaining popularity with mountain bikers.

As mentioned above, mountain bikes often share some of the single-track routes with motorcycles, especially in the Brush Creek and Cement Creek area. There are concerns that erosion and trail down-cutting caused by motorcycles has resulted in degradation of the mountain bike experience in addition to resource impacts for these shared trails. For example, U-shaped, 1-3 foot trenched cuts occur on the Teocalli Ridge Trail which some contend are the result of motorcycle use. This damage has increased the difficulty level of the trail for many users and has resulted in a diminished or total loss of opportunity for both mountain bikers and motorcycle riders not capable of a "black diamond" type ride. Some mountain bike enthusiasts have requested that more trails in the Brush Creek and Cement Creek drainages be restricted to mountain bike use only to avoid resource damage and user conflicts.

The parallel Brush Creek and Cement Creek drainages offer opportunities for both single-track motorized and non-motorized use. The single-track trails to the west of Brush Creek towards Crested Butte and beyond are currently managed for mountain bike use. Similarly, the single-track trails to the east of Cement Creek towards Taylor Park are currently managed for single-track motorized use although all non-motorized uses are allowed. The Brush Creek and Cement Creek drainages are the transition areas between the motorized and non-motorized trail users and as a result there have been user conflict issues between motorized and non-motorized users. Furthermore, conflicts between hikers, horseback riders, mountain bikers, ATV riders, and motorcycle riders are also likely due to the growth of Crested Butte South and the increased pressure placed on these areas to provide quality recreation opportunities for all users.

Hiker and Horseback/Pack Animal Use

In the NVUM study (Kocis et al. 2004), hiking/walking is the 4th ranked primary activity for visitors as well as the 4th ranked secondary or other activity participated in. As stated earlier, forest trails were the 2nd ranked facilities/areas (after downhill ski areas) most used by visitors interviewed.

Outside of designated Wilderness, hiker/horseback opportunities are available on approximately 315 miles of trails on NFS lands. Of these 315 miles, approximately 9 miles are hiker-only trails not available for horseback/pack animal use. In addition to these 315 miles, there are 510 miles of hiker/horseback trails within designated Wilderness of the analysis area. Furthermore, hikers and horseback riders can utilize all of the other road and trail miles mentioned previously in this analysis in addition to being able to travel cross-country without staying on an existing or designated road or trail.

Special-Status Trails

On November 10, 1978, Congress amended the National Trails System Act of 1968 with Public Law 95-625 to establish and designate the Continental Divide National Scenic Trail (CDNST). Per recent Forest Service Manual (FSM 2300, Ch. 2350) direction: "The nature and purposes of the CDNST are to provide for high-quality scenic, primitive hiking and horseback riding opportunities and to conserve natural, historic, and cultural resources along the CDNST corridor." The CDNST extends for about 3,100 miles from Canada to Mexico and crosses the Gunnison Ranger District from the Collegiate Peaks Wilderness near Taylor Park to Cuba Gulch Trail near Lake City (a distance of about 125 miles). Between Taylor Park and Cuba Gulch, much of the CDNST route goes back and forth between the GMUG, San Isabel, and Rio Grande National Forests. The Colorado Trail (CT) is concurrent with the CDNST for about 87 miles through the Gunnison Ranger District.

While on the Gunnison Ranger District, the existing allowable uses on the CDNST and CT vary from hiker/horse to full-size, high-clearance vehicles. Hiker/horse mode of travel is primarily found in the Collegiate Peaks Wilderness and La Garita Wilderness. Outside of the Wilderness, the CDNST and CT overlay routes that have been primarily managed for mechanized, single-track motorized or full-size, high-clearance vehicles.

A 2006 Decision Notice (USFS 2006) identified an alternative CDNST route between North Halfmoon Creek (San Isabel National Forest) to Monarch Pass, which, when fully constructed, will create a non-motorized CDNST route specifically designed for pack and saddle stock use and managed for both primitive hiking and pack and saddle stock opportunities. Furthermore, another recent Forest Service decision (2007) was made on the Rio Grande National Forest to reroute the CDNST between Cataract Lake Trail and Stony Pass, which will be a mostly non-motorized CDNST route when fully constructed. The Forest Service expects future planning discussions for the CDNST that could address continuous non-motorized travel on the CDNST from Monarch Pass to the La Garita Wilderness. Such planning and future decision making on the CDNST could supersede or supplement these proposed travel management decisions. Mountain bikers utilize the Monarch Crest Trail for loop rides down to Agate Creek Trail as well as trails on the Salida Ranger District (San Isabel National Forest) such as Fooses Creek and Greens Creek Trail. The Salida Ranger District estimates that the Monarch Crest Trail receives about 5,000 visitors per season (approximately July 4–October 15), and approximately 80 percent of the visitors are mountain bikers. This translates to about 4,000 mountain bikers and 1,000 other trail users that are hiking, running, riding horses or operating motorcycles on this section of the CDNST.

Motorcycle riders utilize the Monarch Crest Trail to create loop and "through ride" opportunities on trails on the Salida Ranger District as well as on trails on the Gunnison Ranger District, including Agate Creek and the single-track motorized trails in the Sargents-Long Branch-Needle Creek areas. Motorcycle enthusiasts contend that the Crest Trail should remain open to single-track motorized use as that use was established on the Crest Trail prior to designation of the CDNST in 1978.

Forest Service Manual direction regarding management of the CDNST was recently updated (FSM 2300, Ch. 2350, effective 11/4/09) to address mechanized and motorized use on the CDNST:

> 10. Bicycle use may be allowed on the CDNST (16 U.S.C. 1246(c)), using the appropriate trail design standards, if the use is consistent with the applicable CDNST unit plan and will not substantially interfere with the nature and purposes of the CDNST (FSM 2353.42).
>
> 11. Motor vehicle use by the general public is prohibited on the CDNST, unless that use is consistent with the applicable CDNST unit plan and:
>
> > a. Is necessary to meet emergencies;
> >
> > b. Is necessary to enable adjacent landowners or those with valid outstanding rights to have reasonable access to their lands or rights;

c. Is for the purpose of allowing private landowners who have agreed to include their lands in the CDNST by cooperative agreement to use or cross those lands or adjacent lands from time to time in accordance with Forest Service regulations;

d. Is on a motor vehicle route that crosses the CDNST, as long as that use will not substantially interfere with the nature and purposes of the CDNST (FSM 2353.42);

e. Is designated in accordance with 36 CFR Part 212, Subpart B, and:

(1) The designated vehicle class and width were allowed on that segment of the CDNST prior to November 10, 1978, and the use will not substantially interfere with the nature and purposes of the CDNST (FSM 2353.42) or

(2) The designated segment was constructed as a road prior to November 10, 1978; or

f. In the case of over-snow vehicles, is allowed in accordance with 36 CFR Part 212, Subpart C, and the use will not substantially interfere with the nature and purposes of the CDNST (FSM 2353.42).

Environmental Effects of Recreation

Evaluation Criteria

The following issues derived from scoping comments were used to evaluate the direct, indirect, and cumulative impacts of the alternatives:

Public access

Recreation opportunities

Crowding, density and conflict

Future demand

Environmental Effects of No Action

The No Action alternative is primarily defined by the existing interim travel designations issued in 2001. Motorized and mechanized vehicles are restricted to existing, designated routes under this alternative. Off-route, cross-country travel by motorized and mechanized vehicles would continue to not be allowed. Driving off of designated routes for purposes of dispersed camping and other dispersed recreational activities would be restricted to existing dispersed sites, routes, and spurs only.

Under the No Action alternative in the analysis area, there are approximately 3,731 miles of road on federal lands open to full-size vehicles. Of those road miles, about 85 percent (3,168 miles) are gravel or dirt surfaced roads typically more suited to higher-clearance vehicles than passenger cars. There are an additional 212 miles of trail that have established OHV (50 inches or less in width) or ATV use and 348 miles (NFS lands) that have established motorized single-track (cleared to about 42 inches wide) motorcycle use.

If the No Action alternative is implemented there would be about 400 miles of trails where the established use has been non-motorized travel and these routes would be managed and maintained on NFS lands as non-motorized trails. Based on past use, there are about 87 miles of these trails on NFS lands where mountain bike use would be most appropriate. The remaining 315 miles of trails are more suited for hiker and/or horse use, though mountain bike use would be allowed.

Public Access

Under No Action, public access would essentially be the same as has typically occurred since the 2001 Interim Travel Decision. Mode of travel on existing roads and trails would remain the same as currently allowed (Table 3-41). Problems or issues regarding access would be addressed on a site-specific level when warranted by public safety issues or environmental concerns. The No Action alternative would offer about 4,400 miles of motorized access to NFS lands ranging from passenger car travel to single-track motorized. Furthermore, 400 miles of non-motorized recreation access on NFS lands would be retained under the No Action alternative. By selecting No Action, the Forest Service would allow more motorized public access to lands in the analysis area than any other alternative. The access to the Continental Divide Trail and Colorado Trail would remain the same under the No Action alternative except for those segments where separate decisions to realign or relocate portions have already been made.

Recreation Opportunities

Under the No Action alternative, existing recreation opportunities would remain at current levels across the analysis area. There would be no change to the quality of the recreation opportunities.

As new and changing motorized and mechanized recreational uses occur, hikers and horseback riders appear to be displaced from trails and areas they previously enjoyed. The more encounters, especially negative encounters, that hikers and equestrians have with mountain bikes and/or motorized vehicles, the more they will choose to recreate somewhere else, change their expectations, and/or use the trail at different times of the day or week.

Under the No Action alternative, there would be no change to the current situation. Quality hiker/horse opportunities would still be available in designated Wilderness (510 miles) and on the other 315 miles of trails on NFS lands managed and maintained for hiking and horseback riding outside of Wilderness areas.

Hunters looking for more non-motorized hunting opportunities would not find them under this alternative, and as a result may seek other areas to hunt.

Dispersed camping opportunities would remain plentiful under the No Action alternative.

Crowding, Density, and Conflict

Under the No Action alternative, current crowding, density, and conflict issues would remain. According to the NVUM study (Kocis et al. 2004), approximately 40 percent of visitors reported feeling moderately to highly crowded in general forest areas of the GMUG. This may be a result of road or trail encounters in areas where many different recreational users (e.g., as a hiker or equestrian encountering mountain bikers or motorcycles) are competing for experiences in the same area.. User conflicts on the federal lands are more apparent as the motorized, mechanized users, hikers, and horse riders compete for limited space to pursue their individual interests.

Future Demand

Recreation demands based on current and future trends would not be directly addressed under the No Action alternative. Future demand for specific recreational activities would be dealt with on a subsequent site-specific basis only if the No Action alternative is selected.

Table 3-42. Summary of No Action Alternative (Existing Conditions) National Forest Travel Routes

	Motorized Routes (miles)	Non-Motorized Routes Outside of Wilderness (miles)

	All Public Roads on Federal Lands	Roads on Federal Lands Managed by Forest Service	ATV/OHV*	Motorcycle	Trails Managed by Forest Service	Mtn. Bike Use Restricted
No Action Mileage	3,805	2,125	209	348	402	N/A

** OHVs – 50 inches or less in width*

Environmental Effects of DEIS Proposed Action (Alternative 2)

Under the DEIS Proposed Action, there would be approximately 1,346 miles of road on NFS lands open to full-sized vehicles, with about 73 percent of these road miles (976 miles) more suited to higher-clearance vehicles, trucks, and SUV-type vehicles. Approximately 570 miles of road across NFS lands within the analysis area would be closed and no longer be open to public travel. There would be 174 miles of ATV trail managed for OHVs 50 inches or less in width and 270 miles managed as motorized single-track trails (cleared of branches and obstructions to about 42 inches wide) for motorcycles on NFS lands. There would also be a relative small number of trail miles (49 miles) that would be designated as Jeep trails. This means that these trails are wider than 50 inches but are typically so rough, rocky, and steep that they are more appropriately traveled on by specially built or modified vehicles that most often resemble Jeep™ four-wheel-drive vehicles.

Under this alternative, there would be approximately 396 miles of non-motorized trails on NFS lands, plus an additional 511 miles of trail in Wilderness. There are some non-motorized trails where use by only hikers and horseback riders is desired and mountain bike use would not be allowed. On NFS lands, of the 396 non-motorized trails miles cited, approximately 245 miles would not be suited for mountain bike use; the other 142 miles would be managed and maintained to be used by mountain bikes, hikers, and horseback riders. The majority of non-motorized trail miles where mountain bike use would be restricted is traditional horse trail and occurs on the Paonia Ranger District.

Public Access

The DEIS Proposed Action would provide the majority of the public with adequate access to the federal lands within the analysis area. The majority of the 570 road miles proposed for closure on NFS lands in this alternative are spur-type roads created by recreational users, logging roads from old timber sales, and in some cases, roads associated with mining activity. Some are already closed with gates, and most are dead-end or parallel roads that often do not lead to a recreation attraction.

Under the DEIS Proposed Action, federal lands remain open to the public; however, the mode of travel may change and, in some areas, existing routes may no longer be open to vehicular travel. This alternative provides almost 1,839 miles of motor vehicle routes on NFS lands within the analysis area. This figure does not include the 1,680 miles of county, state, and federal highway roads, the proposed 396 miles of non-motorized use trails on NFS lands, or the 510 miles of managed trails in designated Wilderness, all within the analysis area. As a result, there should not be significant long-term negative effects due to the selection of the DEIS Proposed Action on public access as no areas are closed to the public. Short-term (5 years or less) effects would include the displacement of some motorized users to other routes and areas with motorized access, public dissatisfaction with closed routes, and a potential for higher user density issues on routes that remain open.

Access to dispersed camping opportunities would be provided within 300 feet from those roads or trails designated as open, using existing routes that leave the main roadway. Hunting access would still be open to the majority of areas previously available, but some areas may now only be accessed by foot and horseback under this alternative.

Hikers and horseback riders may travel cross-country, off of designated trails, so their access to the federal lands would not be adversely impacted by this alternative.

Recreation Opportunities

The DEIS Proposed Action attempts to provide quality recreation opportunities for all activities where and when appropriate. The public must be informed that, while higher numbers of road/trail miles for a certain recreation activity may indicate more travel miles, this does not necessarily translate into a greater number of quality recreation opportunities. Simply stated, road miles do not necessarily equate to the quality of the recreation experience. Land management agencies can provide plenty of area access via dead-end routes or "routes to nowhere," but that does not mean that the agencies are providing more high-quality recreational opportunities as most users have indicated that they would rather have looping routes rather than dead-end and duplicate routes.

Hunting

The opportunity for hunting would still be plentiful under the DEIS Proposed Action, with close to 1,839 miles of road and motorized use trails available for access on NFS lands to traditional hunting areas. As mentioned earlier, some routes that were previously opened to OHV travel would be closed under this alternative, meaning that hunting access in these areas would likely have to be by foot or horseback. For some, the effect would be a higher quality hunt due to reduced motor vehicle access, less crowding, and more self-reliance. For others, the net effect may lead to disappointment due to restricted motorized access, which may result in either accepting the change and/or hunting elsewhere within or outside of the analysis area. There would be other locations available for hunting opportunities that allow motorized access from over 1,800 miles of routes that would remain open in this alternative in addition to the 1,680 miles of county, state, and federal highway roads that are present in the analysis area.

During the past 15 to 20 years, there has been a significant increase in OHV use on the forest during the hunting season and, with it, a significant increase with OHVs operated off of existing designated routes. This increase has also resulted in the creation of additional conflicts among hunters with differing philosophies. Over 40 percent of resident big-game hunters and 30 percent of non-resident big-game hunters indicate that the most frequent and negative access problems were in finding areas that are not crowded (Manfredo 1992). Seventy percent of hunters support the designation of more areas where the number of big game hunters is limited (Manfredo 1992). In a survey conducted of OHV users in Montana, over 78 percent of those surveyed stated that OHV users should access the area they intend to hunt on legal routes and then hunt on foot (Montana Fish, Wildlife and Parks 2006).

The DEIS Proposed Action provides adequate access to the NFS lands for the purposes of hunting as the main access routes and many hundreds of miles of secondary high clearance roads are proposed to be retained. This alternative would provide more areas for non-motorized backcountry hunting experiences than under existing conditions for those hunters who prefer that type of setting.

Dispersed Camping

Dispersed camping is popular throughout the analysis area, and many of the established dispersed camping sites are proposed to be retained under this alternative. Many of the main roads that accommodate full-sized passenger vehicles support dispersed camping opportunities in the analysis area (e.g., roads like Cement Creek, Brush Creek, and Soap Creek roads) and would continue to remain open. As a result, the DEIS Proposed Action should not have any negative effects on dispersed camping opportunities. Cross-country travel would be restricted and the creation of new dispersed campsites should not occur.

Dispersed camping opportunities would be lost on the roads that are proposed for closure. For those visitors accustomed to camping off of a road proposed for closure, the net effect would be visitor dissatisfaction, which would likely lead to selection of an alternative "open" site for dispersed camping either within or outside of the analysis area.

According to the NVUM study (Kocis et al. 2004), 52 percent of GMUG visitors would have "gone elsewhere for the same activity" if, for some reason, they were unable to visit GMUG. This indicates that visitors will likely "substitute" one location for another in order to carry out the same activity. Research indicates that "substitution" involves replacing one recreation activity or resource with another that provides the same benefits as the original (Shelby and Vaske 1991). Because of the high number of roads (over 1,800 miles) that would remain open to motorized uses in the analysis areas, there would be other substitute locations for dispersed camping.

Full-Size Passenger Vehicles

The DEIS Proposed Action would have little adverse effect on full-size passenger vehicle opportunities. Under this alternative, 370 miles would be open to this vehicle class, compared to 407 miles under the No Action alternative, on NFS lands. The majority of Forest Service and BLM roads available to full-size passenger vehicles, as well as the 1,835 miles of county, state, and federal highway roads, would be available for public use. All of the existing scenic by-way routes would remain open and driving for pleasure opportunities would not be affected under the Proposed Action alternative.

Full-Size High-Clearance Vehicles

There would continue to be many opportunities for four-wheel-drive, Jeep™, and UTV-type vehicles greater than 50 inches in width under the DEIS Proposed Action, with 976 miles available on NFS lands to this vehicle class plus an additional 370 miles of roads more suitable for passenger vehicles. In addition, this alternative would designate trails specifically for Jeeps™ and OHVs greater than 50 inches in width. The proposed 49 miles of Jeep trails would be rough, rocky, and steep and would accommodate the demand for more challenging and extreme four-wheel-drive recreational use.

Proposed Jeep trails include portions of or all of routes going up to and over the following high-mountain passes: Gunsight, Pearl, Napoleon, Tincup, Williams, Hancock, and Tomichi. Additional Jeep trails are proposed for portions of the Flattop road system, Depler Park area, Union Canyon (at Lottis Creek), Reno Divide, and Sun Park area. These have traditionally been popular routes for this specialized user group.

The addition of 49 miles of Jeep trails would be a positive effect of the DEIS Proposed Action as it addresses public demand for more challenging full-sized high-clearance vehicle recreational use. To prevent resource damage, local or regional OHV clubs would be asked to assist or continue to assist with the maintenance of these trails in partnership with the Forest Service.

The closure of roads or conversion of roads to trail under this alternative may cause some visitors to be dissatisfied with the loss of their use. Some of these Forest Service routes include numerous side roads, dead-end spur roads, and duplicate roads that have proliferated in areas such as: Pitkin/Waunita Pass/Waunita Hot Springs area; Depler Park; Soap Creek, Red Creek and Rainbow Lake area; Flat Top/Red Mountain area; and Texas Creek/Cottonwood Pass area. However, the DEIS Proposed Action provides many locations as substitutes for full-size high-clearance vehicle opportunities, with the 976 miles of high-clearance road proposed to remain open on NFS lands in addition to the 49 miles of Jeep trails.

ATVs (OHVs 50 inches or less in width)

Under the DEIS Proposed Action, ATV trails would decrease from existing conditions (212 miles) to 174 miles. The opportunity for ATV and OHV (vehicles 50 inches in width or less) riding would also

be available on Jeep trails, high-clearance vehicle roads, and some passenger-vehicle roads, adding another 1,025 miles of riding opportunity on NFS lands.

Many of the ATV trails proposed for closure and decommissioning are user-created, dead-end trails, or trails with environmental concerns. Some ATV trails are proposed to be converted to single-track motorcycle trails, such as Hunters Hill Trail and part of the Farris Creek Loop (409.5) between Farris Creek Road and Double Top Trail. This is primarily to avoid having ATV trails dead-end at single-track trails, which pose a problem when ATV users attempt to "push" their way up single- track trails. The ATV route above Middle Quartz Campground would be closed due to riparian and watershed concerns.

Under the DEIS Proposed Action, certain roads in the following areas would be converted from full-size, high-clearance vehicle roads to ATV trails: Lost Canyon, Depler Park, Tincup-Mirror Lake area, Union Park, and the Needle Creek Reservoir area.

Recreation opportunities for ATV users under this alternative are better than under the No Action alternative due to the creation of loops and through routes and the elimination of dead-end routes. Conversely, the effects of the DEIS Proposed Action on ATV opportunities can be considered negative as there would be about 35 miles of ATV trail riding opportunities on NFS lands lost, compared to existing conditions.

As a result of this analysis, the Forest Service recognizes the need to improve ATV recreation in the greater Taylor Park, Tincup, and Pitkin areas by providing more infrastructure, such as developed trailheads, staging areas, kiosks, signs, maps, brochures, etc. Additionally, signage regarding alternative existing routes would inform ATV riders of trail-riding options and guide ATVs off of the main roads, which would beneficial ATV riders. For example, many ATV loop opportunities already exist utilizing routes in the Union Park, Slaugterhouse, Tincup, Mirror Lake, and Cottonwood Pass Road areas. These route options need to be advertised, signed, mapped out, etc. These specific improvement measures are generally outside the scope of this analysis and would require separate site-specific actions, public input, and environmental analysis. These improvements could potentially involve future State OHV grant funding.

Motorcycles

Under the DEIS Proposed Action, motorcycle-specific trails on NFS lands would decrease from 348 miles to 270 miles. The opportunity for motorcycle riding would remain available on ATV trails, Jeep trails, full-size high-clearance roads and passenger-vehicle roads adding another 1,569 miles of riding opportunity on NFS lands.

The quality motorized single-track riding opportunities the Gunnison Ranger District is known for would largely remain intact under the DEIS Proposed Action. This includes Crested Butte-Taylor Park trails such as Teocalli Ridge, Block and Tackle, Brush Creek Trail, portions of Farris Creek, Double Top, Waterfall, Hunters Hill, Crystal Peak, Tilton-Taylor Divide, Reno Ridge, Flag Creek, Bear Creek, Deadman Gulch, Rosebud, Star, upper Doctor's Park/Gunnison Spur, Lily Pond, and Timberline Trail. The Proposed Action also retains the following popular single-track motorcycle trails in the Pitkin-Whitepine area: Canyon Creek, Horseshoe Creek, South Quartz, Waunita, and the Long Branch-Needle Creek Reservoir area, Tank Seven Creek, Summit Trail, Big Bend, Long Branch, Baldy Lake, Dutchman Creek, and Barret Park trails. Motorcycle use on the Monarch Crest Trail would be more restricted but would be retained from the Greens Creek Trail junction, south. Upper Agate Creek Trail to Lime Creek would also be retained for single track motorcycle use.

The trails that would be closed to motorcycle use and/or converted to mountain bike or hiker/horse trails include: Wildcat/Green Lake/Carbon Creek Trail connection, Strand Hill, Strand Bonus, Canal, 402 trail, Timbered Hill, trails between Teocalli Ridge and Middle Brush Creek Road, parts of Farris Creek Trail (409) and Double Top, Walrod Gulch, portions of the Cement Creek Trail, lower

Doctor's Park Trail, 413 trail between Doctor's Park Trail and Taylor Reservoir/River's End Campground, portion of the Quakey Mountain Trail, Monarch Crest Trail between Monarch Pass and Greens Creek Trail, lower Agate Creek Trail (below Lime Creek cutoff), and a portion of the CDNST between Hwy. 114 (near North Pass) and Cochetopa Pass Road.

There continue to be many opportunities for motorcycle users under this alternative across the analysis area. Some users may see the effects of the DEIS Proposed Action as negative due to the loss of some traditional trails and seasonal timing restrictions. Overall, the DEIS Proposed Action takes a realistic look at which motorcycle trails are the highest priority for funding, maintenance, long-term sustainability, and grant-seeking.

Mountain Bike

Under the DEIS Proposed Action, mountain-bike-specific trails on NFS lands would increase from 87 miles to 142 miles. In the Kebler Pass area, a new trail (approximately 23 miles) is being proposed to link the Kebler Wagon Trail to the Erickson Springs Campground on the Paonia Ranger District parallel to the Kebler Pass Road. This proposal is to help realize the long-envisioned biking trail between Crested Butte and Carbondale via Kebler Pass. A mountain bike trail connection would also be provided between Gunsight Pass and down to the Kebler Pass Road.

Some trails that are currently motorized would be converted to mountain bike trails; these trails include the following: Strand Hill, Strand Bonus, Canal, portions of 407 to Brush Creek, another connector trail between the Farris Creek Road (736) and the Brush/East Brush Creek Road junction, lower Farris Creek Trail (409) from Farris Creek Road to Cement Creek Road (including the lower portion of Double Top), Walrod, portions of the Cement Creek Trail, Monarch Crest Trail between Monarch Pass and Greens Creek Trail, lower Agate Creek, and a portion of the CDNST between Hwy. 114 (near North Pass) and Cochetopa Pass Road. Another proposed trail would provide a loop opportunity on Snodgrass Mountain.

Existing mountain bike trails that would be converted to hiker/horse trails include: Swampy Pass-Pass Creek-Lowline-Mill Creek Trail connection; Wildcat/Green Lake/Carbon Creek Trail connection; Eccher Gulch/Round Mountain, the trail above the Irwin Lodge property, and a connector trail (580) between Double Top Trail and Cement Creek Trail. The conversion of these trails from mountain bike use to hiker/horse use would help meet the need for more hiker/horse trails outside of Wilderness and close to residential areas and local communities.

Under the DEIS Proposed Action the opportunities for mountain bike use are increased, and this would likely result in a positive effect for mountain biking. The proposed seasonal closure on Doctor's Park Trail and Deer Creek Trail (March 15-June 15) could negatively affect some mountain bikers hoping to bike these trails early in the season, but, there are many substitute early-season trails in the analysis area (e.g., Hartman Rocks, Lower Loop, Upper, Walrod, etc.). Other mountain bikers may be disappointed with the proposed conversion of mountain bike trails to hiker/horse trails; however, with the addition of nearly 55 miles of non-motorized trails managed for mountain bike use, there are substitute trails available to replace the lost opportunities.

Hiker/Horse

Under the DEIS Proposed Action, the following hiker/horse trails are proposed as a result of converting existing trails to hiker/horse trails: Eccher Gulch/Round Mountain, Swampy/Pass Creek/Lowline Trail connection, Green Lake/Carbon Creek/Baxter Gulch connection, April Gulch/Beaver Creek, and Quakey Mountain/Dawson Creek. Most non-motorized trails that lead to Wilderness would be hiker/horse trails. Overall, the DEIS Proposed Action would provide approximately 254 miles of hiker/horse trails with mountain bike restrictions on NFS lands outside of designated Wilderness. This is less than the 313 miles currently available in the No Action alternative (i.e., the existing condition), but it represents an efficient trail system that addresses the needs for

hiker/horse opportunities outside of the Wilderness and close to residential areas. A majority of the hiker/horse trails proposed to no longer be maintained and managed as Forest Service system trails (about 252 miles) are on the Paonia Ranger District and represent slightly used and/or user-created horseback trails.

Hiker/horse opportunities would be gained in the Crested Butte area with the designation of the Green Lake Trail and adjoining trails (Baxter, Carbon) and the Eccher Gulch/Round Mountain Loop. Furthermore, 142 miles of single-track non-motorized trails that allow mountain bikes on NFS lands would be open to the public for hiker/horse users in this alternative, creating additional non-motorized trail opportunities in the Crested Butte and Crested Butte South areas (see the Mountain Bike section).

In addition to the hiker/horse opportunities mentioned above, there would continue to be 510 miles of hiker/horse trail within designated Wilderness of the analysis areas.

The DEIS Proposed Action provides beneficial effects to hiker/horse opportunities by the creation of new opportunities in areas close by to residential areas and outside of the Wilderness. The proposed seasonal closure on Doctor's Park Trail (March 15-June 15) could negatively affect some hikers as this is traditionally an early season hike due to its south-facing aspect.

Special-Status Trails

Under the DEIS Proposed Action, the section of the Monarch Crest Trail between Monarch Pass and the Greens Creek Trail junction would be closed to motorcycle use. Another section of the CDNST proposed to be closed to motorcycle use is between Hwy. 114 (near North Pass) and Cochetopa Pass Road. These non-motorized sections of the CDNST would provide a positive effect for mountain bikes, hikers, and horseback riders on the CDNST.

Aside from these two segments, much of the CDNST and Colorado Trail would provide the same opportunities as existing conditions. There would only be minor changes (approximately 13 miles, or 10 percent) in mode of travel on the CDNST under the DEIS Proposed Action.

For those other sections of the CDNST that would still allow motorized travel, it has been determined that continuation of this type of use would not substantially interfere with the nature and purposes of the CDNST.

There would likely be some disappointment in the loss of motorcycle opportunity, particularly on the Crest Trail between Monarch Pass and the Greens Creek Trail junction. Based on input from the Salida Ranger District, it appears that a majority of the motorcycle use on the Crest Trail originates from the Greens Creek Trail on that District rather than from Monarch Pass. By providing a connection to the Crest Trail at Greens Creek, quality opportunities remain for single-track motorcycle riding down the Crest, into upper Agate Creek, Lime Creek, and over to the single-track motorized trail system in the Long Branch-Needle Creek Reservoir area.

Crowding, Density, and Conflict

The closure of almost 570 miles of road on NFS lands would help to reduce user density and conflict issues with hunters who desire a more non-motorized experience. As stated earlier, several studies (Manfredo 1992; Access to Federal Hunting Lands in Colorado 2003; Montana Fish, Wildlife and Parks 2006) have shown that large numbers of hunters are looking for limits on ATV use during hunting season to allow for a more quality hunting experience.

The designation of 49 miles of Jeep trails and the conversion of some full-sized high-clearance vehicle roads to ATV trails would have a positive effect on crowding, density, and conflict issues as these would be new opportunities created for these types of recreational vehicles, taking into consideration loop and through opportunities.

The conversion of motorized trails to mountain bike trails in the Brush Creek and Cement Creek drainages would help to alleviate user density and conflict issues that have occurred in this area. The growth in popularity of mountain biking and the population growth in Crested Butte South and the Gunnison Basin in general, have increased the demand for non-motorized trail use in these areas. Trails in close proximity to these communities provide quick and easy access to federal lands and provide relatively short day-hike/bike opportunities.

Many of the motorcycle trails proposed for conversion to non-motorized use are short in length, attract many non-motorized users, and do not provide the longer loop opportunities desired by most motorcycle riders. Single-track motorcycle access between the Brush Creek and Cement Creek drainages would still be provided via Double Top and the Brush Creek Trail.

The conversion of mountain bike trails to hiker/horse trails would also alleviate user density and conflict issues and allow hikers and horse users to enjoy their experience without having to step off the trail multiple times to allow mountain bikers to pass.

On the CDNST/Crest Trail, the conversion of the Monarch Pass to Greens Creek Trail section managed as non-motorized is consistent with the existing demand and use (estimated 80 percent or more of recreational use on that segment of trail is non-motorized), which is mostly on mountain bikes.

Overall, the Proposed Action beneficially addresses the numerous crowding, density, and conflict issues that currently exist in the analysis area.

Future Demand

Non-Motorized Recreation Opportunities

Increased mountain bike trails and dedicated hiker/horse trails primarily in the upper end of the Gunnison Basin addresses regional and national trend data indicating a desire for more non-motorized trail opportunities by local communities. There is support from local mountain bike groups (e.g., Crested Butte Mountain Bike Association and Gunnison Trails) to maintain mountain bike trails on federal lands if necessary to ensure that expanded opportunities are not forgone because of maintenance funding issues.

Motorized Recreation Opportunities

Overall, the DEIS Proposed Action recommendation for motorized recreation opportunities attempts to take a realistic look at which roads and trails are the highest priority for funding, maintenance, long-term sustainability, and grants and partnerships.

Route Maintenance

The Forest Service would need to continue to explore opportunities for outside funding and volunteer support to maintain the proposed system of trails based on an expectation that federal recreation and trail budgets will remain flat or continue their downward trend. As with the non-motorized use advocacy groups, there are local motorized use groups (e.g., Crested Butte Trail Rider's Association and Colorado 500) that have pledged to support both the Forest Service and BLM with on-the-ground trail maintenance.

The availability of Colorado State Parks OHV Funding has been instrumental in the Forest Service's ability to maintain some motorized trails, but there remain many miles of motorized trail on NFS lands that need or will need attention to sustain their use.

As demand continues to increase, there will ultimately be limits on the amount of use that can be sustained without adverse affects. It is not the agency's obligation to provide increasing and unlimited "supply" to respond to increasing "demand" for all recreational activities. Rather the agencies' are

tasked to provide quality recreation opportunities in those areas where it is appropriate based on other multiple-use concerns such as wildlife habitat, watersheds, fragile ecosystems, and desires for other forms of recreation including "quiet" recreation. It is a management objective that recreational opportunities on NFS lands afford the users a quality experience.

Table 3-43. Summary of DEIS Proposed Action—Alternative 2 National Forest Travel Routes (in miles).

	Motorized Routes					Non-Motorized Routes outside of Wilderness	
	Public Roads on Federal Lands	Roads on Federal Lands Managed by the Forest Service	Jeep Trail	ATV/OHV*	Motorcycle	Trails Managed by Forest Service	Mtn. Bike Use Restricted
Alternative 2 Mileage	3,022	1,342	49	174	270	396	245

** OHVs – 50 inches or less in width*

Environmental Effects of Alternative 3

Under this alternative, a more basic system of roads and trails would remain open for public travel in the Gunnison Basin travel analysis area. Recreational opportunities under this alternative would be more oriented towards self-propelled, non-mechanical travel than any of the other alternatives.

In this alternative, there would be about 1,139 miles of road on NFS lands designed for full-sized vehicle use. About 68 percent of those roads (776 miles) would be more suited to high-clearance full-sized vehicles rather than passenger cars. On NFS lands there would be approximately 100 miles of trail that would be designated for ATVs (i.e., OHVs 50 inches or less in width) and 188 miles that would be motorized single-track trail. There would also be a smaller number of trail miles (37 miles) that would be designated as Jeep trail.

Under this alternative, there would be about 477 miles of non-motorized use trails on NFS lands. Of these 477 miles of trail, 166 miles would be managed primarily for mountain bike use and the remaining 305 miles (64 percent) managed primarily for hiker and horseback use with restrictions on mountain bike use.

Public Access

Of all the alternatives, this alternative would limit motorized vehicle access on roads and trails the most and would provide the most designated system of trails for non-motorized recreation, especially for hiker/horse use.

This alternative would provide adequate transportation access to most of the NFS lands within the analysis area, relying on a system of approximately 1,464 miles of roads and motorized use trails. The additional 1,680 miles of county, state, and federal highway road miles available to passenger vehicles in the analysis area would also provide needed vehicular access.

Many of the 910 miles of road and trail that would be closed in this alternative are located in important wildlife habitat areas, fragile ecosystems, riparian areas, and sensitive watersheds. Some of these routes are also proposed to be decommissioned in order to enhance and protect wilderness values. Some motorized and/or mechanized travel on routes that dead-end at or are aligned adjacent to Wilderness boundaries would be closed.

Under this alternative, public access would be provided on about 1,464 miles of motor vehicle roads and trails on NFS lands within the analysis area. This is about 1,218 miles less than what is provided

for motorized access on NFS lands by the No Action alternative. As a result, most of the negative effects of this alternative on public access would be felt by the motorized recreational users as their ability to ride to certain locations in the analysis area would be curtailed.

Under this alternative, the proposed 477 miles of non-motorized trails in the analysis area would be a positive impact to non-motorized recreational activities. Compared to the No Action alternative (existing conditions) , this alternative proposes about almost the same number of miles of managed hiker/horse trail but would increase the miles of mountain bike trail by about 80 miles on NFS lands.

Recreation Opportunities

Hunting

Hunting opportunities would further change under this alternative compared to the Proposed Action. Some of the popular hunting areas in the analysis area would have to be accessed primarily by foot or horseback, including the Needle Creek/Razor Creek area, Depler Park/Waunita Pass/Black Sage Pass area, Flattop/Red Mountain, and Rainbow Lake to Antelope Creek area. Basic road access would be provided to access these areas and the density and myriad of roads and trails currently available would not be limited under this alternative. For some, the effect would be a higher quality hunt due to less motorized access, less crowding, and more self-reliance. To others, it may result in dissatisfaction due to longer access times, longer “packing” distances, and less movement of game. Restricted motorized access may result in hunters going elsewhere to camp and hunt either within or outside of the analysis area.

This alternative provides less motorized access to the analysis area for the purposes of hunting as compared to the other alternatives and more of a non-motorized backcountry experience for those hunters who prefer that type of setting.

Dispersed Camping

Dispersed camping opportunities would be lost on the roads that are being proposed for closure or decommission under this alternative. For those visitors accustomed to camping at a certain locations proposed for closure, the net effect would be dissatisfaction, which would likely lead to selection of an alternative “open” site for dispersed camping either within or outside of the analysis area. Substitute locations for dispersed camping would be available off of the 1,139 miles of roads that will remain open in this alternative in addition to the 1,680 miles of county, state, and federal highway roads that are present in the analysis area.

Full-Size Passenger Vehicles

This alternative would have little effect on full-size passenger vehicle opportunities. The consequences of this alternative on full-sized passenger vehicle use would be similar to the DEIS Proposed Action.

Full-Size High-Clearance Vehicles

Opportunities for high-clearance vehicles and OHVs greater than 50 inches in width on NFS lands would be available on 776 miles of road plus an additional 363 miles of roads more suitable for passenger vehicles. In addition, 37 miles of Jeep trails would be provided on NFS lands to accommodate the demand for more challenging full-sized vehicle recreational use. Proposed Jeep trails include all or sections of routes going over the following high-mountain passes: Gunsight, Pearl, Tincup, Hancock, and Tomichi.

This alternative would close and decommission the routes over Williams Pass and Napoleon Pass. In addition, high-clearance roads would be closed in the following areas: Needle Creek/Razor Creek

area, Depler Park/Waunita Pass/Black Sage Pass area, Flattop/Red Mountain, Rainbow Lake to Antelope Creek area, Union Park, Tellurium Road, Strand Hill Road, and Farris Creek Road.

The loss of roads used by full-sized vehicles or OHVs greater than 50 inches in width may lead to dissatisfaction among visitors currently using those routes. Substitute locations for full-sized high-clearance vehicles will remain in the analysis area, with almost 776 miles of high clearance road or trail available for public travel. The fewer number of routes proposed to remain open under this alternative may have increased visitor use, which may cause some visitors to feel "crowded," thus contributing to a negative recreation experience and possible displacement.

The addition of 37 miles of Jeep trails provides for a positive recreational opportunity not currently managed for under the No Action alternative.

ATVs (OHVs 50 inches or less in width)

Under this alternative, ATV trails would decrease from the current 209 miles to 100 miles. The opportunity for ATV and OHV (50 inches or less in width) riding would also be available on full-sized vehicle trails, full-size high-clearance vehicle roads, and most passenger-vehicle roads, adding another 1,176 miles of riding options on NFS lands.

Many of the ATV trails proposed for closure are user-created, dead-end trails, trails without adequate public access (private land closures prevent the public from getting to the trails on the federal lands), or trails with environmental concerns. Some specific ATV trails proposed for decommission or type-conversion under this alternative include the Razor Park Trail, Cannibal Plateau-Brush Creek loop, upper Lily Pond Trail, Hunters Hill Trail, Grassy Trail, Raggeds Trail, and Farris Creek Trail (409.5A) between Farris Creek Road and Double Top Trail.

Existing roads that would be converted from full-size, high-clearance roads to ATV trails are located in the following areas: Lost Canyon– Almont; Depler Park, Tincup–Mirror Lake area, and the Needle Creek Reservoir area.

Recreation opportunities for OHV/ATV users would be further reduced under this alternative compared to all other alternatives, which would be a negative effect for OHV/ATV users accustomed to recreating in the analysis area.

Motorcycles

Under this alternative, single-track motorcycle trails would decrease on NFS lands from 348 miles to 188 miles. The opportunity for motorcycle riding would also be available on ATV trails, Jeep trails, full-size high-clearance vehicle roads, and most passenger-vehicle roads, providing another 1,176 miles of riding opportunity on NFS lands.

The quality motorized single-track riding opportunities the Gunnison Basin is known for would be further reduced under this alternative. The single-track trails that would remain under this alternative include: Block and Tackle, Brush Creek Trail, 409.5, portions of Double Top, Waterfall, Hunters Hill, Tilton-Taylor Divide, Flag Creek, portions of Bear Creek, portions of Deadman Gulch, Rosebud, Star, upper Doctor's Park/Gunnison Spur, Lily Pond, Timberline Trail, Long Branch, Dutchman Creek, and some Barret Park trails.

The single-track trails that would be closed and decommissioned or converted to mountain bike or hiker/horse trails include: Wildcat/Green Lake/Carbon Creek Trail connection, Strand Hill, Strand Bonus, Canal, parts of Farris Creek (409) and Double Top, Teocalli Ridge, Walrod Gulch Trail, portions of the Cement Creek Trail, lower Doctor's Park Trail, portions of Tank Seven Creek and Summit Trail, Canyon Creek, Horseshoe Creek, South Quartz, Big Bend, a portion of the Quakey Mountain Trail, Monarch Crest Trail, Agate Creek, Lime Creek, and a portion of the CDNST between Hwy. 114 (near North Pass) and Cochetopa Pass Road.

Recreation opportunities for motorcycle users would be reduced under this alternative, especially in the southern part of the analysis area. The effects of this alternative would be negative to motorcycle users due to the loss of well-known single-track motorized trails and the lack of substitutes for these particular trail opportunities. For example, there will likely be strong dissatisfaction in the loss of motorcycle opportunities on the Crest Trail, Tank Seven, Summit Trail, and trails in the Pitkin-Whitepine area.

Mountain Bike

Under this alternative, single-track non-motorized trails managed for mountain bike use would increase on NFS lands from 87 miles under the No Action alternative to 166 miles, which is almost 24 miles more than what is being proposed for NFS lands in the DEIS Proposed Action (142 miles).

In the Kebler Pass area, a new trail (approximately 23 miles) is being proposed to link the Kebler Wagon Trail to the Erickson Springs Campground (same as the Proposed Action). In addition, the entire Raggeds Trail on the Paonia District would be converted to a mountain bike trail, creating a single-track mountain bike opportunity between Crested Butte and McClure Pass. This proposal would help realize the long envisioned biking trail between Crested Butte and Carbondale. Another mountain bike trail being proposed in the Kebler area would connect the Splain's Gulch Road to the Ohio Pass Road. A mountain bike trail connection would also be provided from Gunsight Pass down to the Kebler Pass Road.

Under this alternative, some trails that are currently motorized trails would be converted to mountain bike trails; these trails include the following: Strand Hill, Canal, Farris Creek Trail (409) from Farris Creek Road to Cement Creek Road, Walrod Gulch Trail, portions of the Cement Creek Trail, Reno-Deadman loop, lower Doctor's Park Trail from Ute Gulch to North Bank Campground, Monarch Crest Trail, Agate Creek, Lime Creek, a portion of the CDNST between Hwy. 114 (near North Pass) and Cochetopa Pass Road, and the Cannibal Plateau–Brush Creek Trail loop. This alternative proposes a new loop trail opportunity on Snodgrass Mountain.

Existing mountain bike trails that would be converted to hiker/horse trails include: Swampy Pass–Pass Creek–Lowline–Mill Creek Trail connection; Wildcat/Green Lake/Carbon Creek Trail connection; and Eccher Gulch/Round Mountain. The conversion of these trails from mountain bike use to hiker/horse use would positively benefit hiker and horseback recreation.

Under this alternative, mountain bike opportunities are increased compared to existing conditions (No Action), and this would likely result in a positive effect for mountain biking. The proposed seasonal closure on Doctor's Park Trail and Deer Creek Trail (March 15–June 15) could negatively affect some mountain bikers accustomed to biking these trails early in the season, but there are many substitute early-season trails in the analysis area (e.g., Hartman Rocks, Lower Loop, Upper Loop, Walrod, etc.). Other mountain bikers may be disappointed with the proposed conversion of mountain bike trails to hiker/horse trails; however, with the addition of nearly 100 miles of mountain bike trails on NFS lands, there are ample miles of trail to substitute for the lost opportunities on these proposed hiker/horse trails.

Hiker/Horse

Under this alternative, hiker/horse trails would essentially stay the same as existing conditions. (306 miles to 305 miles) but 60 more miles than the DEIS Proposed Action..

Under this alternative, there would be additional hiker/horse trail miles by conversion of use in the following locations: Eccher Gulch/Round Mountain; Swampy/Pass Creek/Lowline Trail connection; Green Lake/Carbon Creek/Baxter Gulch connection; Farris Creek Road and 409 trail north; April Gulch/Beaver Creek; Tellurium Road; Quakey Mountain/Dawson Creek; Summit Trail; Razor Creek and Razor Park trails; Baldy Lake Trail, and Big Bend Trail.

Hiker/horse opportunities would be gained in the Crested Butte area with the designation of the Green Lake Trail and adjoining trails (Baxter, Carbon), and the Eccher Gulch/Round Mountain Loop. In addition to these hiker/horse trails, there would be about 166 miles of single-track mountain bike trails would provide additional non-motorized trail opportunities.

In comparison to the DEIS Proposed Action, In this alternative, additional hiker/horse trail miles would be added in the Taylor Park area (Tellurium Road) and in the Sargents-Longbranch-Needle Creek area (Summit Trail, Razor Creek, Big Bend, and Baldy Lake). This may help to create more backcountry, semi-primitive hunting opportunities in these areas and may be viewed by some as a positive effect of this alternative.

In addition to the hiker/horse opportunities mentioned above, there would continue to be 510 miles of hiker/horse managed trail within the designated Wilderness of the analysis areas.

Special-Status Trails

Under this alternative, the Monarch Crest Trail would be closed to motorcycle use and open to mountain bike use. Essentially, the entire CDNST/Colorado Trail between the Monarch Crest and Spanish Divide would be managed for hiker/horse use. Additionally, motorcylce use would be restricted from the CDNST between Hwy. 114 (near North Pass) and Cochetopa Pass Road. To have these large sections of the CDNST and Colorado Trail managed as non-motorized would be a positive effect for those trail users desiring a non-motorized CDNST experience. Non-motorized trail opportunities on the CDNST and CT would be at their highest levels under this alternative compared to the other alternatives.

There are other sections of the CDNST that would continue to allow motorized uses unless it is determined in the future that motorized uses conflict with the nature and purposes of the CDNST.

Crowding, Density, and Conflict

The closure of over 726 miles of road and 164 miles of motorized trail on NFS lands would help to reduce density and conflict issues for hunters who desire a more primitive, non-motorized experience.

Conversely, the closure of these routes may cause crowding, density issues, and potential conflicts as motorized use shifts to fewer designated routes. Under this alternative, the motorized transportation system would be reduced by a little more than 50 percent when compared to the existing (No Action) motorized transportation system.

The conversion of motorized trails to mountain bike trails in the Brush Cree and Cement Creek drainages would help to alleviate user density and conflict issues occurring in this area. The conversion of mountain bike trails to hiker/horse trails would reduce user density and conflict issues and allow hikers and horse users to enjoy their experience without having to encounter mountain bikes.

On the CDNST and Colorado Trail, the designation of the majority of the trail between Monarch Pass and Spanish Divide as non-motorized would be a positive effect for many users and help to reduce crowding, density, and conflict issues.

Overall, this alternative addresses numerous crowding, density and conflict issues that currently exist in the analysis area for non-motorized users. However, the burden of minimizing crowding, density and conflict issues is placed on the motorized users as their recreation opportunities are reduced to allow for more non-motorized trail opportunities.

Future Demand

Non-Motorized Recreation Opportunities

Increased mountain bike and hiker/horse trail opportunities provided by this alternative addresses the local, regional, and national trend data indicating a desire for more non-motorized trail opportunities. The future demand for more non-motorized recreation activities are also best addressed by this alternative.

Motorized Recreation Opportunities

Overall, this alternative reduces motorized recreation opportunities across the analysis area. For that reason, the current and future demand for motorized recreation activities would not be met under this alternative.

Table 3-44. Summary of Alternative 3 National Forest Travel Routes (in miles).

	Motorized Routes					Non-Motorized Trails Outside of Wilderness	
	Public Roads on Federal Lands	Roads on Federal Lands Managed by the Forest Service	Jeep Trail	ATV/OHV*	Motorcycle	Trails Managed by Forest Service	Mtn. Bike Use Restricted
Alternative 3 Mileage	2,819	1139	37	100	188	477	311

** OHVs – 50 inches or less in width*

Environmental Effects of Alternative 4

Under this alternative, the Forest Service and BLM would develop a transportation system more focused on expanded recreational conditions in the Gunnison Travel Management Analysis Area. This alternative is particularly oriented towards motorized and mechanized recreational opportunities. While not designating as many overall miles of motorized travel as the No Action alternative, this alternative would provide more miles of Jeep, ATV, and mountain bike trail opportunities than the other alternatives. This alternative attempts to link more motorized use trails together to create looped trail riding opportunities by designating some key roads for conversion to motorized use trails. This alternative considers travel needs beyond basic transportation by focusing on recreational opportunity as the major component of travel management. Based on this focus, determining existing routes to remain open is weighted more towards providing expanded recreational opportunities rather than trying to provide a balance between resource protection and recreational demand (i.e., the Preferred Alternative and DEIS Proposed Action).

In this alternative, there would be about 1,318 miles of road designed for full-sized vehicle use. About 73 percent of those roads (957 miles) would be more suited to high-clearance full-sized vehicles rather than passenger cars. On NFS lands, there would be approximately 260 miles of trail that would be designated for ATV/OHV (50 inches in width or less) use and 335 miles that would be motorized single-track trail. Approximately 64 miles of trails would be designated as Jeep trails.

Under this alternative, there would be about 398 miles of managed and maintained non-motorized trails on NFS lands. Of these 398 miles of trail, 223 miles would be available for mountain bike use and the remaining 166 miles managed primarily for hiker and horseback use.

Under this alternative, there would be no new season-of-use restrictions. The existing season-of-use restrictions that have been adopted by past actions and decisions would remain in place.

Public Access

Across all alternatives, this alternative would provide the most amounts of public access opportunities for ATV's, Jeeps™-type vehicles, and mountain bikes. Access opportunities for full-size vehicles would be very similar to the Proposed Action alternative. Access opportunities for motorcycles would be about 20 percent greater than the Proposed Action and very similar to the No Action alternative, which provides the most access for motorcycles. Access for hiker/horse opportunities would be the lowest under this alternative

This alternative would provide transportation access to most of the NFS lands within the analysis area across a system of approximately 1,977 miles of roads and motorized trails. The additional 1,680 miles of county, state, and federal highway road miles available to passenger vehicles in the analysis area would also provide motorized access.

Many of the 613 miles of road and trail that would be closed in this alternative are primarily located in important wildlife habitat areas, fragile ecotypes, riparian areas, and sensitive watersheds. Some of these routes are also proposed for decommissioning in order to protect wilderness values by reducing motorized and/or mechanized travel on routes that dead-end at or are aligned adjacent to Wilderness boundaries.

Recreation Opportunities

Hunting

The direct and indirect effects would be similar to the Preferred Alternative and DEIS Proposed Action.

Dispersed Camping

The direct and indirect effects would be similar to the Preferred Alternative and DEIS Proposed Action.

Full-Size Passenger Vehicles

The direct and indirect effects would be similar to the Preferred Alternative and DEIS Proposed Action.

Full-Size High-Clearance Vehicles

The direct and indirect effects would be similar to the DEIS Proposed Action except that there would be more Jeep trail opportunities under this alternative. This alternative would propose 64 miles of Jeep trail compared to the 49 miles proposed under the Proposed Action. These additional miles of Jeep trail would come from the conversion of the Taylor Pass Road, April Gulch Road, and Steers Road. These additional miles of specialized trail on NFS lands would provide a positive impact for those recreational users desiring more challenging full-sized high-clearance vehicle recreational use.

ATVs (OHVs 50 inches or less in width)

This alternative proposes a 43 percent increase in ATV trails over the Preferred Alternative and provides more ATV-type recreational opportunity than any of the other alternatives. The increase in ATV trails comes from the conversion of high–clearance vehicle roads to motorized trails; there would little new construction of ATV trail. The opportunity for ATV/OHV riding (vehicles 50 inches or less in width) would also be available on Jeep trails, full-size high-clearance vehicle roads, and many passenger-vehicle roads, adding another 1,021 miles of riding opportunity on NFS lands.

Similar to the Preferred Alternative, the only ATV trails proposed for closure are user-created, dead-end trails and trails without adequate public access (private land closures prevent the public from getting to the trails on the federal lands). Under this alternative, some existing ATV trails would be

converted to single-track motorcycle trails, such as: Hunters Hill Trail, Razor Creek Trail, Trail 409.5 between Farris Creek Road, and Double Top Trail. This would avoid having ATV trails dead-end at single-track trails. These situations result in the widening of single-track trails when ATV users attempt to "push" their way up single track trails. The ATV route above Middle Quartz Campground would also be closed due to watershed resource concerns.

Similar to the Preferred Alternative, some of the existing roads in the following areas would be converted from full-size, high-clearance vehicle roads to ATV trails: Spring Creek Reservoir north to Italian Creek Road, Lost Canyon, Depler Park, Union Park-Tincup-Mirror Lake area, Dinner Station Road (west side of Taylor River), and the Long Branch-Needle Creek Reservoir area.

Unlike the Preferred Alternative, some existing motorized single-track trails would be converted to ATV trails, such as Lily Pond Trail and portions of the Mt. Tilton and Taylor Divide Trails. These conversions would create a network of ATV trails that would allow access from Cranor's Trading Post to Taylor Pass via Taylor Park without having to travel on County Road 742 or the Taylor River Road (except beyond Dorchester Campground). Other concepts considered in this alternative are:

To allow ATV loop opportunities from Cranor's to Union Park, and over to Tincup, Mirror Lake and Sanford Basin Road without having to travel on Cumberland Pass Road;

To allow ATV access from Spring Creek Reservoir up to Italian Creek Road, with options of going back east towards Taylor Park or west towards the Cement Creek drainage; and

To create a loop opportunity in the Slumgullion Pass-Cebolla Creek drainage-Rambouillet Park area.

As a result of this analysis, the Forest Service recognizes the need to improve ATV recreation in the greater Taylor Park, Tincup, and Pitkin area by providing more infrastructure, such as developed trailheads, staging areas, kiosks, signs, maps, brochures, etc. Additionally, placement of signs to indicate alternative routes to get ATV riders off of the main roads would be needed and likely beneficial to OHV/ATV riders.

Motorcycles

Under this alternative, motorcycle-specific trails would decrease slightly from the existing conditions. The opportunity for motorcycle riding would also be available on ATV trails, Jeep trails, full-size high-clearance vehicle roads and passenger-vehicle roads, adding another 1,642 miles of riding opportunity on NFS lands.

This alternative would continue to maintain the quality motorized single-track riding opportunities the Gunnison Ranger District is known for. This includes Crested Butte-Taylor Park trails such as Block and Tackle, Brush Creek Trail, Timbered Hill, portions of Farris Creek, Double Top, Waterfall, Hunters Hill, Crystal Peak, Reno Ridge, Flag Creek, Bear Creek, Deadman Gulch, Rosebud, Star, upper Doctor's Park/Gunnison Spur, Eyre Basin Trail, Lily Pond and Timberline Trail. The Proposed Action also retains the following popular single-track motorcycle trails in the Pitkin-Whitepine area: Canyon Creek, Horseshoe Creek, South Quartz, Waunita; and in the Long Branch-Needle Creek Reservoir area: Tank Seven Creek, Summit Trail, Big Bend, Long Branch, Baldy Lake, Dutchman Creek, and Barret Park Trails. Motorcycle use on the Monarch Crest Trail would also be retained.

Additional motorized single-track opportunities would be gained through mode of travel conversion of the following routes: Razor Creek Trail, Beaver Creek Trail, Walrod Gulch Road, and Texas Ridge Trail.

Some existing motorized single-track trails would be converted to ATV trails and include the following: Lily Pond Trail, portions of the Mt. Tilton and Taylor Divide Trails (in order to create an ATV loop opportunity utilizing Taylor Pass Road).

The trails that would be closed to motorcycle use and/or converted to mountain bike or hiker/horse trails include: Wildcat/Green Lake/Carbon Creek Trail connection, Strand Hill, Strand Bonus, Canal, 402 trail, Teocalli Ridge Trail, parts of Farris Creek Trail (409) and Double Top, Walrod Gulch Trail, portions of the Cement Creek Trail, lower Doctor's Park Trail, and a portion of the CDNST between Hwy. 114 (near North Pass) and Cochetopa Pass Road.

Recreation opportunities for motorcycle users under this alternative would remain similar to the No Action alternative (existing conditions) and, in general, would be providing high quality riding experiences.

Mountain Bike

Under this alternative, mountain-bike-specific trails would increase substantially (about 60 percent) from existing conditions, but a 15 percent reduction from the Preferred Alternative. This alternative includes many of the mountain bike proposals presented in the DEIS Proposed Action, in addition to the following:

A new mountain bike trail utilizing the East Ridge above West Antelope Creek to tie into Little Mill Creek roads and trails and to tie into proposed mountain bike trails on BLM lands closer to Gunnison;

A new mountain bike route to link Gunnison to Crested Butte; this route would utilize existing roads, trails, proposed Jeep trails, and new mountain bike trail construction. The conceptual trail alignment would generally follow Gunnison – Signal Peak – Lost Canyon – Almont – Flat Top – Red Mountain – Whetstone – Green Lake – Crested Butte;

The Wildcat/Green Lake/Carbon Creek Trail connection would be managed primarily for mountain bike use, with an additional mountain bike trail connecting Splain's Gulch and Ohio Pass Road;

A new mountain bike loop on the south side of Slate River Road between Oh-be-Joyful Creek and Pittsburg (may require BLM concurrence);

A mountain bike trail along the south side of East River that would connect the parking lot at Brush Creek Road to Crested Butte Mountain Resort;

A mountain bike trail on the north side of Washington Gulch that would connect the Snodgrass Trail to the 403 Trail;

A mountain bike trail along the south side of Gothic Road that would connect the Snodgrass Parking Lot to the lower Copper Creek parking lot above Gothic;

Teocalli Ridge Trail and side trails leading to Middle Brush Creek would be managed primarily for mountain bike use (i.e., no motorized use allowed); and

Cement Creek Trail and single-track trails that closely parallel Cement Creek Road would be managed primarily for mountain bike use.

Existing mountain bike trails that would be converted to hiker/horse trails include: Swampy Pass – Pass Creek – Lowline – Mill Creek Trail connection, Wildcat/Green Lake/Carbon Creek Trail connection, Eccher Gulch/Round Mountain, the trail above the Irwin Lodge property, and a connector trail (580) between Double Top Trail and Cement Creek Trail. The conversion of these trails from mountain bike use to hiker/horse use would help meet the need for more hiker/horse trails outside of Wilderness and close to residential areas.

Under this alternative, the opportunities for mountain bike use would significantly increased in the Crested Butte and Gunnison areas and this would have a positive effect for mountain biking.

Hiker/Horse

Under this alternative, dedicated and managed hiker/horse trails outside of designated Wilderness areas would decrease. As a result of additional mountain bike and motorized recreation opportunities. A majority of the existing hiker/horse trails proposed for closure are on the Paonia Ranger District and are mostly isolated, dead-end, user-created horseback trails.

Although designated, managed hiker/horse trails would decrease, the proposed 223 miles of single-track mountain bike trail on NFS lands in this alternative would create additional non-motorized use trail opportunities for hiker/horse users in the Crested Butte, Crested Butte South and Gunnison areas (see the Mountain Bike section).

There would continue to be 510 miles of hiker/horse trail within designated Wilderness areas of the analysis area.

The effects of this alternative on hiker/horse opportunities can be viewed as both positive and negative: negative, because overall designated, managed trail miles for hiker/horse opportunities are decreased as compared to the DEIS Proposed Action and No Action Alternatives; and positive, for the reasons stated above. Overall, there is an increase in non-motorized single-track trail miles (including mountain bike trails), a positive impact.

Special-Status Trails

Under this alternative, much of the CDNST and Colorado Trail would provide the same opportunities that currently exist. The section of the CDNST, between Hwy. 114 (near North Pass) and Cochetopa Pass Road, would be closed to motorcycle use. For those other sections of the CDNST where motorized uses are allowed, the Forest Service has determined that the existing motorized uses would not substantially conflict with the nature and purposes of the CDNST.

Crowding, Density, and Conflict

The closure and decommission of about 536 miles of road on NFS lands would help to reduce density and conflict issues with hunters who desire a more non-motorized experience. The conversion of 64 miles of existing roads to Jeep trails and a 43 percent increase in ATV trails on NFS lands would alleviate crowding, density, and conflict issues as new opportunities would be created for this type of recreation. These additional miles of trail would help to “disperse” use throughout the analysis area.

The conversion of motorized trails to mountain bike trails in the Brush Creek and Cement Creek drainages would alleviate user density and conflict issues reported in this area. The growth in popularity of mountain biking and population growth in Crested Butte South and the Gunnison Basin in general has increased the demand for more non-motorized trails near residential areas that can be accessed quickly and easily and provide short, day-hike/bike opportunities.

Many of the motorcycle trails proposed for conversion to non-motorized, mountain bike use, are not optimal motorcycle trails because they are generally short in length and do not provide the longer loop opportunities desired by most motorcycle riders. Single-track motorcycle access between the Brush Creek and Cement Creek drainages would still be provided via trails, such as 409.5, Double Top, Block and Tackle, and Brush Creek Trail.

The lack of designated, managed hiker/horse trails under this alternative would not necessarily alleviate conflict, density, or crowding issues resulting from having motorcycles, mountain bikes, hikers, and horses all on the same trails. Hiker/horse users would either have to accept or “cope” with multiple users on these trails or seek out those trails (i.e., substitution) that are hiker/horse-only trails primarily in designated Wilderness.

On the CDNST/Crest Trail, any conflict, density or crowding issues between motorized and non-motorized users would not be resolved by this alternative, and the current situation would continue.

For motorized recreation and mountain bike use, this alternative addresses numerous crowding, density and conflict issues that currently exist in the analysis area.

Future Demand

Non-Motorized Recreation Opportunities

Increased mountain bike trails in the Gunnison and Crested Butte area fit with local, regional, and national trend data indicating more non-motorized trail opportunities are desired. Conceptual planning of new trail alignments proposed in this alternative should help to meet the future demand for more quality mountain bike trails.

The future demand for hiker/horse trails is not well addressed by this alternative. Day hiking and walking for pleasure are the most popular outdoor recreational activities in Colorado. Designated, managed hiker/horse only trails close to residential areas would not be proposed under this alternative. However, when combined with mountain bike trails, this alternative would provide over 398 miles of non-motorized trails outside of designated Wilderness. Many of these trails would be close to the residential areas of Crested Butte and Gunnison.

Motorized Recreation Opportunities

This alternative has the greatest potential to meet future demands for increasing motorized recreation. This alternative would provide almost 659 miles of motorized trail opportunities, which is greater than any of the other alternatives considered.

Route Maintenance

The Forest Service believes it is not realistic to assume that trail maintenance costs for 659 miles of trail would be funded under current and expected federal budgets. Using State Parks OHV funds, other grant sources, donated materials, and volunteer labor, the maintenance needs under this alternative may or may not be able to sustain 659 miles of motorized trail in the analysis area.

Development of more or new ATV and motorcycle opportunities in the southern part of the analysis area (e.g., Cochetopa Park/Sawtooth) was considered. Through discussions during travel analysis, the agencies concluded that these areas are already available for ATV and motorcycle use on the existing high clearance vehicle roads that currently get very little use.

Table 3-45. Summary of Alternative 4 National Forest Travel Routes (in miles)

	Motorized Routes					Non-Motorized Routes outside of Wilderness	
	Public Roads on Federal Lands	Roads on Federal lands managed by the Forest Service	Jeep Trail	ATV/OHV*	Motorcycle	Trails Managed by Forest Service	Mtn. Bike Use Restricted
Alternative 4 Mileage	2,998	1,318	64	260	335	398	166

** OHVs – 50 inches or less in width*

Environmental Effects of Alternative 5 — the Preferred Alternative

Under the Preferred Alternative, there would be approximately 1,338 miles of road on Forest Service lands open to full-size vehicles, with about 72 percent of these road miles (969 miles) more suited to

higher-clearance vehicles, trucks, and SUV-type vehicles. Approximately 1,146 miles of routes across Forest Service lands within the analysis area would be closed. In addition, approximately 343 miles of road on Forest Service lands would be used for administrative purposes and may be closed to public travel.

There would be 148 miles of ATV trail managed for OHVs 50 inches or less in width and 302 miles managed as motorized single-track trails (cleared of branches and obstructions to about 42 inches wide) for motorcycles on Forest Service lands. There would also be 59 miles of trail that would be managed as Jeep trails. This means that these trails are wider than 50 inches but are typically so rough, rocky and steep that they are more appropriately traveled on by specially built or modified vehicles that most often resemble Jeep™ four-wheel-drive vehicles.

Under this alternative, there would be approximately 378 miles of non-motorized trails on Forest Service lands managed for mountain bikes, hikers, and horseback use, plus an additional 510 miles of trail already available in designated Wilderness. These trails include trails or segments of trails that may have been open to motorized travel under the 2001 Gunnison Interim Travel Restrictions. On Forest Service lands, of the 378 non-motorized trails miles mentioned, approximately 260 miles would be managed for mountain bike use; the other 118 miles would be managed primarily for hikers and horseback riders. Of these 118 miles, approximately 90 percent is already managed for hiker and horseback use only under current conditions.

Public Access

The Preferred Alternative would provide the majority of the public with adequate access to the federal lands within the analysis area. The majority of the 700 road and trail miles proposed for closure on Forest Service lands in this alternative have been determined to not be necessary for motorized access given existing alternative access and other management requirements, such as wildlife habitat and watershed concerns. Many of the routes slated for closure were created in bad locations or remain from old timber sales and, in some cases, mining activity. Under existing conditions, some of these roads are already gated and can easily be closed. The level of planned closures is very similar to the DEIS Proposed Action, in which a total of 681 miles of road and trail closures was expected.

Under the Preferred Alternative, federal lands remain open to the public; however, the mode of travel may change and in some areas and existing routes may no longer be open to vehicular travel. The Preferred Alternative provides almost 1,840 miles of motor vehicle routes on Forest Service lands within the analysis area. This is essentially the same as the original DEIS Proposed Action estimate of 1,839 miles proposed to be open to motorized vehicles. This figure does not include the 1,046 miles of BLM motorized routes proposed in this alternative or the 1,680 miles of existing county, state, and federal highway roads. As a result, there should not be significant long-term negative effects due to the selection of the Preferred Alternative on public access as most of the Gunnison National Forest will still be accessible. Short-term effects (5 years or less) would include the displacement of some motorized users to other routes and areas with motorized access, dissatisfaction with closed routes and a potential for higher user density issues on routes that remain open.

Dispersed camping opportunities would be provided within 300 feet from those roads or trails designated as open. In 12 road corridors, dispersed camping opportunities would be restricted to areas accessed by designated spurs from roads or trails designated as open. Hunting access would still be open to the majority of areas previously available, but some areas may now only be accessed by non-motorized means under this alternative. Some areas previously available to hunters using motorized vehicles may now be too far for reasonable foot/horse access, which could lead to lower game harvest numbers and lower hunter satisfaction.

Hikers and horseback riders may travel cross-country, off of designated trails, so their access to the federal lands would not be adversely impacted by this alternative.

Recreation Opportunities

The Preferred Alternative attempts to provide quality recreation opportunities for all activities where and when appropriate. It is important to remember that, while higher numbers of road/trail miles for a certain recreation activity may indicate more travel miles, this does not necessarily translate into a greater number of quality recreation opportunities. Simply stated, road miles or trail miles do not necessarily equate to the quality of the recreation experience. As stated earlier, many recreationists utilize a variety of differently managed roads and trails and are not tied to the quoted number of road or trail miles for that specific activity. Furthermore, many recreationists engage in different recreation activities on the National Forest.

Hunting

The opportunity for hunting would be plentiful under the Preferred Alternative, with close to 1,840 miles of road and motorized use trails available for access on Forest Service lands to traditional hunting areas. As mentioned earlier, some routes that were previously opened to OHV or full-size vehicle travel would be closed under this alternative, meaning that hunting access in these areas would likely have to be by foot or horseback. For some, the effect would be a higher quality hunt due to less motor vehicle access, less crowding, and more self-reliance. For others, the net effect may lead to disappointment due to restricted motorized access, which may result in either adjusting to the change and/or hunting elsewhere. There would be other locations available for hunting opportunities that rely on motorized access from the 1,840 miles of routes that would remain open in this alternative in addition to the 1,680 miles of county, state, and federal highway roads that are present in the analysis area and the 1,046 miles of proposed motorized routes on BLM lands in this alternative.

During the past 15 to 20 years, there has been a significant increase in OHV use on the forest during the hunting season and, with it, a significant increase with OHVs creating new routes and/or widening single-track motorcycle trails. This increase has also resulted in the creation of additional conflicts among hunters and with non-hunters, each with differing philosophies on how motorized uses should be managed on the National Forest.

The Preferred Alternative would call for restricted use by motorized vehicles on the following roads and trails starting on October 1 of each year through June of the following year (see complete table of seasonal closures in appendices G and H): Rambouillet Road, Mainline Road, Talus Road, Midtalus Road, Brush Creek Trail, Calf Creek Plateau Trail, Cannibal Plateau Trail, Deer Lakes Cutoff Trail, Rosebud Trail, and Cement Mountain Trail. The primary purpose of this fall closure to motorized uses is to provide habitat security for big-game animals during fall rifle season and to increase the quality of the hunt. Additional seasonal closures are proposed to begin November 1 of each year through May (before Memorial Day weekend) due to soft road beds (see table of seasonal closures in the appendices). The November 1 closures would apply to motor vehicles 50 inches or wider (i.e., full-sized motor vehicles) and would not apply to OHVs less than 50 inches in width.

The effects of these seasonal closures could result in some disappointment by hunters accustomed to motorized access to these areas October 1 or later. Hunters or other recreationists who want to access the above-mentioned areas on October 1 or later would have to do so by non-motorized means or would have to find another location in the analysis area that can provide a similar experience to the one they are seeking. The November 1 closures on roads would affect hunters who want to access these areas using a full-sized motor vehicle. They would still have the option of accessing these areas using an OHV less than 50 inches in width. Given the sheer size of the FS/BLM analysis area at 1.8 million acres, there are plenty of good substitute locations that can offer a similar experience.

The Preferred Alternative provides adequate access to the Forest Service lands for the purposes of hunting as the main access routes are proposed to be retained, in addition to the other 1,680 miles of

routes open to motorized use on NFS lands and the proposed 1,046 miles of routes on BLM lands open to motorized uses (many of which provide access to Forest Service lands). This alternative would provide more areas for non-motorized backcountry hunting experiences than under existing conditions for those hunters who prefer that type of setting.

Dispersed Camping

Dispersed camping is popular throughout the analysis area, and many of the established dispersed camping sites would be retained under this alternative. Many of the main roads that accommodate full-sized passenger vehicles support dispersed camping opportunities in the analysis area (i.e., roads like Cement Creek, Brush Creek, and Soap Creek Road) and would continue to remain open.

Under this alternative, the Forest Service would allow motorized travel for the purposes of dispersed camping within a 300-foot corridor as an exemption to the 2005 Travel Rule that restricts all motorized travel to designated routes. The Forest Service would actively work to educate and inform the public of the need to utilize existing camp sites, minimize vegetative damage, restrict off-road travel within the 300-foot corridor, and not create new dispersed camping sites if existing sites are available.

Additionally, the Forest Service would eliminate the 300-foot corridor exemption for dispersed camping access along 12 corridors listed below. These 12 areas were identified because of the higher intensity of dispersed camping in these corridors, and associated resource and social concerns. Many of the dispersed camping sites in these 12 corridors are too close to the WIZ, have caused vegetation compaction, noxious weed spread, and are heavily utilized by “squatters” for long-term (and illegal) occupancy. The issue of “squatting” has also resulted in the proliferation and expansion of camp sites, increased trash and property abandonment, and reduced the availability of camp sites for legitimate recreation visitors.

Along these 12 corridors, motorized travel for dispersed camping would only be allowed on designated routes and spurs. Motor vehicle parking would be allowed within 30 feet of the edge of the designated route (FSM 7716.1). As the Forest Service has not completed all the necessary inventories, mapping, and suitability evaluations (field assessments) of the dispersed camping access spurs along these corridors, the 300-foot exemption would remain in place until those field assessments are completed. Once the field assessments are completed and the access routes for dispersed camping can be designated, the 300-foot exemption would no longer apply on the 12 corridors listed below. The exception is the Gothic corridor, which is already managed under the “designated dispersed camping” concept, and visitors must park and camp in sites designated by a sign.

Suitability evaluations for dispersed camping access along these 12 corridors would consider Forest Plan consistency with wildlife, watershed, and recreation resources.

List of Designated Dispersed Camping Access Corridors:

GOTHIC CORRIDOR, road #317 (Forest boundary past the Gothic Townsite to Schofield Pass);

WASHINGTON GULCH road # 811 (National Forest boundary to Elkton),

SLATE RIVER CORRIDOR CO RD 734 (National Forest boundary to private land at Pittsburg),

KEBLER Pass CORRIDOR CO RD 12 (National Forest boundary to above Irwin campground, ending at private lands and to the top of Ohio Pass and Kebler Pass and up the Splains Gulch road),

CEMENT CREEK CORRIDOR road #740 and #740.2C, D, and E (National Forest boundary to Deadman Trailhead),

SPRING CREEK CORRIDOR road #744 (National Forest boundary to ¼ mile beyond junction of roads 744 and 880),

TAYLOR CANYON road #742 (Camping only in developed campgrounds from Almont to Rivers End Campground),

TAYLOR RIVER CORRIDOR (From junction with Cottonwood Pass road 3209 to Dorchester Campground),

QUARTZ CREEK CORRIDOR road #765 (National Forest boundary past Pitkin to Hall Gulch road junction),

MIDDLE QUARTZ CREEK road #767 (junction with Road #765 to Middle Quartz Creek Campground),

LONG BRANCH road #780 (National Forest boundary to Baldy Lake and Long Branch trailheads), and

NEEDLE CREEK RESERVOIR CORRIDOR road #781 (National Forest boundary to upper end of Needle Creek Reservoir).

Dispersed camping opportunities in these 12 corridors would still be available provided the sites are in good locations and not causing resource damage. Forest visitors would have to travel on designated, signed roads to access these sites. Designated dispersed camping is not a new concept as many National Forests in Colorado utilize this system in order to concentrate impacts at suitable sites instead of allowing visitors to create more and more camp sites, often in locations not suitable for long-term dispersed camping. The Gunnison Ranger District has utilized the designated dispersed camping strategy in the Gothic corridor for many years due to campers continually creating new campsites in inappropriate locations. Recently the Gunnison Ranger District has closed off areas in Taylor Park that are not suitable for dispersed camping due to their close proximity to the Taylor River watershed.

Dispersed camping opportunities would be eliminated along the roads that are proposed for decommissioning and in those locations with environmental or safety concerns. For those visitors accustomed to camping at a certain location proposed for closure, the net effect would be visitor dissatisfaction, which would likely lead to selection of an alternative “open” site for dispersed camping either within or outside of the analysis area. Conversely, visitors may elect to stay at a developed campground or in some other form of lodging instead of dispersed camping.

According to the NVUM study (Kocis et al. 2004), 52 percent of GMUG visitors would have “gone elsewhere for the same activity” if, for some reason, they were unable to visit this National Forest. This indicates that visitors will likely “substitute” one location for another in order to carry out the same activity. Research indicates that “substitution” involves replacing one recreation activity or resource with another that provides the same benefits as the original (Shelby and Vaske 1991). Because of the high number of full-size vehicle roads (over 2,300 miles) that would remain open to motorized uses in the analysis area, there would likely be other substitute locations for dispersed camping.

The Forest Service would have to devote more of its recreation program time and financial resources to manage a designated dispersed camping program in these 12 corridors. Without additional funding to more closely manage dispersed camping, the Forest Service would most likely make trade-offs in its recreation program.

Full-Size Passenger Vehicles

The Proposed Action would have little effect on full-size passenger vehicle opportunities. Under the Preferred Alternative, 369 miles would be open to this vehicle class compared to 370 miles under the

DEIS Proposed Action. The majority of Forest Service and BLM roads available to full-size passenger vehicles (516 miles) as well as the 1,680 miles of county, state, and federal highway roads would be available for public use. All of the existing scenic by-way routes remain open, and driving for pleasure opportunities would not be affected.

Full-Size High-Clearance Vehicles

There would continue to be many travel opportunities for four-wheel-drive, Jeep™, and UTV-type vehicles greater than 50 inches in width under the Preferred Alternative, with 969 miles available on NFS lands to this vehicle class plus an additional 369 miles of roads more suitable for passenger vehicles. The Preferred Alternative would also designate trails specifically managed for Jeep-type vehicles and OHVs greater than 50 inches in width, but would allow other motorized and non-motorized use such as ATVs, motorcycles, mountain bikes, etc. The proposed 59 miles of Jeep trails would be rough, rocky, and steep and would accommodate the demand for more challenging and extreme four-wheel-drive recreational use. By comparison, the original DEIS Proposed Action alternative would have resulted in 976 miles of full-size high–clearance vehicle roads and 49 miles of Jeep trails.

Proposed Jeep trails include portions of or all of routes going up to and over the following high-mountain passes: Gunsight, Pearl, Napoleon, Tincup, Williams, Hancock, and Tomichi. Additional Jeep trails are proposed for portions of the Flattop road system, Depler Park area, Union Canyon (at Lottis Creek), Reno Divide, and Sun Park area. These have traditionally been popular routes for this specialized user group.

The addition of 59 miles of Jeep trails would be a positive effect of the Preferred Alternative as it addresses public demand for more challenging full-sized, high-clearance vehicle recreational use. To prevent resource damage, local or regional OHV clubs would be asked to assist or continue to assist with the maintenance of these trails in partnership with the Forest Service. Full-sized vehicle travel opportunities in the analysis area (Forest Service plus BLM lands) would equate to about 2,393 miles under the Preferred Alternative, taking into consideration the sum of Jeep trails, full-size, high-clearance vehicle roads, and full-size passenger vehicle roads.

The closure of roads (585 miles) or conversion of roads to trails under the Preferred Alternative will cause some visitors to be dissatisfied with the loss of their use. Some of these Forest Service routes include numerous side roads, dead-end spur roads, and duplicate roads that have proliferated in areas such as: Pitkin/Waunita Pass/Waunita Hot Springs area; Depler Park; Soap Creek, Red Creek, and Rainbow Lake area; Flat Top/Red Mountain area; Cochetopa Park; and Texas Creek/Cottonwood Pass area. Many of the roads proposed for closure in this alternative have environmental concerns or are redundant, parallel, or dead-end roads that add to higher road density, which can negatively affect wildlife habitat and water quality.

Access to the Farris Creek/Strand Hill area for full-size, high-clearance vehicles and Jeeps would not be available as the private landowner in Brush Creek has closed public access to Farris Creek Road. However, the Forest Service proposes in this alternative to keep Farris Creek and Strand Hill Roads as full-size, high–clearance vehicle roads as the desired mode of travel in hopes that public access to the area is ultimately restored.

Short-term effects (5 years or less) of the Preferred Alternative would include the displacement of some motorized users to other routes and areas with motorized access, dissatisfaction with closed routes, and a potential for higher user density issues on routes that remain open.

However, the Preferred Alternative provides other locations to substitute for full-size, high-clearance vehicle opportunities that are lost with the 969 miles of high-clearance vehicle road proposed to remain open on NFS lands: 849 miles of high-clearance vehicle roads proposed on BLM lands, 516 miles of full-size, passenger vehicle roads proposed on NFS and BLM lands, and 59 miles of

proposed Jeep trails. Overall in the Forest Service and BLM analysis area, there would be approximately 2,334 miles of road open to full-size, high-clearance vehicles (does not include Jeep trails). This figure does not include the 1,680 miles or private, county, state, and US Highway roads within the analysis area that are generally available for motor vehicle travel.

Additional seasonal closures are proposed to begin November 1 to late May on some roads and from March 1 to May 30 on other roads due to soft road beds. See the section on seasonal closures for the complete list of seasonal road closures (and see the table of seasonal closures in the appendices G and H). The November 1 closures would apply to motor vehicles 50 inches or wider (i.e., full-sized motor vehicles) and would not apply to OHVs less than 50 inches in width. The March 1 closures would apply to all motor vehicles. Snowmobiles and other over-the-snow machines are not affected by these seasonal closures as winter motorized travel is not being addressed in this analysis.

The effects of these seasonal closures could result in disappointment by visitors accustomed to motorized access to these areas on November 1 or later. The November 1 closures would affect visitors who want to access these areas using a full-sized motor vehicle. They would still have the option of accessing these areas using an OHV less than 50 inches in width. Given the sheer size of the Forest Service/BLM analysis area at 1.8 million acres, there are many substitute locations that may offer a similar experience.

ATVs (OHVs 50 inches or less in width)

Under the Preferred Alternative, trails managed for ATV use would decrease from 209 miles in the No Action alternative to 148 miles. The opportunity for ATV and OHV (vehicles 50 inches in width or less) riding would also be available on Jeep trails, high-clearance vehicle roads, and some passenger-vehicle roads adding another 1,390 miles of riding opportunity on NFS lands in the analysis area. Overall, in the entire Forest Service and BLM lands analysis area, there would be approximately 2,535 miles of roads and trails open to ATV travel.

In many cases, full-size, high-clearance vehicle roads and Jeep trails are the destinations and desired experiences for ATV riders instead of designated ATV trails. For example, many of the high elevation roads (e.g., Taylor Pass, Pearl Pass, Reno Ridge, Tincup Pass, Hancock Pass, Williams Pass, and the Alpine Tunnel Road) are highly desirable to ATV riders although they are managed as full-size, high–clearance vehicle roads or Jeep trails and not as ATV trails. In many cases, beginner to intermediate ATV riders actually prefer to ride on full-size high–clearance vehicle roads instead of ATV trails.

Many of the ATV trails proposed for closure in this alternative have natural resource concerns or are redundant, parallel, or dead-end trails that add to higher road or trail density, which can negatively affect wildlife habitat. Some ATV trails are proposed to be converted to single-track motorcycle trails, such as Hunters Hill Trail and part of the Farris Creek Loop (409.5) between Farris Creek Road and Double Top Trail. This is primarily to avoid having ATV trails dead-end at single- track trails, which pose a problem when ATV users attempt to “push” their way up single- track trails. Many ATV users have “pushed” their way up dead-end roads and trails, which has led to the proliferation of illegally-created ATV routes that exist on the landscape today and is one of the primary reasons the Forest Service is addressing motorized travel at the national level.

The ATV route above Middle Quartz Campground would be closed due to riparian and watershed concerns. The area would still be accessible via non-motorized methods of travel. Access to the Farris Creek/Strand Hill area for ATVs would not be available as the private landowner in Brush Creek has closed public access to Farris Creek Road. However, the Forest Service proposes in this alternative to keep Farris Creek and Strand Hill Roads as high–clearance vehicle roads in hopes that public access to the area is ultimately restored. The Willow Creek low-water crossing (across from Cranor’s

Trading Post) will be temporarily closed to all motorized travel until the resource concerns are addressed.

Under the Preferred Alternative, certain roads in the following geographic areas would be converted from full-size, high-clearance roads to ATV trails: Lost Canyon area; Depler Park; Tincup-Mirror Lake area; Union Park/Slaughterhouse; and the Needle Creek Reservoir area.

Recreation opportunities for ATV users under the Preferred Alternative would remain plentiful, and high-quality recreation opportunities would still exist throughout the analysis area. Many comments were submitted stating that ATV recreation on roads is not desirable; the Forest Service is attempting to provide quality recreation opportunities for all visitors, and sometimes that means shared use will have to be tolerated on certain roads and trails given that the Forest Service cannot provide separate trails for all the different types of National Forest visitors. The effects of the Preferred Alternative on ATV opportunities can be considered negative by some as additional miles of ATV trail riding opportunities are not proposed in the analysis area and ATV miles would decrease.

Short-term effects (5 years or less) of the Preferred Alternative would include the displacement of some motorized users to other routes and areas with motorized access, dissatisfaction with closed routes, and a potential for higher user density issues on routes that remain open.

As a result of this analysis, the Forest Service recognizes the need to improve ATV opportunities in the greater Taylor Park, Tincup, and Pitkin area by providing more infrastructure, such as developed trailheads, staging areas, kiosks, signs, maps, brochures, etc. Additionally, placement of signs to indicate alternative routes to get ATV riders off of the main roads would be needed and likely beneficial to OHV/ATV riders. The Gunnison Ranger District has a long history of obtaining state OHV grants to improve ATV recreation opportunities in the Taylor Park and Tincup area and will continue to do so.

The Preferred Alternative would call for the following roads and trails to be closed to motorized uses starting October 1 of each year through June of the next year (see the complete table of seasonal closures in the appendices): Rambouillet Road, Mainline Road, Talus Road, Midtalus Road, Brush Creek Trail, Calf Creek Plateau Trail, Cannibal Plateau Trail and Deer Lakes Cutoff Trail. The primary purpose of this fall closure to motorized uses is to provide habitat security for big-game animals during fall rifle season and to increase the quality of the hunt. Additional seasonal closures are proposed to begin November 1 to late May on some roads and from March 1 to May 30 on other roads due to soft road beds. See the section on seasonal closures for the complete list of seasonal road closures (see the table of seasonal closures in the appendices). The November 1 closures would apply to motor vehicles 50 inches or wider (i.e., full-sized motor vehicles) and would not apply to OHVs less than 50 inches in width. The March 1 closures would apply to all motor vehicles and are the standard spring closures that have been in effect for many years. Snowmobiles and other over-the-snow machines are not affected by these seasonal closures as winter motorized travel is not being addressed in this analysis.

The effects of these seasonal closures could lead to disappointment by visitors accustomed to motorized access to these areas on October 1 or later. Hunters or other recreationists who want to access the above-mentioned areas on October 1 or later would have to do so by non-motorized means or would have to find another location in the analysis area that can provide a similar experience to what they are seeking. The November 1 closures would affect hunters and other visitors who want to access these areas using a full-sized motor vehicle. They would still have the option of accessing these areas using an OHV less than 50 inches in width. Given the sheer size of the Forest Service/BLM analysis area at 1.8 million acres, there are plenty of good substitute locations that can offer a similar experience.

Motorcycles

Under the Preferred Alternative, trails managed for motorcycle use on NFS lands would decrease from 348 miles in the No Action alternative to 302 miles. The opportunity for motorcycle riding would also be available on ATV trails, Jeep trails, full-size high-clearance vehicle roads, and passenger-vehicle roads, adding another 1,538 miles of riding opportunity on NFS lands.

The quality motorized single-track riding opportunities that the Gunnison Ranger District is well known for would largely remain intact under the Preferred Alternative. This includes Crested Butte to Taylor Park trails such as Teocalli Ridge, Block and Tackle, Brush Creek Trail, portions of Farris Creek, Double Top, Waterfall, Hunter Creek, Tilton-Taylor Divide, Reno Ridge, Flag Creek, Bear Creek, Deadman Gulch, Rosebud, Star, upper Doctor's Park/Gunnison Spur, Lily Pond, and Timberline Trail. The Proposed Action also retains the following popular single-track motorcycle trails in the Pitkin-Whitepine area: Canyon Creek, Horseshoe Creek, South Quartz, Waunita; and the Long Branch-Needle Creek Reservoir area: Tank Seven Creek, Summit Trail, Big Bend, Long Branch, Baldy Lake, Dutchman Creek, and Barret Park trails.

Under the Preferred Alternative, motorcycle use would continue to be allowed on the Monarch Crest Trail, Agate Creek Trail, Wildcat, Carbon Creek Trail, Italian Connector, and the portion of the CDNST between Hwy. 114 (near North Pass) and Cochetopa Pass Road (known as the Pine Creek trail).

The trails that would be closed and/or converted to non-motorized trails include: Green Lake Trail, Strand Hill, Strand Bonus, Canal, 402 trail, Timbered Hill and trails between Teocalli Ridge and Middle Brush Creek Road, parts of Farris Creek Trail (409) and Double Top, Walrod Gulch, Cement Creek Trail (north of the Waterfall Trail connection), UT-7073 and UT-7164 above and parallel to Cement Creek Road, Hunter Hill, Crystal Peak, Roaring Judy trail, lower Doctor's Park Trail, Doctor Park Bonus, Ute Gulch Trail, 413 trail between Doctor's Park Trail and Taylor Reservoir/River's End Campground, portion of the Quakey Mountain Trail and April Gulch/Beaver Creek Trail.

Access to the Farris Creek area for motorcycles would be available via the 409 trail off of East Brush Creek Road. This alternative also proposes a new section of motorized single-track trail on NFS lands to connect Brush Creek Road directly to Farris Creek Road in the vicinity of the existing full-size Farris Creek road that is currently closed at Brush Creek Road by the private landowner.

The Eyre Basin Trail would be closed to all uses under this alternative due to its proximate location to the WIZ, wildlife concerns and its partial inclusion in a Semi-Primitive Non-Motorized (SPNM) 3A management area in the GMUG Forest Plan. Wildcat and Teocalli Ridge Trail would remain temporarily closed until all the trail damage issues are resolved. Deadman Trail, Teocalli Ridge (when fixed) and Warm Springs Trail will be posted as downhill traffic only for motorcycles under this alternative. This is primarily to avoid public safety issues and prevent further trail damage from occurring.

The Preferred Alternative would call for the following roads and trails to be closed to motorized uses starting October 1 of each year through June (see complete table of seasonal closures in appendices): Rambouillet Road, Mainline Road, Talus Road, Midtalus Road, Brush Creek Trail, Calf Creek Plateau Trail, Cannibal Plateau Trail, Deer Lakes Cutoff Trail, Rosebud Trail, and Cement Mountain Trail. The primary purpose of this fall closure to motorized uses is to provide habitat security for big-game animals during fall rifle season and to increase the quality of the hunt.

Additional seasonal closures are proposed to begin November 1 to late May on some roads and from March 1 to May 30 on other roads due to soft road beds. See the section on seasonal closures for the complete list of seasonal road closures (see the table of seasonal closures in the appendices). The November 1 closures would apply to motor vehicles 50 inches or wider (i.e., full-sized motor vehicles) and would not apply to OHVs less than 50 inches in width. The March 1 closures would

apply to all motor vehicles. Snowmobiles and other over-the-snow machines are not affected by these seasonal closures as winter motorized travel is not being addressed in this analysis.

The effects of these seasonal closures could lead to disappointment by visitors accustomed to motorized access to these areas on October 1 or later. Hunters or other recreationists who want to access the above-mentioned areas October 1 or later would have to do so by non-motorized means or would have to find another location in the analysis area that can provide a similar experience to what they are seeking. The November 1 closures would affect hunters and other visitors who want to access these areas using a full-sized motor vehicle. They would still have the option of accessing these areas using an OHV less than 50 inches in width. The springtime road closures are not new and are necessary to give roads a chance to dry out before allowing motor vehicles to drive on them.

There continue to be many opportunities for motorcycle users under the Preferred Alternative across the analysis area. Some users may see the effects of the Preferred Alternative as negative due to the loss of some previously open trails and seasonal timing restrictions. Short-term effects (5 years or less) of the Preferred Alternative would include the displacement of some motorized users to other routes and areas with motorized access, dissatisfaction with closed routes, and a potential for higher user density issues on routes that remain open.

Overall, the Preferred Alternative attempts to take a realistic look at which motorcycle trails are the highest priority for funding, maintenance, long-term sustainability, and grant-seeking. It is important to recognize that many motorcycle riders also utilize ATV trails and full-size, high–clearance vehicle roads for their desired experiences. They do not rely on single-track motorcycle trails alone for their desired experiences. For example, Reno Ridge Road, Taylor Pass Road, and other high mountain pass roads are also popular with motorcycle enthusiasts and are complementary to designated motorcycle trails. In many cases, novice to intermediate motorcycle riders prefer to ride on ATV trails, Jeep trails, or full-size, high–clearance vehicle roads to achieve their desired recreation experience and expectation. Overall, in the entire Forest Service and BLM lands analysis area, there would be approximately 2,370 miles of high-clearance vehicle roads and trails open to motorcycle travel.

Non-Motorized Uses (Bicycle, Hiking, and Horseback)

Under this alternative, there would be approximately 378 miles of non-motorized trails on Forest Service lands managed for hiker, horseback and mountain bike plus an additional 510 miles of trail already available in Wilderness. The No Action alternative currently lists 402 miles of existing non-motorized trails. On Forest Service lands, of the 378 non-motorized trails miles mentioned, approximately 260 miles would be managed for mountain bike use; the other 118 miles would be managed primarily for hiker and horse use. Of these 118 miles, approximately 90 percent is already managed for hiker and horse use only under current conditions.

Some of these non-motorized trails managed for hiker /horse use only include Fairview Peak, Cataract Creek, Cuba Gulch, Yule Pass, Crested Butte Mountain Summit Trail, Skyline Trail, Daisy Pass, Baxter Gulch, Lyon’s Gulch, and West Beaver Creek Trail.

Existing non-motorized (mountain bike) trails that would be open to hiker /horse only include the Scarp Ridge and Ridge70 trails above the Irwin Lodge property.

Existing motorized roads and trails that would be open to hiker/horse only include: Green Lake (only the portion of trail between the Lake and Wildcat junction), Quakey Mountain West (Trail #538), April Gulch, Baxter Basin Road, and Oh-be-joyful Road (#754). See the appendices and Preferred Alternative maps for other trails proposed to be open to hiker and horse only.

Reasons for having non-motorized trails closed to mountain bikes include desired recreation opportunities, unsuitability of terrain for bicycle use, safety, edge-matching with existing uses, and edge-matching with BLM and other agencies on allowable uses on shared trails. Such decisions

regarding appropriate use and desired management conditions are within the Forest Service management discretion.

Under the Preferred Alternative, non-motorized trails managed for mountain bike use on Forest Service lands would increase from 87 miles to 260 miles. In the Kebler Pass area, a new trail (approximately 23 miles) is being planned to link the existing Kebler Wagon Trail to the Erickson Springs Campground on the Paonia Ranger District following parallel to the Kebler Pass Road. This new route would help to realize the long envisioned biking trail between Crested Butte and Carbondale via Kebler Pass. A non-motorized trail connection would also be provided from Gunsight Pass down to the Kebler Pass Road and from Splain's Gulch Road to Ohio Pass Road.

Non-motorized trails that would remain open to mountain bike use under this alternative include: Eccher Gulch/Round Mountain; the Swampy/Pass Creek/Lowline Trail connection; and the Green Lake/Carbon Creek/Wildcat trail system. Eccher Gulch will be managed as an out-and-back trail due to private property issues on the west end of the trail. The Green Lake trail from the Wildcat junction to the lake would only be open to hiker/horseback.

Under this alternative, Wildcat and Teocalli Ridge Trail would remain temporarily closed until trail damage issues are resolved. Deadman Trail, Teocalli Ridge (after trail damage is resolved), and Warm Springs Trail will be posted as downhill traffic only for motorcycles under this alternative. This is primarily to avoid public safety issues and prevent further trail damage from occurring.

Some trails that are currently motorized would be converted to non-motorized trails managed for mountain bike use. These trails include the following: Strand Hill, Strand Bonus, Canal, portions of #407 to Brush Creek, another connector trail between the Farris Creek Road (#736) and the Brush/East Brush Creek Road junction (UT-7736.1B), lower Farris Creek Trail (#409) from Farris Creek Road to Cement Creek Road including the lower portion of Double Top, Walrod Gulch/Caves Trail, portion of the Cement Creek Trail (below Waterfall Trail junction), UT-7073 and UT-7164 above and parallel to Cement Creek Road, Crystal Peak Trail, Roaring Judy Trail, lower Doctor Park trail, and Doctor Park Bonus Trail.

Approved concept trails (still subject to site-specific NEPA analysis) that would be open to all non-motorized uses include:

- A new non-motorized loop on the south side of Slate River Road between Oh-be-Joyful Creek and Pittsburg (an extension of the existing Lower Loop);
- A new non-motorized trail along the south side of East River that would connect the parking lot at Brush Creek Road to Crested Butte Mountain Resort;
- Two new loop opportunities on Snodgrass Mountain; and,
- New non-motorized trail opportunities in the "Gunnison Northeast" area (i.e., Signal Peak-Lost Canyon area).

No other concept trails are being considered in the Preferred Alternative.

Under the Preferred Alternative, the opportunities for mountain bike use are increased, and this would likely result in a positive effect for mountain biking. Some mountain bikers may be disappointed with the existence of hiker/horseback only trails outside of Wilderness and some hikers/horseback riders may be disappointed with having to share trails with mountain bikers.

In addition to the non-motorized trail opportunities mentioned above, there would continue to be 510 miles of hiker/horse trail within designated Wilderness areas in the analysis area. The 260 miles of managed mountain bike trails on Forest Service lands would create additional non-motorized trail opportunities for hiker/horseback riders primarily in the Crested Butte and Crested Butte South areas.

The Preferred Alternative provides beneficial effects to non-motorized opportunities by the creation of new hiker, mountain bike, and horseback trails close to residential areas and outside of Wilderness. The proposed seasonal closure on Doctor's Park Trail (March 15-Memorial Day weekend; applies to all uses) could negatively affect some recreationists as this is traditionally an early season destination due to its south-facing aspect. However, there are many substitute early-season trails in the analysis area (e.g., Hartman Rocks, Lower Loop, Upper, Walrod, etc.). It is important to recognize that many mountain bike riders and some hikers/horseback riders also utilize motorcycle and ATV trails and full-size, high clearance roads for their desired experiences. These additional miles of opportunities are not reflected in the comparison of route miles. For example, the Monarch Crest Trail is a popular mountain bike trail but as it is also open to motorcycles, the trail miles are summed in the "motorized" columns of Table 3-46. Many popular non-motorized routes in the analysis area are also open to motorcycle use in the Preferred Alternative (e.g.., Agate Creek, Dutchman's, Canyon Creek, Horseshoe Creek, Teocalli Ridge, Flag Creek, Bear Creek, Deadman, etc.). The trail miles are summed in the "motorized" columns of Table 3-46. Mountain bikers and other non-motorized users also utilize full-size high–clearance vehicle roads to achieve their desired experiences. Gothic Road, Brush Creek, Cement Creek, and Reno Ridge Road are just a few roads utilized by non-motorized users, but these are counted as road miles. In some cases, novice to intermediate mountain bike riders and others prefer to ride on full-size, high–clearance vehicle roads to achieve their desired recreation experience.

Taken as a whole, available opportunities for non-motorized recreationists on Forest Service lands under the Preferred Alternative are plentiful, especially when considering motorcycle trail miles (302), ATV trail miles (148), Jeep trail miles (59), and high-clearance vehicle roads (969 miles). Overall, in the entire Forest Service and BLM lands analysis area, there would be over 3,000 miles of roads and trails open to non-motorized uses in the Preferred Alternative. These miles are in addition to the 510 Wilderness trail miles open only to hiker and horseback riders.

Special-Status Trails

Under this alternative, much of the CDNST and Colorado Trail would provide the same opportunities that currently exist. The exception is Forest Service Road 787.2D, which would be converted from a high–clearance vehicle road to a hiker/horse trail for a length of approximately 2 miles in Cochetopa Park. For the other sections of the CDNST where motorized uses are allowed to continue, the designated vehicle class and width were allowed on that segment of the CDNST prior to November 10, 1978, and the use will not substantially conflict with the nature and purposes of the CDNST. In addition, bicycling, where allowed on the CDNST in the Preferred Alternative, will not substantially conflict with the nature and purposes of the CDNST. Travel designations on the CDNST may change in the future if there is additional regional level planning for the CDNST. Such planning could look at a variety of options for the current trail use, modes of travel or even alignments, with parallel trails a possible consideration.

The effects of continuing to allow motorized and mechanized uses on the CDNST may lead to a negative experience for through-hikers and others not familiar with the popularity of this trail to mountain bikers and motorcycle riders, especially along the Monarch Crest. Some recreational conflict may also occur between motorized and non-motorized users. Other users may be displaced from the CDNST and Colorado Trail due to the presence of motorized and mechanized uses. A long-term solution for management of existing uses on the CDNST are being explored by the Forest Service but are outside of this travel management planning process as they involve more detailed planning efforts at the site-specific level, multiple Ranger Districts, and multiple Forest Service units.

Crowding, Density, and Conflict

The closure of almost 1,146 miles of routes on Forest Service lands would help to reduce density and conflict issues with hunters and other visitors who desire a more non-motorized experience. As stated earlier, several studies (Manfredo 1992; Access to Federal Hunting Lands in Colorado 2003; Montana Fish, Wildlife and Parks 2006) have shown that large numbers of hunters are looking for limits on ATV use during hunting season to allow for a different quality of hunting experience.

The designation of 59 miles of Jeep trails and the conversion of some full-sized high-clearance vehicle roads to ATV trails would have a positive effect on crowding, density, and conflict issues as new opportunities are created for these types of recreational vehicles, taking into consideration loop and through opportunities.

A potential negative effect is that, given the closure of about 600 miles of roads and trails on NFS lands, there may be higher user density issues on those routes that are left open, which could lead to higher rates of perceived crowding, visitor conflicts, and potential displacement of visitors to other areas.

The conversion of existing motorized trails to non-motorized trails in the Brush Creek and Cement Creek drainages would help to alleviate user density and conflict issues that have occurred in this area between motorcycle riders and non-motorized users. The growth in popularity of mountain biking and the population growth in Crested Butte South and the Gunnison Basin in general, have increased the demand for non-motorized trail use in these areas. Trails in close proximity to these communities provide quick and easy access to federal lands and provide relatively short day-hike/bike opportunities.

Many of the motorcycle trails proposed for conversion to non-motorized use are short in length, do not provide the longer loop opportunities desired by most motorcycle riders, and attract many non-motorized users in comparison to other motorcycle trails in the analysis area. Single-track motorcycle access between the Brush Creek and Cement Creek drainages would still be provided via Farris Creek, 409.5, Double Top, and the Brush Creek Trail. Motorcycle trail access would also still be provided into the Cement Creek drainage via Waterfall Trail, Walrod Gulch Road, Warm Springs Trail (downhill only), Block and Tackle Trail, Hunter Creek, Tilton/Taylor, Reno Ridge, and Deadman Gulch (downhill only).

The designation of hiker/horseback use-only on 118 miles of non-motorized trails would also alleviate user density and conflict issues and allow hikers and horse users to enjoy their trail experience without mountain bikes. As mentioned previously, over 90 percent of these hike/horseback only trails are already managed that way under existing management direction, so this would not be a significant loss for mountain biking opportunities.

Overall, the Preferred Alternative beneficially addresses the crowding, density, and conflict issues that currently exist in the analysis area.

Future Demand

Non-Motorized Recreation Opportunities

Increasing non-motorized trail opportunities primarily in the upper end of the Gunnison Basin addresses regional and national trend data that indicates a desire for more non-motorized trail opportunities near local communities. There is support from local mountain bike groups (e.g., Crested Butte Mountain Bike Association and Gunnison Trails) to maintain mountain bike trails on federal lands.

Motorized Recreation Opportunities

Overall, the Preferred Alternative recommendation for motorized recreation opportunities attempts to take a realistic look at which roads and trails are the highest priority for funding, maintenance, long-term sustainability, and grants and partnerships.

Many people commented that the Forest Service should provide more ATV and motorcycle trails as use and demand in those activities has increased and may continue to increase. However, as demand continues to increase, there will ultimately be limits on the amount of use that can be sustained without adverse affects. It is not the agency's obligation to provide increasing and unlimited "supply" to respond to increasing "demand" for all recreational activities. Rather the agencies are tasked to provide quality recreation opportunities in those areas where it is appropriate based on other multiple-use concerns, such as wildlife habitat, watersheds, fragile ecosystems, and the desire for other forms of recreation, including non-motorized recreation. Taken as a whole, there are many more motorized route opportunities in the analysis area compared to designed non-motorized trail opportunities.

Route Maintenance

The Forest Service would need to continue to explore opportunities for outside funding and volunteer support to maintain the proposed system of trails based on an expectation that federal recreation and trail budgets will remain flat or continue downward. As with the non-motorized use advocacy groups, there are local motorized use groups (e.g., Crested Butte Trail Rider's Association and Colorado 500) that have pledged to support both the Forest Service and BLM with on-the-ground trail maintenance.

The availability of Colorado State Parks OHV Funding has been instrumental in the Forest Service's ability to maintain some motorized trails, but there remain many miles of motorized trail on Forest Service lands that need or will need attention to sustain their use. If funding, whether internal or external, and volunteer support becomes limited, then the Forest Service would have little choice but to temporarily close those trails that have significant damage and are causing safety or resource concerns.

Table 3-46. Summary of Alternative 5—the Preferred Alternative National Forest Travel Routes (in miles)

	Motorized Routes					Non-Motorized Routes outside of Wilderness	
	All Public Roads on Federal Lands	Roads on Federal lands managed by Forest Service and BLM	Jeep Trail	ATV/OHV*	Motorcycle	Total Trail	Mtn. Bike Use Restricted
Alternative 5 Mileage	3,018	1,338	59	148	302	378	118

** OHVs – 50 inches or less in width*

Cumulative Effects

When the direct and indirect effects of the alternatives are combined with past, present, and reasonably foreseeable activities, there would be no notable difference in the overall impact to the recreation environment within the analysis area. Past, present, and reasonably foreseeable activities in the analysis area include timber sales, mining activity, grazing, fire prevention and suppression actions, firewood and forest products gathering, private land access and development, wildlife mitigation, recreation development, special use permit activities, road easements, and ditch work. The travel changes that would occur from the Preferred Alternative would have the biggest effect on recreational opportunity for the analysis area compared to the other recreation projects or activities

that directly influence recreation that have occurred in the past, present, and reasonably foreseeable future. The other major recreation impact was the 2001 Interim Travel Restrictions that required motorized and mechanized travel to use only designated routes and prohibits cross-country or off road travel.

Other activities, such as mining, natural gas development and exploration, and timber sales, may periodically require additional road or trail restrictions or even short-term closures to facilitate their use in a safe manner. When such projects are approved, there is generally an effort made by the Forest Service to have as little impact as possible on recreational use and public access. Overall the combined impacts of these activities with the travel management project are not significant.

The public has indicated their concern with travel management decisions on surrounding National Forests and BLM lands affecting travel in the Gunnison Basin; There is a concern that the analysis area is becoming the only place close to the front range of Colorado (more urbanized areas) that allows the "freedom" to ride motorized vehicles without undue restrictions. Many who commented were concerned that closing or restricting motorized travel in the analysis area would cumulatively contribute to less motorized recreation access in Colorado. It is understood that adjacent federal land management units are involved in travel management planning or have already completed their travel management plans. The purpose of these planning activities is to provide direction and protection on federal lands relative to motorized vehicle travel because of problems (e.g., resource damage and illegal route proliferation) relating to unmanaged recreation use.

The overall cumulative impact of travel management on federal lands in Colorado is most likely to be more restrictions on motorized vehicle use, less motorized opportunities on federal lands, and changing modes of travel. There is also an expectation that some forms of recreational activities will be enhanced by a designated system of roads and trails, reduced user conflicts, reduced route proliferation, more secure wildlife habitat, and less resource damage. In addition, such cumulative impacts were anticipated and addressed when the Forest Service implemented the 2005 Travel Management Rule that mandated the completion of travel analysis and subsequent designation of open routes for motorized travel.

PART B. AFFECTED ENVIRONMENT – RECREATION ON BLM PUBLIC LANDS

The roads and trails on BLM lands managed by the Gunnison Field Office provide opportunities for a wide variety of recreation experiences in predominantly natural settings. The level of recreation use on these lands is estimated at 800,000 visitor days each year. Popular activities include motorized recreation such as scenic driving, four-wheel driving, motorcycle riding and ATV riding as well as non-motorized recreation such as mountain bike riding, hiking, wildlife viewing, fishing, hunting, photography, rafting, kayaking, and rock climbing. These activities are practiced in a variety of environments ranging from rolling sagebrush hills to dramatic mountain terrain. The settings range from completely natural areas with little evidence of human influence to rural areas where houses, powerlines, roads, and other constructed facilities are clearly present.

The quality of the public's recreational experiences on federal lands is dependent on their ability to engage in their preferred activities in desirable settings. This, in turn, leads to a variety of personal benefits for visitors. The BLM has two priorities for managing recreation activities on federal land. The first is to provide and facilitate a variety of opportunities for the public to enjoy while recreating on their public lands. The second is to manage that recreation use in a way that minimizes the negative impacts of recreation on other resources such as soil, vegetation, wildlife, and water. A goal of the BLM is to provide the greatest benefit for the most people in a sustainable way over the longest period of time with limited available resources (e.g., funding, staff, equipment).

In 1980, the BLM approved a travel plan that established vehicle designations for federal land in the analysis area. That plan designated the following areas:

Open Areas – where motorized vehicles could drive on or off the roads as long as they did not cause resource damage;

Limited to Designated Routes – where motorized vehicles had to stay on specific routes;

Limited Seasonally – where motorized vehicle use could be limited during certain times of the year; or,

Closed Areas – where no wheeled vehicle use was allowed, such as Wilderness and Wilderness Study Areas.

At that time, most vehicle traffic stayed on existing roads even in open areas. But over time, four-wheel-drive vehicles became more common and the public began driving off existing roads and through more challenging terrain. This led to user-created routes. With the development of mountain bicycles and ATVs, users created even more routes because of their off-road travel capabilities. The overall numbers of these new routes started to cause unacceptable impacts to natural resources because of use in riparian areas, through steep terrain, over unstable soils, or in other sensitive areas.

In 2001, the BLM, working with the Forest Service, revised the agency's transportation plan to change the "Open Areas" designation to "Limited to Existing Routes." This decision was intended to keep recreational vehicle travel confined to roads that were in existence in early 2001 and receiving regular enough use to be easily visible on the ground.

The transportation needs for recreationists fall into two broad categories. The first category includes those who use transportation routes to access desired recreation opportunities, such as driving to a stream to fish. Such travel is typically looking for the easiest and most direct way to get to their destination. The second category includes those whose recreational pursuit is actually traveling over various routes using some form of motorized or mechanized vehicle. Their recreation activity actually centers on the travel experience. The ability to offer loop trips for this type of visitor is limited on BLM lands due to private lands adjacent to or surrounded by federal land. Lack of public access easements across private land can close routes off to the public when landowners are not willing to accommodate public travel across their private property.

Recreational Opportunities

The following are the more common recreation uses of the public transportation system on public lands during the spring, summer, and fall:

Scenic Driving

This is the most popular form of motorized recreation practiced in the travel analysis area. It is particularly popular in the high country around Lake City that includes the Alpine Loop and Silver Thread Scenic Byways. Visitors enjoying a scenic drive are mainly interested in the scenic beauty and variety of landscapes along the routes in these areas. Wildlife viewing while traveling adds satisfaction to these recreational trips. Such travel is slower-paced and visitors regularly stop to take pictures or read roadside interpretive signs. These users typically do not expect solitude and are not adversely affected by moderate numbers of users, but overcrowding can diminish their recreational enjoyment. Road densities and road visibility are other factors that can degrade the scenic quality of an area for these recreational users.

Four-wheeling

Some visitors come to this area to drive on rough roads that require four-wheel-drive and high-clearance vehicles. Their motivations and skill levels vary along a broad spectrum. Some use four-wheel drive to explore less crowded recreation settings for other activities. Beginners with four-wheel-drive vehicles may want to build their skills on easy to moderate four-wheel-drive roads. Experts with standard or modified vehicles may seek more difficult routes to challenge their skills and push the limits of their vehicles. Some users understand the impact that vehicle use can cause and are careful to avoid sensitive areas. Others are unaware of the impacts vehicle use can cause.

In general, most visitors using four-wheel drive do not mind rough, rocky, or rutted roads. Some of the four-wheel-drive user groups expressed concern regarding maintenance of high-clearance roads, but many of these users . did not consider it important to grade roads to make them easier to travel. Some comments indicated a desire by the public to leave the high-clearance roads in their existing conditions and cease maintenance in order to preserve their rough and challenging characteristics. For the federal land management agencies, road maintenance may only involve drainage improvements. repairs to prevent erosion and resource damage, or removal of downed trees or rock slides to keep the road open and passable for travel.

In general, four-wheel-drive travelers prefer less crowded social settings but are usually comfortable with moderate numbers of other visitors. In some cases, they organize into groups for tours or special events such as the Jeep Jamboree or FJ Summit, which attract several hundred enthusiasts for a week of four-wheel-drive touring. The Alpine Loop Scenic Byway is a favorite destination for four-wheel-drive activities; it offers a variety of beginner and intermediate four-wheel-drive routes in a spectacular natural setting. There are also expert routes such as Poughkeepsie Gulch and Mineral Creek that offer challenges for more advanced skill levels. Most of the high-clearance roads on BLM lands in the analysis area are lightly to moderately used—daily traffic counts may average one to two vehicles per day, with daily rates increasing slightly during hunting seasons. The Alpine Loop Scenic Byway is the only high-clearance road on BLM lands in the Gunnison Valley that is considered to be a “destination” for four-wheel-drive users. Under existing route designations, there are about 1,606 miles of roads on BLM lands open to the public, and about 90 percent of those are considered to be rough, rocky, and rutted and more suited for four-wheel-drive users.

ATV

ATVs are a group of smaller, four-wheeled, low-pressure-tired, one- or two-person, open vehicles that are not licensed for highway use. Some newer models called UTVs are wider and allow two passengers to sit side by side. ATVs and UTVs less than 50 inches in width are called OHVs in this analysis..

The BLM in the analysis area does not manage any of its trails specifically for ATV use. ATVs are allowed on any BLM roads designated as open for public travel. The use of ATVs has become commonplace in portions of the analysis area and has increased significantly over the last 10 years. The Alpine Loop Scenic Byway is the most popular setting for ATVs on BLM lands in the analysis area, but use is widespread during hunting season. The BLM has received some complaints regarding the number of ATVs using the popular Alpine Loop. Restrictions pertaining to unlicensed motor vehicles traveling on state, county, or city roads in Gunnison, Saguache, and Hinsdale Counties limits the BLM and Forest Service’s ability to offer a wide range of loop opportunities for OHV/ATVs because many BLM and Forest Service roads do not connect without traversing state or county roads.

Motorcycles

Motorcycle riders usually practice their sport for the riding experience rather than as a means of transport from one place to another or as a primary mode of transportation to reach other recreation

attractions. Motorcycles can be street legal (i.e., licensed), but many can only be operated off highway because they are unlicensed and do not meet highway vehicle requirements. Both licensed and unlicensed motorcycles are allowed on all routes designated as open to the public for motorized travel on BLM Public lands. This includes all open roads (about 1,606 miles) and about 48 miles of single-track trails on federal lands. Again, the Alpine Loop Scenic Byway is a popular route for motorcycle riders, but these users have a preference for single-track trails where available. Motorcycle riders have a preference for sinuous and winding trails over varied terrain rather than direct routes from one point to another. The most concentrated opportunity for motorcycle use on BLM lands in the analysis area are single-track trails in the Hartman Rocks Recreation Area near Gunnison, where about 45 miles of trails are available. Most motorcyclists ride in groups of two to five riders, but there are events, such as the Colorado 500, where motorcycle riders tour in much larger groups.

Mountain Bikes

This type of mechanized, non-motorized travel really began to increase in popularity in the 1980s after the last BLM transportation plan was developed. For that reason, there are essentially no guidelines for mechanized use in that 1980 plan.

Mountain bikers will use roads to connect from trail to trail, but they prefer to bike on single-track trails 12 to 24 inches wide with reasonable grades. Like motorcyclists, they prefer a winding trail rather than a short, direct path from one point to another. Although they can load their bikes into a vehicle and drive to a trail, most local users desire trail systems that they can ride to from residential areas. Such desired conditions have led to more requests for mountain bike trails in the urban interface areas near Gunnison.

Some mountain bike riders want steeper and more challenging routes, often referred to as free-ride trails, as a result of suspension improvements and new frame technology. Because free-ride trails tend to be steeper and more direct (down the fall-line) downhill routes, they are prone to more erosion. For these reasons, it is not always possible to meet the public demand for this type of activity and protect the soil and vegetative resources at the same time.

Mountain bike users, like many recreationists, prefer to ride on single-purpose trails (i.e., mountain bike only) where they can avoid conflicts with other travelers using different modes of travel. Conflicts between mountain bike riders and motorcycle riders have the greatest potential for problems because of the difference in speed, range of travel, and noise. Motorcycles, at times, can also cause more rutting on trails and create a series of humps (often called whoops) in the trail that makes riding more difficult for bikers. Currently, these two user groups co-exist reasonably well sharing trails in the Hartman Rocks Recreation Area.

Under existing conditions on BLM lands, there are about 22 miles of single-track trail open to mountain bikes along with other non-motorized uses (hikers or horseback riders) and another 48 miles of single-track trail that mountain bike riders share with motorcycles. There are also about 1,606 miles of roads that are open to mountain bike use.

Hunting

Hunting is a popular form of recreation in the analysis area, particularly big game hunting in the fall. Hunters typically use motorized vehicles to get to the areas where they want to hunt and camp. Hunter camps are typically closer to the more improved roads because they use larger trucks with campers, trailers, or motor homes for camping. For actual hunting activities, they commonly use four-wheel-drive vehicles or ATVs to get to hunt areas or away from where they camp. Roads that do not receive much use during the summer experience increased use during hunting season. The BLM believes it is important to provide road access into most large blocks of BLM land so hunters can get

close to good hunting areas. However, this does not imply that the purpose of providing access to hunt areas is to make it easy to hunt from a vehicle. It is illegal to shoot game from a vehicle, and road hunting, while popular, is typically ineffective in harvesting game. Vehicles tend to chase game away because of their noise and smell, and this has lead to conflicts between hunters who drive and hunters who walk.

Travel off of existing open routes by hunters using ATVs and four-wheel-drive vehicles have been a common problem. Experience suggests that more unauthorized routes are created during hunting season than any other time of the year. This inappropriate route proliferation was one of the major motivations for switching most of the Gunnison Field Office travel designations from “Open” to “Limited to Existing Routes” in 2001 and to “Limited to Designated Routes” in this proposed travel management plan.

Hunting is practiced by a wide variety of people—from healthy individuals who will walk miles in steep terrain to individuals with physical limitations unable to walk very far even in easy terrain. Some hunters with physical limitations believe they should have opportunities to use motorized vehicles to access hunting areas beyond the existing road system. Past experience in the analysis area and other adjacent areas has shown that unlimited access off of existing routes for hunting or game retrieval has lead to route proliferation and unacceptable resource damage.

Conversely, a frequent complaint from some hunters is that current excessive vehicle use degrades their hunting experience and chases game animals onto private land or into Wilderness, where access is more difficult and may be restricted. Access to desirable camping and hunting areas is necessary to provide a good hunting experience and successful harvest of game animals.

Fishing

Fishing is a recreational activity that is relatively site specific and typically is more oriented to the summer months. Often people who fish use vehicles to access desirable fishing sites. Fishing areas easily accessed by motorized vehicles are more likely to get heavier fishing pressure and usually offer less fishing success. For this reason, people seek out areas with less fishing pressure, which has, in the past, led to the creation of user-created routes or cross-country travel by ATVs and other high-clearance motorized vehicles. The BLM’s goal is to provide a full spectrum of fishing opportunities, ranging from easy access locations where motorized vehicles can be driven close to the stream to remote locations only accessible by foot or horse. The next level of site-specific travel management may involve defining specific parking areas near streams and rivers that offer fishing opportunities.

Camping

Camping occurs predominately in the summer and the fall. The BLM maintains several developed campgrounds that typically charge a fee to cover the cost of amenities such as restrooms and drinking water. Access to these campgrounds is considered part of the basic transportation system, and t roads to and within developed campgrounds would remain designated open for travel under all alternatives.

A significant percentage of camping on federal lands occurs at dispersed campsites. Dispersed camping occurs where the public pulls off the road and camps where there are no fees and no developed facilities. Most often on BLM lands, dispersed camping occurs 50 to 100 feet from the road. Over the years, obvious travel routes have been established to many of the desirable dispersed camping sites, as it usually only takes about 8 to 10 passes by a vehicle to beat down the vegetation and create a noticeable route that can be readily followed by other visitors. The major concern for the BLM from a transportation perspective is how much flexibility should be allowed for the public to drive off designated routes to camp. Under existing conditions, the Interim Travel Restrictions allow the public to travel up to 300 feet off existing roads to camp.

The Alpine Triangle is the exception. There, vehicle parking is limited to areas immediately adjacent to the designated routes. Defined parking areas for the popular dispersed camping sites in that area discourage the public from travelling off the designated roads. Based on field observations, the numbers of existing dispersed campsites seem to be adequate to meet summer camping demand. There is little indication that summer dispersed camping demand is increasing. During the fall, the demand for dispersed camps comes from hunters. Many hunters tend to return year after year to the same camp, but as new hunters come to the area for the first time, they establish new dispersed campsites. There seems to be at least some demand for new dispersed sites during the hunting season. This may be a function of varying permit numbers in various hunting units rather than increasing hunters.

Hiking, Running, and Horseback Riding

Hiking and trail running are popular in a variety of locations in the analysis area, particularly on trails near residential areas. Because these activities have only minor impacts on resources and other federal land visitors, there are few restrictions to control these recreational activities. Travel by foot and on horseback is not restricted to designated roads or trails. These users may travel cross country on federal lands within the analysis area. Typically, most of these users stay on trails or roads because they are easier to travel.

Horseback riding is less common on BLM Public lands but is more prevalent in the Powderhorn Wilderness and during hunting season. Horses, because of their weight, have a greater potential to impact soils and trail surface integrity, especially when soils are wet.

Although trail hikers, horseback riders, and runners often share trails and roads open to other modes of travel, they prefer to use trails far from the sounds of motor vehicles and with few mountain bikes. On trails where there is a mix of motorized, mechanized, and foot travel, the BLM encourages users to exercise common sense and courtesy as they pass to avoid conflicts. For the most part, different user groups generally co-exist well, but there are situations where foot travelers have a greater sense of impact from motorized and mechanized use. This is usually an asymmetrical impact because motorized users rarely have their experiences impacted by hikers or horseback riders.

On BLM lands, there are about 79 miles of managed system trails restricted to hikers and horseback riders only. The majority of these routes are in designated Wilderness or Wilderness Study Areas where motor vehicles and mountain bikes are not allowed. There are also about 24 miles of non-system trails that are not managed or maintained but are commonly used by hikers, trail runners, and horses. Hikers and horseback riders can use all motorized routes (about 1,606 miles of roads and 70 miles of single-track trail).

Environmental Effects of Alternatives on Recreation

The impacts that the different travel management planning alternatives have on recreational opportunities can be considered in a variety of ways. It is easy to quantify and compare the route miles for different modes of travel available under each alternative. Under existing conditions, there are many routes open to public travel that get very little recreation use because they do not access recreational sites, afford access to recreational activities, or provide a recreational experience when traveled upon. Therefore, the consequences of closing them to the public may have little impact on recreational users and would not necessarily diminish the quality of recreation opportunities in the analysis area. Quantifying the impacts associated with recreational experience is hard to measure. Therefore, the discussion of consequences is generally more subjective. Under this analysis of impacts to recreation, the quantifiable measure of miles of route under each alternative will be used, but the more subjective considerations of recreational experience will also be disclosed.

Environmental Effects of No Action (Alternative 1)

Scenic Driving

This alternative would continue to offer all of the routes that are currently designated open to public travel for scenic drivers to enjoy. Conditions would remain the same and opportunities for scenic driving would not be lost.

Four-Wheel Driving

The current level of use and recreational experience for four-wheel-drive users is expected to continue. There would be little or no change to the existing conditions.

The establishment of some illegal, user-created routes would be expected to continue and in general tend to occur during hunting season.

Existing seasonal closures for muddy conditions or wildlife winter range would continue. These seasonal closures have shown to be very successful at reducing impacts to existing roads and reducing maintenance needs for road repair. The No Action Alternative would provide the most miles of road open to four-wheel-drive use, about 1,606 miles.

ATV

The opportunities for ATV use on BLM lands would remain the same. There would continue to be an emphasis on keeping ATV use on designated routes, but because of their power and maneuverability, they can go many places that full-sized vehicles cannot. As a result, illegal establishment of new user-created routes for ATVs are expected to occur in some locations. Again, the majority of new user-created ATV routes tend to occur during hunting season. The development of UTVs that provide side-by-side seating for two people or even up to four people has created a new mode of travel. These vehicles are expected to utilize the same roads that ATVs currently use.

With the No Action Alternative there would be about 1,606 miles of road open to ATV use. There are an additional 3 miles of routes that would be managed specifically for ATVs under 50 inches in width.

Motorcycles

Motorcycle use would continue to occur on designated roads and trails in the analysis area. Motorcycles, because of the torque placed on the rear wheel by the engine, have a tendency to dig ruts into the trail surface more than other vehicles, particularly while climbing up a steep grade. This type of damage would continue to degrade the single-track trails for other users and require increased maintenance efforts to repair. Noise is also an issue with motorcycles because they generate more noise than other types of vehicles—sometimes up to 106 decibels. The higher noise levels from motorcycle use often disturbs other forms of recreation in the adjacent area, disturbs residents of private land adjacent to public roads and disturbs wildlife in a wide zone on each side of a route.

Excessive speed is sometimes a problem with motorcycles, particularly on the Alpine Loop, and is expected to continue. Motorcycles are able to negotiate rough roads faster than any other vehicle. Speeding and cutting blind curves too close can lead to potential accidents with slower-moving vehicles. Under the No Action Alternative, there would be no change in the number of miles of routes open to motorcycles. They would continue to be able to use 1,606 miles of roads and 48 miles of motorized single-track trails. It is likely that conflicts between motorcyclists and other recreation groups over issues such as trail damage, noise, and speed will continue.

Mountain Bikes

Mountain bike use would continue to occur, and that mode of travel would continue to be restricted to designated roads and trails open for public travel. There would be 22 miles of single-track trail open to mountain bikes and other non-motorized uses. An additional 48 miles of motorized single-track trails and 1,607 miles of roads would also be available for mountain bike riders.

The management guidelines outlined in the Hartman Rocks Recreation Area Plan would remain in place. Mountain bike use in this area would continue to play a major role in the mountain bike recreational opportunities for riders from nearby Gunnison.

A few mountain bike riders would continue occasionally to create illegal new trails by traveling cross country off of designated routes. The primary area of concern for these types of impacts would be the area northeast of Gunnison. User-created routes can create adverse impacts if they are located in sensitive areas, cross soils prone to erosion, or fragment wildlife habitats.

Hunting

With No Action, there would continue to be about 1,606 miles of roads on BLM lands available for hunters to use. This translates to an average route density outside of Wilderness and Wilderness Study Areas of about 2.3 miles of road per square mile on public lands (BLM). This existing network of roads tends to fragment wildlife habitat and cause some undesirable effects on wildlife, which could lead to impacts on hunting and wildlife watching experiences. The extensive use of vehicles during hunting season pushes animals into inaccessible areas and reduces hunting success. Hunting opportunities and hunting success would most likely continue to be similar to existing conditions under the No Action Alternative.

Fishing

With No Action, there would be no change in the level of access for fishing. There would continue to be some existing routes that impact riparian areas and streams. These routes would likely result in slight impacts to riparian vegetation, stream bank stability, and soil erosion that can degrade fish habitat. This in turn could result in reduced fish populations and fishing opportunities.

Camping

Opportunities for camping would not be affected by No Action. The designated campgrounds would not be affected by travel management plans. The public would continue to have the ability to drive up to 300 feet off existing roads to camp on federal lands in the analysis area. There would continue to be the potential for newly created dispersed campsites to develop each year as the population continues to grow and recreational use in the area expands. Development of more dispersed camping sites does have the potential to have site-specific impacts on soils, vegetation, wildlife, and scenic quality.

Hiking, Trail Running, and Horseback Riding

The existing situation would continue for these uses. The federal lands would continue to be open for cross-country travel by hikers, runners, and horseback riders. These users would be able to continue using existing roads and trails open for public travel. Some existing trails would no longer be managed and maintained as system trails, but that would not restrict travel by these users.

Environmental Effects of DEIS Proposed Action (Alternative 2)

Scenic Driving

This alternative would reduce the total road miles open to the public but would not reduce the road miles for any of the popular routes that are common destinations for scenic driving. The appreciation of scenery would continue to be enjoyed while driving the many miles of open roads in the analysis area.

Reducing the total miles of road within the analysis area does have the potential to improve scenic quality, as roads that are not designated would tend to re-vegetate and create more natural scenic landscapes. Visual impacts caused by a proliferation of user-created routes would be reduced. Such changes would have a positive influence on opportunities for scenic driving.

Four-Wheel Driving

Under the DEIS Proposed Action, there would be about 1,029 miles of roads for full-sized vehicles on BLM lands. This reduces the number of road miles by about 578 miles from existing conditions (No Action). This 36 percent reduction in road miles would reduce the opportunities for four-wheel-drive recreation. The majority of the road miles proposed to be closed and/or decommissioned typically receive very little use, and most are not popular routes for four-wheel-drive recreation. A few steep and challenging routes that were used occasionally by four-wheel-drive vehicles were proposed for closure because they were determined to be unsustainable and prone to excessive erosion, which can leave visual scars.

The BLM placed a high priority on leaving roads open for public travel that provide access to major blocks of federal land, even if they are rough and not well suited for passenger vehicles, as long as they were reasonably sustainable. Another priority was to retain roads that would complete desirable driving loops or access valued recreation opportunities. Given these factors, it is anticipated that the overall impact on four-wheel-drive opportunities would not be significant.

Existing seasonal closures would continue to remain in place for wet and muddy conditions as would wildlife closures for Gunnison sage-grouse and big game winter range. The sage-grouse closures would be extended to entire areas rather than specific routes in order to eliminate potential loopholes in the restrictions. This area-wide closure totals about 191,000 acres and would be in effect from March 15 to May 15 each year.

ATV

In this alternative, 1,029 miles of roads would be open to ATV use. Therefore, the opportunities for ATV recreation would be reduced by about 578 miles (36 percent) compared to Alternative 1. In addition, the BLM would designate and manage 1.2 miles of trail specifically for ATVs and other vehicles less than 50 inches wide. Impacts to ATV riders utilizing roads on BLM lands would be similar to those identified for four-wheel-drive users. As with four-wheel-drive users, most of the routes to be closed under this alternative are not regularly used by ATVs.

The Alpine Loop Scenic Byway, a popular destination for ATV riding, would remain open for public travel. Parking areas for loading and unloading ATVs will remain in the Alpine Loop area, and the recreation management for that area will continue to be managed for ATV recreation. ATVs would also be restricted by spring mud season closures and sage-grouse seasonal closures (March 15 to May 15).

Motorcycles

Alternative 2 would reduce the miles of motorized single-track trail by 2 miles from the No Action alternative, leaving 46 miles available for this use. Motorcycle use on roads would continue, and that use would be impacted by the proposed 578 mile reduction in overall road miles on BLM lands. It is anticipated that this would be a slight to moderate impact on motorcycle use on BLM lands. The extent of motorcycle use on the roads proposed for closure under this alternative is relatively low. Field observations by agency staff suggest that the majority of roads proposed to be closed are not regularly used by motorcycles.

The closed roads that were occasionally used by motorcyclists were closed to prevent significant impacts to other resources. One mile of existing single-track trail would be closed in the North Beaver Creek drainage. The CDOW decided to restrict motorized access through their property downstream of the BLM land where the closure is proposed. The Forest Service has also decided to close their portion of the trail that would be necessary to access the BLM section. This entire trail segment was popular with the Colorado 500 motorcycle tour and lightly used by other motorcyclists at other times.

Mountain Biking

Alternative 2 would allow mountain bike and other non-motorized use on 15 miles of single-track trail and decrease the number of miles of single-track trail designated for mountain bike use on BLM lands from 22 miles to 15 miles. The 46 miles of single-track trails open to motorcycles would also be open for mountain bike riding. Mountain bike riders would also be able to ride on the 1,029 miles of roads on BLM land. The number of miles of roads would be reduced under this Alternative, thus reducing the total miles available for mountain bike use, but mountain bike use on most of those roads is light to non-existent.

The Hartman Rocks Recreation Area Plan would continue to guide the management of recreational use in that area, and no additional trails would be closed under this alternative. The North Beaver Creek trail referenced above under “Motorcycles” would also be closed to mountain bike use.

Several trails northeast of Gunnison, such as Rasta Gulch and Chicken Scratch, would be closed to mountain bike use because these user-created trails are steep, poorly located, causing erosion problems, and impacting important sage-grouse habitat. In addition, the Rasta Gulch Trail trespasses on private land. Trails on the Big Mesa Circuit were user-created during the 2001 Interim Travel Restriction and would be closed under this alternative.

Seasonal closures for mud season and sage-grouse breeding activities would remain in place in the spring for the Hartman Rocks Recreation Area. About 38,000 acres of sage-grouse habitat around Gunnison is critical for the reproduction of this species. Mountain bike riding would be restricted before 9:00 a.m. from March 15 to May 15 to avoid disturbing sage-grouse during breeding activities. Such restrictions would delay availability of the area in spring for bike riding rather than prohibit all riding during that time of year. It would inconvenience individuals who exercise in the morning but would not adversely impact this recreational use in a significant way.

Alternative 2 would also carry forward for further consideration and analysis proposals to add three new trails for non-motorized use that would include mountain bikes. One system of new trails would be in an area northeast of Gunnison between Gunnison and Cabin Creek. While the goal of this system of new non-motorized trails would be to provide for trail loops of varied lengths, the exact location of these trails has not been determined. If viable routes can be found to avoid impacts to sage-grouse habitat and cultural resources, then approximately 20 to 25 miles of new trails open to mountain bikes, hikers, and horseback riders could be developed.

Additionally, 1 mile of new mountain bike trail would be proposed north of Crested Butte following the old railroad grade up the Slate River Valley if sufficient funds can be gathered to design and build

several bridges across the Slate River. The third new proposed mountain bike trail would be located on the mesa west of North Beaver Creek and would run from the National Park Service's Beaver Creek Picnic Area north to Sun Park. This new trail would be subject to National Park Service approval for access through National Recreation Area lands. This proposed trail would be rerouted out of the drainage to avoid impacts to sage-grouse brood-rearing habitat and around a prairie dog colony. This route would be about 4 miles in length.

These trail proposals would require additional planning and field work before decisions can be made. Site-specific analysis of new trails would have to be completed including environmental analysis, public involvement and documentation of the decision process before such development could be implemented.

If plans for new mountain bike trails are implemented, there would be positive benefits for mountain bike recreational opportunities with this alternative, as the miles of single-track mountain bike trail on BLM lands would more than double.

Hunting

Hunters commonly use full-sized vehicles, four-wheel-drive vehicles, and ATVs to access hunting camps and hunting areas. The DEIS Proposed Action would allow use on 1,029 miles of roads but reduce road miles on BLM land by about 36 percent (578 miles). These reductions would most likely impact hunters to some degree, particularly in the popular forested. While most of the roads leading from main county and state highways would remain open, some spur roads or parallel routes used by hunters to access hunt areas or dispersed camps would be closed. These proposed closures would most likely be perceived by some hunters as an inconvenience and adverse to the hunting experience because closures would limit where hunters can drive to hunt and retrieve game.

Road densities on BLM lands outside of Wilderness or Wilderness Study Areas would be reduced to about 1.5 miles of road per square mile of land. Reductions in road densities would reduce habitat fragmentation and have the potential to improve big game habitat and promote healthy herds of game animals for hunters to pursue. Because excessive vehicle use during hunting season often scares game away from roaded areas, reducing route density in hunting areas may have the effect of improving hunter success. For these reasons, there are some hunters who would support fewer routes and perceive less route density as beneficial to their sport.

The BLM opted to keep many roads open specifically to provide hunter access to large blocks of BLM land known to receive regular use by hunters. Also, spurs known to access traditional dispersed campsites used by hunters would generally remain open for public travel.

Alternative 2 would not authorize cross-country travel or travel off designated open roads for the purposes of game retrieval. There would most likely continue to be occasional violations of this closure. The BLM and Forest Service would continue to enforce restrictions on off-road travel and to close unauthorized, newly created routes. This would be no change from the No Action Alternative. The use of non-motorized game carts outside of Wilderness and Wilderness Study Areas and horses or pack animals would be permitted for game retrieval on federal lands within the analysis area.

Fishing

Alternative 2 is expected to have little effect on fishing access. There would continue to be a full spectrum of fishing access opportunities from easy access by full-sized vehicles to hike-in locations. Recreational fishing opportunities are not expected to be adversely impacted by the DEIS Proposed Action. Closure of some roads that are prone to erosion or that are in riparian areas may have a positive effect on stream conditions and provide some benefit to fish habitat.

Camping

Alternative 2 would not affect access to designated campgrounds and would only impact dispersed camping in terms of fewer miles of road open to public travel. Dispersed camping would be allowed within 300 feet of designated routes open for public travel. Use of existing routes or established "two-tracks" would be required to access existing dispersed sites. This would eliminate the ability of users to drive motorized vehicles off road across undisturbed lands within 300 feet of an open road or trail under the pretext of accessing a dispersed camping site. There is no indication that these reductions in miles of road would diminish the overall opportunities for dispersed camping. It is anticipated that dispersed camping demands would continue to be met. Some isolated dispersed campsites may not be accessible due to proposed road closures, but these situations are expected to be rare. There would continue to be the potential for newly created dispersed campsites to develop as the population continues to grow and recreational use in the area expands. Development of more dispersed camping sites does have the potential to have site-specific impacts on soils, vegetation, wildlife, and scenic quality.

Hiking, Trail Running, and Horseback Riding

The existing situation would continue for these uses. The federal lands would continue to be open for cross-country travel by hikers, runners, and horseback riders. These users would continue to be able to use existing roads and trails open for public travel. Some existing trails would no longer be managed and maintained as system trails, but that would not restrict travel by these users. Alternative 2 would not change the existing conditions for trail opportunities for users that hike, run, or ride horses.

If the proposed system of new single-track trails is approved and developed northeast of Gunnison, it would be open to foot, horse, and mountain bike use. Given that this trail system should be accessible from Gunnison, it will provide additional opportunities for hikers, trail runners, and horse riders.

About 38,000 acres of sage-grouse habitat around Gunnison is critical for the reproduction of this species. Under this alternative, there would be a restriction on hiking and horse riding before 9:00 a.m. from March 15 to May 15 to avoid disturbing sage-grouse during breeding activities. Such restrictions would inconvenience a few early risers but are not anticipated to adversely impact users significantly; their use of this area would be delayed in the spring rather than eliminated.

Environmental Effects of Alternative 3

Scenic Driving

Under this alternative, the impacts on scenic driving would be similar to those identified for the DEIS Proposed Action (Alternative 2). There would be further reductions in miles of road open for public travel, but as with the DEIS Proposed Action those routes generally used for scenic driving would remain open. Total road miles on BLM lands would be reduced by about 774 miles (about 48 percent) from existing conditions. Reducing the total miles of road within the analysis area does have the potential to improve scenic quality as most undesignated routes would revegetate and visual impacts caused by roads would be reduced. Such changes would have a slight positive influence on opportunities for scenic driving.

Existing seasonal closures would continue to remain in place for wet and muddy conditions as well as wildlife closures for Gunnison sage-grouse and for big game winter range. The sage-grouse closures would be extended to entire areas rather than specific routes to eliminate all potential access to these sensitive areas. This area-wide closure totals about 191,000 acres.

Four-Wheel Driving

Under this alternative, 833 miles of routes would be open for access and use by full sized vehicles. The number of miles of routes that are open to four-wheel-drive recreation would be reduced by about 774 miles or 48 percent compared to No Action. The majority of these routes receive very little use and only a few are popular destinations for four-wheel-drive recreation. As with Alternative 2, a few steep and challenging routes occasionally used by four-wheel-drive drive vehicles would be proposed for closure because of excessive erosion. The consequences of this alternative on four-wheel-drive recreation would be similar to those identified for the DEIS Proposed Action for sage-grouse, seasonal closures, and user-created routes.

There would be adverse impacts to four-wheel-drive recreation in that more miles of road would be closed under this alternative when compared to the other alternatives. The recreational opportunity or the quality of the four-wheel-drive experience may not be affected greatly; these opportunities would continue to exist and the vast majority of popular routes would remain open.

ATV

Under this alternative, 833 miles of full-sized roads would be open for ATV use. The BLM would not specifically designate or manage any trails for ATVs in the analysis area, and ATVs would continue to be allowed only on roads open for public travel as in Alternative 2. Therefore, under this alternative, the increased closure of road miles would reduce the opportunities for ATV recreation on those closed roads (774 miles or 48 percent). Impacts to ATV riders utilizing roads on BLM lands would be similar to those identified for four-wheel-drive users. The Alpine Loop Scenic Byway, a popular destination for ATV riding, would remain open for public travel. Parking areas for loading and unloading ATVs would remain in the Alpine Loop area and the recreation management for that area would continue to include ATV recreation.

Motorcycles

Under this alternative, the miles of motorized single-track trail would be reduced by 3 miles from existing conditions (No Action). Motorcycle use on 833 miles of roads would continue, and that use would be impacted by the proposed 774 mile reduction in overall road miles on BLM lands. It is anticipated that this would be a slight to moderate impact on motorcycle use on BLM lands. The extent of motorcycle use on the roads proposed for closure under this alternative is relatively low. Field observations by agency staff suggest that the majority of roads proposed to be closed are not regularly used by motorcycles.

As with Alternative 2, 1 mile of single-track trail that was used by motorcycles is proposed for closure in the North Beaver Creek drainage. The CDOW determined it necessary to restrict motorized access through that portion of their property downstream of the BLM land where the closure is proposed. The Forest Service trail that accesses the BLM trail would also be closed to motorized and mechanized use. This entire trail segment was popular with the Colorado 500 motorcycle tour and lightly used by other motorcyclists at other times. The two other motorized single-track trails proposed for closure are not regularly used by motorcycle riders and would only have a slight adverse impact on motorcycle riding opportunities.

Mountain Biking

Under this alternative, opportunities for mountain biking would be impacted more than the other alternatives. Compared to existing conditions, this alternative would reduce the miles of single-track trails managed specifically for mountain bike use by 12 miles or 55 percent. The miles of motorized single-track trail available for mountain bikes would decrease by 3 miles from existing conditions bringing the total miles of single track available to bikes to 57 miles, a 19 percent reduction. A total

of 833 miles of road would also be open to mountain bikes, even though that is not an ideal setting to practice the sport, a decrease of 774 miles or 48 percent compared to No Action. Additionally, there would be one segment of 1 mile of new mountain bike trail in the Slate River Valley considered for possible future development. As with Alternative 2, no new planned trails would be developed without further environmental analysis, public involvement, and documentation.

Because more miles of trail would be closed under this alternative, there would be more adverse impacts to mountain bike recreation on BLM lands than under other alternatives.

About 191,000 acres of sage-grouse habitat around Gunnison is critical for the reproduction of this species. Under this alternative, there would be a restriction on mountain bike riding before 9:00 a.m. from March 15 to May 15 to avoid disturbing sage-grouse during breeding activities. Such restrictions would delay the availability of this area for bike riding in spring rather than eliminate it from use and would only have a slight adverse impact on this recreational use.

Hunting

Under this alternative, road miles on BLM lands would be reduced by about 774 miles (48 percent). These reductions would most likely impact hunters more than Alternative 2. Although most of the roads leading from major county roads and state highways would remain open, some of the road closures would be on spur roads or parallel routes used by hunters to access hunting areas or dispersed campsites.

The closures under this alternative would most likely be perceived by some hunters as an inconvenience and more adverse to the hunting experience than the Proposed Action. Road densities on BLM lands outside of Wilderness or Wilderness Study Areas would be reduced to about 1.2 miles of road per square mile of land. Reducing road densities and habitat fragmentation would have the potential to improve big game habitat and as a result improve hunter success. This would be considered a positive effect by some hunters.

Fishing

This alternative is expected to have little effect on fishing access. There would continue to be a full spectrum of fishing access opportunities, from easy access by full-sized vehicles to hike-in locations. Recreational fishing opportunities are not expected to be adversely impacted under this alternative. Closure of some roads that are prone to erosion or within riparian areas may have a positive effect on stream conditions and provide some benefit to fish habitat.

Camping

As with Alternative 2, this alternative would not affect access to designated campgrounds and would only impact dispersed camping in terms of fewer miles of road open to public travel. Access for dispersed camping would be allowed only on existing routes within 300 feet of designated routes open for public travel. The reduction in miles of road would diminish the overall opportunities for dispersed camping; however, roads accessing regularly used dispersed sites usually remain open to facilitate authorized access. It is anticipated that demands for dispersed camping would continue to be met. A few dispersed campsites favored by some individuals may no longer be accessible as a result of the proposed road closures, but these situations are expected to be few.

Hiking, Trail Running, and Horseback Riding

The existing situation would continue for these uses. These users would continue to be able to use existing roads and trails open for public travel. In addition, BLM lands would continue to be open for cross-country travel by hikers, runners, and horseback riders. Some existing trails would no longer be

managed and maintained as system trails, but that would not restrict travel by these users. This alternative would not change the existing conditions for trail opportunities for users that hike, run, or horseback ride.

If the proposed new non-motorized single-track trail is approved and developed for the Slate River Valley, it would be available for hikers, runners, and horseback riders and would increase opportunities over existing conditions.

About 191,000 acres of sage-grouse habitat around Gunnison would be restricted from hiker and horse riding before 9:00 a.m. from March 15 to May 15 to avoid disturbing sage-grouse during breeding activities. Such restrictions are not anticipated to adversely impact these users; the use would only be delayed in the spring rather than eliminated.

Environmental Effects of Alternative 4

Scenic Driving

The consequences of this alternative on scenic driving are expected to be very similar to those identified for Alternative 2. There is very little change to scenic driving opportunities and experiences between alternatives.

Four-Wheel Driving

Under this alternative, 1,173 miles of roads would be open to vehicle recreation. There would be about 434 miles of road closed, about 27 percent of the existing conditions (No Action). Fewer miles of routes would be closed than Alternatives 2 or 3. The majority of these routes receive very little use and only a few are popular destinations for four-wheel-drive recreation. As with Alternative 2, a few steep and challenging routes occasionally used by four-wheel-drive vehicles would be proposed for closure because of excessive erosion. The consequences of this alternative on four-wheel-drive recreation would not be as adverse as those identified for the DEIS Proposed Action (Alternative 2). There would be some impacts to four-wheel-drive recreation in that about 434 miles of road would be proposed for closure under this alternative that would be open for travel under No Action. This alternative would result in some impact to four-wheel-drive recreation; however, the opportunities for quality experiences would continue to exist and the vast majority of more popular routes would remain open.

It is likely that some illegal user-created routes would continue to be developed in some locations and the BLM and Forest Service would continue to control the establishment of unauthorized routes.

Existing seasonal closures would continue to remain in place for wet and muddy conditions as well as wildlife closures for Gunnison sage-grouse and for big game winter range. The sage-grouse closures would be extended to entire areas rather than specific routes to eliminate all potential access to these sensitive areas during critical periods. This area-wide closure totals about 191,000 acres.

ATV

ATVs would continue to be allowed on roads open for public travel (1,173 miles). The closure of 434 miles of road would reduce the opportunities for ATV recreation on those closed roads. Impacts to ATV riders utilizing roads on BLM lands would be similar to those identified for four-wheel-drive users. Under this alternative, the BLM would specifically designate 1.2 miles of trail for ATVs and other vehicles 50 inches wide or less. The Alpine Loop Scenic Byway, a popular destination for ATV riding, would remain open for public travel by ATVs on the dirt road portions of the Loop. Parking areas for loading and unloading ATVs will remain in the Alpine Loop area and the recreation management for that area will continue to include ATV recreation.

Motorcycles

Under this alternative, the miles of motorized single-track trail would increase by 6 miles over existing conditions (No Action) and would provide a total of about 55 miles of trail. Motorcycle use would also be allowed on 1,173 miles of roads. The majority of roads proposed for closure under this alternative are not regularly used by motorcycle riders, and the impact of those closures would not be adverse to this user group. This alternative would have a positive effect on motorcycle riding opportunities on BLM lands compared to all alternatives because of the slight increase in total miles of motorized single-track trail.

As with Alternatives 2 and 3, the short segment of the trail in the North Beaver Creek drainage would be closed because of CDOW concerns for such use on their property downstream of the federal lands and the . Forest Service land crossed to access the trail. This trail was popular with the Colorado 500 motorcycle tour.

Under this alternative, the BLM would consider, in concept, the development of an additional 4.3 miles of new motorized single-track trail. These three new trail segments designed for motorcycle use include:

> A connector trail to provide motorcycle access from the NFS lands west of Sawtooth Mountain west to the Cebolla Creek drainage. This would potentially add about 0.8 miles of new trail on BLM lands.
>
> A connector trail to provide motorcycle access from the NFS lands west of Sawtooth Mountain north to the South Willow Creek road (Saguache County Road #1 TT). This would potentially add about 1.5 miles of new trail on BLM lands.
>
> A trail segment at North Beaver Creek that would retain motorized single-track access on the April Gulch/North Beaver Creek Trail. Such a trail would start from the Land's End road on NFS lands west of Gunnison; drop down into April Gulch to North Beaver Creek, then run down the creek onto BLM land, where a new route would have to be constructed to reconnect with the Land's End road. This route is considered a desirable loop by motorcyclists and some mountain bikers.

The future of the North Beaver Creek Trail is speculative because of a variety of concerns about impacts to riparian vegetation, soils, threatened Colorado cutthroat trout, and other wildlife. The Forest Service Preferred Alternative, the DEIS Proposed Action, and Alternative 3 would restrict use on the upper portions of this trail to hiker/horseback only primarily to be consistent with current travel management direction on adjacent CDOW property. Under Alternative 4, the Forest Service would keep the upper portions of this trail open to motorcycle use. This would require the BLM to develop a new alignment to connect North Beaver Creek Trail to Land's End Road, thereby avoiding CDOW property. This would involve about 2 miles of new trail and would require further environmental analysis, public involvement, and documentation. If developed in the future, these new trails would have a positive impact on motorcycle riding opportunities and would provide a connecting loop for a popular motorcycle trail that would otherwise be closed to the public.

Mountain Bikes

Under this alternative, single-track trail designated for mountain bike and other non-motorized use on BLM lands would total 16 miles. There would be an additional 55 miles of single-track motorized trail that would be open to mountain bikes along with 1,173 miles of road.

The Hartman Rocks Recreation Area Management Plan would continue to guide the management for recreational use in that area, and no additional trails would be closed under this alternative. The North

Beaver Creek Trail referenced above under “Motorcycles” could be open to mountain bike use provided a new alignment can be determined and approved.

Several trails northeast of Gunnison, such as Rasta Gulch and Chicken Scratch, are proposed to be closed to mountain bike use. These trails are user-created and poorly located either on steep terrain causing erosion problems or near important sage-grouse habitat. In addition, the Rasta Gulch trail trespasses on private land. User-created trails on the Big Mesa Circuit were created illegally during the Interim Travel Restriction period and would be closed under this alternative.

Seasonal closures and spring mountain bike use restrictions for the Hartman Rocks Recreation Area would remain. About 38,000 acres of sage-grouse habitat around Gunnison are important for the breeding activities of this rare species. Under this alternative we would encourage mountain bikers and other non-motorized users to avoid using this area before 9:00 a.m. from March 15 to May 15 to avoid disturbing sage-grouse during critical breeding activities. Such restrictions are not anticipated to adversely impact mountain bike riders because they would not be prevented from using the area.

This alternative proposes conceptual plans for more miles of new mountain bike trail than under any of the other alternatives. Under this alternative, motorized single-track trail miles could increase by 6 to 12 miles compared to existing conditions, and these trails would be available for mountain bike use as well. Under this alternative, there would be potentially four new trails or trail systems planned, in concept, specifically for mountain bike use. This could increase mountain bike trail miles by 65 to 90 miles. These potential new trails are described below:

> The BLM would examine the feasibility of a system of loop trails of varying lengths northeast of Gunnison between Gunnison and Cabin Creek. The system could total 20 to 25 miles of new, single-track trail designed to connect with existing roads and trails. This planned new trail system would be well-designed; open to foot, horse, and mountain bike use; and accessible directly from town. It is very similar to the system identified under Alternative 2.
>
> Another planned system of looped trails would be northwest of Gunnison and involve about 30 to 40 miles of new trail on BLM land. An access easement across CDOW property would be required as well as construction of a bridge to span the Gunnison River. There is little indication that BLM would be able to fund a new bridge or develop new trails, so we would have to work closely with our partners to seek grant funding, develop partnerships, and utilize volunteer labor before such new trails could be developed and constructed.
>
> A 1-mile trail north of Crested Butte that follows the old railroad grade up the Slate River Valley would be proposed if sufficient funding could be identified to build two bridges to span the Slate River.

The North Beaver Creek Trail referenced for motorcycles would be open to mountain bike use provided the new alignment can be determined and approved.

A trail on the mesa west of North Beaver Creek that runs from the National Park Service’s Beaver Creek Picnic Area north to Sun Park would be considered for designation as a mountain bike trail but is conditional on receiving approval from the National Park Service to cross National Recreation Area lands. This proposed trail would be rerouted out of the drainage to avoid impacts to sage-grouse brood-rearing habitat and around a prairie dog colony.

These new trail plans need substantial field work, site-specific design, environmental analysis, public involvement and documentation of the decision process before such development could be implemented. If these plans for new mountain bike trails are implemented, there would be positive benefits for mountain bike recreational opportunities as this would substantially increase the miles of single-track mountain bike trail on BLM lands.

Hunting

Under this alternative, 1,173 miles of roads would be open to hunters to access hunting areas and retrieve game. More roads would remain open than in Alternatives 2 or 3, but there would continue to be a reduction in total road miles open for public travel as compared to No Action (existing conditions). This alternative would reduce road miles on BLM land by about 550 miles (33 percent). These reductions would impact hunters to some degree. Although most of the roads leading from county and state highways would remain open, closure of spur roads or parallel routes would impact access to hunting areas and dispersed campsites. These proposed closures would be perceived by some hunters as an inconvenience and adverse to the hunting experience.

Road densities on BLM lands outside of Wilderness or Wilderness Study Areas would be reduced to about 1.7 miles of road per square mile of land, slightly more than the DEIS Proposed Action. Reducing road densities and reducing habitat fragmentation does have the potential to improve big game habitat and, as a result, improve hunter success over existing conditions. The BLM opted to keep most roads regularly used by hunters open to provide access to large blocks of BLM land specifically for hunting. Also, many of the spurs known to access traditional hunter dispersed campsites would remain open for public travel.

As with Alternative 2, this alternative would not authorize cross-country travel or travel off designated open roads for the purposes of game retrieval. While there will likely be occasional violations of this restriction, the BLM and Forest Service would continue to enforce restrictions on off-road travel and close unauthorized, newly created routes. There would be no change from the No Action Alternative (existing conditions). The use of non-motorized game carts for game retrieval would be allowed outside of Wilderness or Wilderness Study Areas. Horses and pack animals would continue to be permitted for game retrieval on all federal lands within the analysis area.

Fishing

This alternative is expected to have little effect on fishing access. There would continue to be a full spectrum of fishing access opportunities, from easy access by full-sized vehicles to hike-in locations. Recreational fishing opportunities are not expected to be adversely impacted under this alternative. Closure of some roads that are prone to erosion or located in riparian areas may have a positive effect on stream conditions and provide some benefit to fish habitat.

Camping

As with Alternative 2, this alternative would not affect access to designated campgrounds and would only impact dispersed camping in terms of fewer miles of road open to public travel. Access to dispersed camping would be allowed on existing routes within 300 feet of designated routes open for public travel. Designated routes were selected with emphasis on preserving access to regularly used dispersed campsites, so it is not anticipated that the reductions in miles of road would significantly diminish the overall opportunities for dispersed camping. It is anticipated that dispersed camping demands would continue to be met. A few dispersed campsites favored by some individuals may not be accessible because of the proposed road closures, but these situations are expected to be rare.

Hiking, Trail Running, and Horseback Riding

This alternative would not change the existing conditions for trail opportunities for users that hike, run, or horseback ride. These users would continue to be able to use existing roads and trails open for public travel as well as practice cross-country travel. Some existing trails would no longer be managed and maintained as system trails, but that would not restrict travel by these users. If the proposed new non-motorized single-track trails that are described under the mountain bike section are approved and developed for areas northeast of Gunnison, northwest of Gunnison, the Slate River

Valley Trail, and the trail west of North Beaver Creek, they would also be available for hikers, runners, and horseback riders and would increase opportunities substantially over existing conditions.

Environmental Effects of the Preferred Alternative (Alternative 5)

The Preferred Alternative was developed as our best effort to balance the goals of the plan with the input we received from the public and our resource specialists. It is intended to be the decision selected for this travel management plan.

Scenic Driving

The Preferred Alternative would reduce the total road miles open to the public but would not reduce the road miles for any of the popular routes that are common destinations for scenic driving. The appreciation of scenery would continue to be enjoyed while driving the 996 miles of open roads in the analysis area.

Reducing the total miles of road within the analysis area does have the potential to improve scenic quality, as roads that are not designated would tend to re-vegetate and create more natural scenic landscapes. Visual impacts caused by a proliferation of user-created routes would be reduced. Such changes would have a positive impact on opportunities for scenic driving.

Four-Wheel Driving

The Preferred Alternative would designate about 996 miles of roads as open for use by full sized vehicles on BLM lands. This reduces the number of road miles by about 611 miles from No Action. This 38 percent reduction in road miles would reduce the opportunities for four-wheel-drive recreation. The majority of road miles that are proposed to be closed and/or decommissioned typically receive very little use and were not popular routes for four-wheel-drive recreation. A few steep and challenging routes that were used occasionally by four-wheel-drive vehicles were proposed for closure because they were determined to be unsustainable and prone to excessive erosion, which can leave visual scars.

The BLM placed a high priority on leaving roads open for public travel that provide access to major blocks of public land, even if they are rough and not well suited for passenger vehicles, as long as they are reasonably sustainable. Another priority was to retain roads that would complete desirable driving loops or access valued recreation opportunities. Given these factors, it is anticipated that the overall impact on four-wheel-drive opportunities would not be significant.

Existing seasonal closures would continue to remain in place for wet and muddy conditions in the spring, as would wildlife closures for Gunnison sage-grouse and big game winter range. The sage-grouse closures would be extended to entire areas rather than specific routes to eliminate potential loopholes in the restrictions. This area-wide closure totals about 191,000 acres and would be in effect from March 15 to May 15 each year.

ATV

In this alternative, 996 miles of roads would be open to ATV use. Therefore, the opportunities for ATV recreation would be reduced by about 611 miles (38 percent) compared to Alternative 1. In addition, the BLM would designate and manage 1.2 miles of trail specifically for ATVs and other vehicles less than 50 inches wide. Impacts to ATV riders utilizing roads on BLM lands would be similar to those identified for four-wheel-drive users. As with four-wheel-drive users, most of the routes to be closed under this alternative are not regularly used by ATVs.

The Alpine Loop Scenic Byway, a popular destination for ATV riding, would remain open for public travel. Parking areas for loading and unloading ATVs will remain in the Alpine Loop area and the

area will continue to be managed for ATV recreation. ATVs would also be restricted by spring mud season closures and sage-grouse seasonal closures March 15 to May15).

Motorcycles

The Preferred Alternative would increase the miles of motorized single-track trail by 1 mile from Alternative 1, leaving 49 miles available for this use. Motorcycle use would continue on the 996 miles of roads that would be designated as open. Motorcycle use would be impacted by the proposed 611 mile reduction in overall road miles on BLM lands. It is anticipated that this would be a slight to moderate impact on motorcycle use on BLM lands. The extent of motorcycle use on the roads proposed for closure under this alternative is relatively low. Field observations by agency staff suggest that the majority of roads proposed to be closed are not regularly used by motorcycles.

Roads proposed for closure that were occasionally used by motorcyclists would be closed to prevent significant impacts to other resources. One mile of existing single-track trail would be closed in the North Beaver Creek drainage. The CDOW decided to restrict motorized access through their property downstream of the BLM land where the closure is proposed. The Forest Service has also decided to close their portion of the trail that would be necessary to access the BLM section. This entire trail segment was popular with the Colorado 500 motorcycle tour and infrequently used by other motorcyclists at other times of the year.

Mountain Biking

The Preferred Alternative would allow mountain bike and other non-motorized use on 14 miles of single-track trail, decreasing the number of miles of single-track trail designated for mountain bike use on BLM lands from 22 miles under existing conditions (No Action). The 49 miles of single-track trails open to motorcycles would also be open for mountain bike riding. Mountain bike riders would also be able to ride on the 996 miles of roads on BLM land. The number of miles of roads would be reduced under this Alternative, thus reducing the total miles available for mountain bike use; however, mountain bike use on most roads proposed for closure is infrequent to non-existent.

The Hartman Rocks Recreation Area Plan would continue to guide management of recreational use in that area, and no additional trails would be closed under this alternative. The North Beaver Creek trail referenced above under motorcycles would also be closed to mountain bike use.

Several trails northeast of Gunnison, such as Rasta Gulch and Chicken Scratch, would be closed to mountain bike use because these user-created trails are steep, poorly located, causing erosion problems, located in important sage-grouse habitat. In addition, the Rasta Gulch Trail trespasses on private land. User-created trails on the Big Mesa Circuit established during the Interim Travel Restriction would be closed under this alternative.

Seasonal closures for mud season and sage-grouse breeding activities would remain in place in the spring for the Hartman Rocks Recreation Area. The 191,000 acres of sage-grouse habitat around Gunnison is critical for the reproduction of this species. Mountain bike riding and other non-motorized uses would generally be allowed in this area from March 15 to May 15, but visitors would be encouraged not to use these areas before 9:00 a.m. to avoid disturbing sage-grouse during breeding activities. The exception would be the Hartman Rocks area, where lands south of the power line would remain closed to mountain bike use from March 15 to May15 as called for in the plan.

The Preferred Alternative would also carry forward for further consideration and analysis proposals to add three new trails for non-motorized use including mountain bike riding. One system of new trails would be in an area northeast of Gunnison between Gunnison and Cabin Creek. While the goal of this system of new non-motorized trails would be to provide for trail loops of varied lengths, the exact location of these trails has not been determined. If viable routes can be found to avoid impacts to

sage-grouse habitat and cultural resources, then approximately 20 to 25 miles of new trails open to mountain bikes, hikers and horseback riders could be developed.

Additionally, 1 mile of new mountain bike trail would be proposed north of Crested Butte following the old railroad grade up the Slate River Valley if sufficient funds can be gathered to design and build several bridges across the Slate River.

The third new proposed mountain bike trail would be located on the mesa west of North Beaver Creek and run from the National Park Service's Beaver Creek Picnic Area north to Sun Park. This new trail would be subject to National Park Service approval for access through National Recreation Area lands. This proposed trail would be rerouted out of the drainage to avoid impacts to sage-grouse brood-rearing habitat and around a prairie dog colony. This route would be about 4 miles in length

These trail proposals would require additional planning and field work before decisions can be made. Site-specific analysis of new trails would have to be completed, including environmental analysis, public involvement, and documentation of the decision process, before such development could be implemented.

If plans for new mountain bike trails are implemented, there would be positive benefits for mountain bike recreational opportunities with this alternative, as the miles of single-track mountain bike trail on BLM lands would more than double.

Hunting

Hunters commonly use full-sized vehicles, four-wheel-drive vehicles, and ATVs to access hunting camps and hunting areas. The Preferred Alternative would allow use on 996 miles of roads but reduce road miles on BLM land by about 611 miles (38 percent). These reductions would most likely impact hunters to some degree, particularly in the popular forested areas. Although most of the roads leading from county and state highways would remain open, some spur roads or parallel routes used to access hunt areas or dispersed camps would be closed. These proposed closures would most likely be perceived by some hunters as an inconvenience and adverse to the hunting experience because the closures would limit where they can drive to hunt and retrieve game.

Road densities on BLM lands outside of Wilderness or Wilderness Study Areas would be reduced to about 1.4 miles of road per square mile of land. Reductions in road densities would reduce habitat fragmentation and have the potential to improve big game habitat and promote healthy herds of game animals for hunters to pursue. Because excessive vehicle use during hunting season often scares game away from roaded areas, reducing route density in hunting areas may improve hunter success. For these reasons, there are some hunters who would support fewer routes and perceive less route density as beneficial to their sport.

The BLM opted to keep many roads open specifically to provide hunter access to large blocks of BLM Public land known to receive regular use by hunters. Also, spurs known to access traditional dispersed campsites used by hunters would generally remain open for public travel.

The Preferred Alternative would not authorize cross-country travel or travel off designated open roads for the purposes of game retrieval. There would most likely continue to be occasional violations of this closure. The BLM and Forest Service would continue to enforce restrictions on off-road travel and to close unauthorized, newly created routes. This would be no change from the No Action Alternative. The use of non-motorized game carts outside of Wilderness and Wilderness Study Areas and horses or pack animals would be permitted for game retrieval on federal lands within the analysis area.

Fishing

The Preferred Alternative is expected to have little effect on fishing access. There would continue to be a full spectrum of fishing access opportunities, from easy access by full-sized vehicles to hike-in locations. Recreational fishing opportunities are not expected to be adversely impacted by the Proposed Action. Closure of some roads that are prone to erosion or that are in riparian areas may have a positive effect on stream conditions and provide some benefit to fish habitat.

Camping

The Preferred Alternative would not affect access to designated campgrounds and would only impact dispersed camping in terms of fewer miles of road open to public travel. Access to dispersed camping would be allowed only on existing routes (existing as of January 1, 2010) within 300 feet of designated routes open for public travel. This would eliminate the ability of users to drive motorized vehicles off road, across undisturbed lands within 300 feet of an open road or trail, under the pretext of accessing a dispersed camping site. Designated routes were selected with emphasis on preserving access to regularly used dispersed campsites, so it is not anticipated that the reductions in miles of road would significantly diminish the overall opportunities for dispersed camping. It is anticipated that dispersed camping demands would continue to be met. A few dispersed campsites favored by some individuals may not be accessible because of the proposed road closures, but these situations are expected to be rare. The BLM will inventory existing routes leading to dispersed campsites so that there is an accurate record of existing routes. If the creation of new routes to access dispersed campsites becomes a problem in the future, the BLM may consider the feasibility of designating the routes leading to desirable campsites and requiring the public to only use those designated routes.

Hiking, Trail Running, and Horseback Riding

The existing situation would continue for these uses. Hikers, runners, and horseback riders would continue to be able to use existing roads and trails open for public travel. In addition, although we would encourage these visitors to use roads and trails whenever possible, federal lands would continue to be open for cross-country travel by these users. Some existing trails would no longer be managed and maintained as system trails, but that would not restrict travel by these users. The Preferred Alternative would not change the existing conditions for trail opportunities for foot and horse uses.

If the proposed system of new single-track trails is approved and developed northeast of Gunnison, then it would be open to foot and horse use along with mountain bike use. Given that this trail system would be accessible from Gunnison, it would provide additional opportunities for hikers, trail runners, and horse riders directly from town. Similar advantages would be true if new trails are developed in the Slate River Valley and up the ridge west of North Beaver Creek.

About 191,000 acres of sage-grouse habitat around Gunnison is critical for the reproduction of this species. Under this alternative, we would encourage non-motorized visitors to avoid using this area before 9:00 a.m. from March 15 to May 15 to avoid disturbing grouse during breeding activities. Such restrictions would inconvenience a few but are not anticipated to adversely impact these users significantly because their use of this area would be delayed in the spring rather than eliminated.

Comparison of Alternatives

Table 3-47. Comparison of Route Miles by Activity Across Alternatives for BLM Lands

	No Action Alternative 1	DEIS Proposed Action Alternative 2	Alternative 3	Alternative 4	Preferred Alternative Alternative 5
Motorized Use					
Full Sized Vehicle	1607	1029	833	1173	996
ATV	3	1	0	1	1
Motorcycle	48	46	45	54	49
Motorized Total	1658	1076	878	1228	1046
Non-Motorized Use					
Mountain Bike	22	15	10	16	14
Foot and Horse outside WSA and Wilderness	8	8	8	8	8
Foot and Horse inside WSA and Wilderness	82	82	82	82	82
Non-Motorized Total	112	105	100	106	104
Other Actions That Affect Recreation Use Across Alternatives					
Approx. route density outside wilderness & WSA in mi/mi^2	2.3	1.5	1.2	1.7	1.4
New routes proposed to be carried forward for future analysis	0	25 to 30	1	65 to 85	25 to 30

RECREATION OPPORTUNITY SPECTRUM

Affected Environment

The Recreation Opportunity Spectrum (ROS) is the land classification system that Forest Service recreation managers use to provide diverse recreation settings and opportunities. ROS provides a framework for stratifying and defining classes of outdoor recreation environments, activities, and experience opportunities. The BLM has a comparable philosophy to recreation management, yet is not guided by the same ROS classification system. ROS classes are arranged along a continuum from the less developed to the more developed. A more in-depth description of ROS classes is located in Appendix I ROS.

The GMUG provides a wide spectrum of recreation settings that range from Wilderness lands to developed ski areas. The ROS progression within non-wilderness lands can be roughly categorized into three primary forest settings: backcountry areas, general forest roaded areas, and built environments. The backcountry and general forest areas include both a motorized and a non-motorized component.

Table 3-48. Illustrates the ROS Relationship by Forest Settings

Forest Setting	Wilderness	Backcountry Areas		General Forest Roaded Areas		Built Environment
ROS setting[1]	SPNM, Primitive, Pristine	SPNM	SPM	RN-NM	RN, RM	Rural
Type of Travel	Non-mechanized	Non-motorized	Motorized	Non-motorized	Motorized	Motorized

[1] *RN–Roaded Natural, RM–Roaded Modified, RN-NM–Roaded Natural Non-motorized, SPM-Semi–Primitive Motorized, SPNM–Semi-Primitive Non-motorized.*

Summer recreation travel opportunities are closely tied to ROS settings. When compared with characteristics of the Gunnison National Forest, ROS classes semi-primitive non-motorized (SPNM), semi-primitive motorized (SPM) and roaded natural (RN) are most representative of the outdoor recreation environments associated with recreation travel outside of Wilderness. Table 3-49 illustrates the relationship between ROS setting and travel opportunities. Table 3-49 displays the distribution of the ROS settings for the Gunnison National Forest. The current ROS desired condition inventory is consistent with the GMUG Forest Plan (1991) management prescriptions.

Table 3-48. Compatibility of ROS Settings with Travel Type

ROS Setting Summer Travel:	Wilderness Primitive	SEMI-PRIMITIVE SETTINGS		ROADED NATURAL SETTINGS			Rural-Urban
		Semi-Primitive Non-Motorized	Semi-Primitive Motorized	Roaded Natural Non-Motorized*	Roaded Modified	Roaded Natural	
Non mechanized Trails	←The Norm----------→		←---------- Compatible----------→				
Mechanized Trails (mountain bike)	Not Allowed	←The Norm→	←---------- Compatible----------→				
Motorized Trails	Not Allowed	←Unsuitable→	←The Norm→	←Unsuitable→	←--Compatible---→		Inconsistent
High Clearance Vehicle Native Surfaced Recreation Roads	Not Allowed	←Unsuitable→	←The Norm→	←Unsuitable→	←---Compatible --→		Inconsistent
Passenger Vehicle Surfaced Roads	Not Allowed	←----------Unsuitable ----------→			←---The Norm---→		Compatible
Passenger Vehicle Paved Roads	Not Allowed	←----------Unsuitable ----------→			Inconsistent		←The Norm→

Table 3-49. ROS Setting on the Gunnison National Forest

Forest Setting	Recreation Opportunity Spectrum	Percent of analysis area
Wilderness 26%	P - Pristine Wilderness	11.21%
	PR - Primitive Wilderness	12.9%
	SP - Semi Primitive Wilderness	2.18%
Backcountry 33%	SPNM - Semi Primitive Non-motorized	12.05%
	SPM - Semi Primitive Motorized	21.29%
General Forest 40%	RM - Roaded Modified	0.43%
	RN - Roaded Natural	32.99%
	RN-NM - Roaded Natural Non-motorized	6.28%
Built Environment 1%	R - Rural	0.68%
	Total	**100%**

Environmental Effects

The ROS analysis was not included in the DEIS because there were no adverse effects associated with ROS and the travel alternatives; however, as a result of public comments, the ROS analysis was included for the FEIS. Specifically, the analysis evaluated the effects of OHV recreation on ROS for Alternative 5, the Preferred Alternative, and compared them to the No Action alternative (existing conditions). A full comparison of all alternatives and modes of travel by ROS class was completed; however, the findings for the other alternatives are not depicted in this document because the Forest Service and BLM have identified their Preferred Alternative.

In terms of overall recreation experience, there can be a significant difference between backcountry settings and general forest roaded settings, due in part to the level of development and in part to numbers of social encounters. OHV enthusiasts span a diverse group of users. Some prefer the challenge of remote and natural areas provided in SPM backcountry settings. Others enjoy the less challenging, more developed areas more typical of the RN settings, where they can participate in large social gatherings. Thus, the opportunities provided for OHV recreation in the SPM and the RN ROS settings are worthy of analysis. Table 3-51 and Table 3-52, examine the change in OHV opportunities within the SPM and RN classes by alternative. The results displayed in Table 3-51 and 3-52 indicate that although the overall number of miles of motorized roads and trails decreases in Alternative 5, the proportionate amount of opportunity increases in the SPM setting and decreases in the RN settings.

Table 3-50. Semi Primitive Motorized ROS by OHV Travel Category

SPM	No Action Alternative 1	Alternative 2	Alternative 3	Alternative 4	Preferred Alternative Alternative 5
ATV	64.35	65.37	31.91	83.21	64.08
Motorcycle	239.5	191.75	145.27	219.73	209.77
High Clearance	333.85	234.53	198.69	234.58	232.68
TOTAL	637.7	491.65	375.87	537.52	506.53
	30.6%	36.4%	36.8%	36.7%	37.3%

Table 3-51. Roaded Natural ROS by OHV Travel Category

RN	No Action Alternative 1	Alternative 2	Alternative 3	Alternative 4	Preferred Alternative Alternative 5
ATV	119.69	127.49	88.79	190.28	107.85
Motorcycle	87.14	66.35	44.97	92.81	79.48
High Clearance	1240.72	666.25	512.29	645.37	663.35
TOTAL	1447.55	860.09	646.05	928.46	850.68
	69.4%	63.6%	63.2%	63.3%	62.7%

Table 3-53, illustrates that the majority of change in travel routes is occurring to the high clearance (HC) routes within the roaded natural (RN) ROS class (72 percent).

Table 3-52. Where the Change in OHV Opportunity is Occurring

Alternative	Forest Setting, ROS Class, and Use Type									
	WILDERNESS	BACKCOUNTRY SETTINGS - Non Wilderness							GEN FOREST	BUILT
	P, RP, SP	SPNM-SPM							RN1	R
	HO	Foot	HO	MB	MO	ATV	Jeep	HC/SPM	HC/RN	PSG
Alt 1 - miles of travel type by ROS	430	9	306	87	348	210	0	333	1384	407
Alt 5 - miles of travel type by ROS	430	6	108	259	303	148	59	232	732	368
Difference in miles between alternatives	0	-3	-198	172	-45	-62	59	-101	-652	-39
Distribution of reduction1			See Footnote		5.01%	6.90%	N/A	15.49 %	72.53%	4.34%
Percent change by travel type/ROS	0.00%	-33.33%	-64.7%	197.7%	-12.9%	-29.52%	N/A	-30.3%	-47.11%	-9.58%

[1] *Grouping contains RN, RM, RN-NM*
[2] *HO and MB were not computed in the percentages because doing so would distort the calculation. (Many of the HO non wilderness travel routes identified in Alt 1 will allow MB use in Alt 5, thus the majority of the -198 represented in the HO change field are represented in the 172 MB change field.)*

The difference in miles of high clearance roads between No Action and the Preferred Alternative occurs as follows:

65 percent (490 miles) of the affected high clearance roads would be closed,

21 percent (158 miles) would be identified as administrative roads,

12 percent (90 miles) would be converted to motorized trail, and

2 percent (15 miles) would be converted to non-motorized trail.

The mean segment length of high clearance roads slated for decommissioning is 0.36 miles, indicating that major road systems are still intact for recreation use.

The affects of the Preferred Alternative on OHV opportunities are displayed in Table 3-54. OHV opportunities are generally considered to be more desirable when they occur on motorized trails and high-clearance or four-wheel-drive roads as opposed to paved or highly developed roads. Motorized

trails and high-clearance roads (maintenance level 2 roads) can occur in either the backcountry (SPM) or general forest roaded (RN) settings. Table 3-54 displays the available motorized recreation opportunities for each motorized forest setting in the Preferred Alternative (Alternative 5) and compares it to the existing condition (No Action).

Table 3-53. Reasonable Recreation Experiences and Approximate Miles Available by Use Type – Preferred Alternative

Forest Setting	Wilderness and Non-motorized Backcountry	Non-motorized Backcountry	Motorized Backcountry				General Forest Roaded Areas	
Trail Type Use Type	**Foot and Horse Trails**	**Mtn Bike Trail**	**Motorcycle Trail**	**ATV Trail**	**4 WD/Jeep Trail**	**HC**	**High Clearance**	**Passenger Vehicle Rd**
Foot Travel	Prime Experience Alt 5-546 mi (Alt 1-749 mi)	Reasonable Experience Alt 5-259 mi (Alt 1-87 mi)	Possible Opportunity Alt 5-303 mi (Alt 1-348 mi)	Possible Opportunity Alt 5-148 mi (Alt 1-210 mi)	Allowed but not preferable Alt 5-1385 mi (Alt 1-1791 mi)			
Horse Travel	Prime Experience Alt5-799 mi (Alt 1-827 mi)		Reasonable Experience Alt 5-303 mi (Alt 1-348 mi)	Possible Opportunity Alt 5-148 mi (Alt 1-210 mi)	Allowed but not preferable Alt 5-1385 mi (Alt 1-1791 mi)			
Mountain Bike Travel	Unavailable	Prime Experience Alt 5-259 mi (Alt 1-87 mi)	Reasonable Experience Alt 5-303 mi (Alt 1-348 mi)	Reasonable Experience Alt 5-148 mi (Alt 1-210 mi)	Possible Opportunity Alt 5-1022 mi (Alt 1-1718 mi)			Allowed but not preferable Alt 5-368 mi (Alt 1-407 mi)
Motorcycle Travel	Unavailable		Reasonable Experience Alt 5-303 mi (Alt 1-348 mi)	Reasonable Experience Alt 5-148 mi (Alt 1-210 mi)	Reasonable Experience Alt 5-285 mi (Alt 1-334 mi)		Possible Opportunity Alt 5-732 mi (Alt 1-1384 mi)	Allowed but not preferable Alt 5-368 mi (Alt 1-407 mi)
ATV Travel	Unavailable			Prime Experience Alt 5-433 mi (Alt 1-544 mi)			Reasonable Experience Alt 5-732 mi (Alt 1-1384 mi)	Allowed but not preferable Alt 5-368 mi (Alt 1-337 mi)
4 WD/Jeep Trail	Unavailable			Prime Experience Alt 5-59 mi (Alt 1-0 mi)			Reasonable Experience Alt 5-964 mi (Alt 1-1718 mi)	Allowed but not preferable Alt 5-368 mi (Alt 1-407 mi)
High Clearance Vehicle	Unavailable			Allowed but not advisable Alt 5-59 mi (Alt 1-0 mi)			Alt 5-964 mi (Alt 1-1718 mi)	Reasonable Experience Alt 5-368 mi

Forest Setting	Wilderness and Non-motorized Backcountry	Non-motorized Backcountry	Motorized Backcountry				General Forest Roaded Areas	
Trail Type Use Type	Foot and Horse Trails	Mtn Bike Trail	Motorcycle Trail	ATV Trail	4 WD/Jeep Trail	HC	High Clearance	Passenger Vehicle Rd
Travel								(Alt 1-407 mi)
Passenger Vehicle Travel	Unavailable							Prime Experience Alt 5-67 mi (Alt 1-70 mi)

CULTURAL RESOURCES

Background

The Forest Service and BLM both have entered into separate programmatic agreements (PA) with the Colorado State Historic Preservation Office (SHPO) for National Historic Preservation Act (NHPA) compliance relating to travel management. In these PA's, agreements were made for the federal agencies to conduct certain inventories of roads and trails based on agreed-upon protocols where travel management decisions have the potential to affect historic properties. Both the Forest Service and the BLM agreed to complete the necessary evaluations and site treatment plans pursuant to their particular PAs and implement the appropriate protection, mitigation, or data collection measures in consultation with the Colorado SHPO.

The GMUG Forest Plan direction and Forest Service policy require cultural resource surveys to be completed prior to deciding to carry out any project on Forest Service lands with potential to impact cultural resources in order to comply with the NHPA (1966, as amended) and its implementing regulations, 36 CFR 800; NEPA; and the Archaeological Resource Protection Act (1979).

Analytical Methods and Assumptions

Analysis of cultural and historic resources was conducted using existing site and cultural resource inventory data incorporated into computerized geographic information system (GIS) layers. Updates were made to the data, where possible; to more accurately depict the actual inventory locations as they pertain to travel routes. These data were then intersected with the existing route information in order to determine total route miles that have been inventoried and sites that were affected by those routes.

Assumptions were then made about potential future impacts to significant cultural resources. These assumptions were based on existing conditions and current use of federal lands. Future growth or expanding recreational use trends are not understood well enough to be used in predicting site/travel impacts on cultural resources, so traffic numbers and the mix of vehicle types were considered to remain constant into the future.

Certain aspects of travel management are considered to have the greatest potential to affect historic properties. These are: authorizations for new road or trail construction, reopening of previously closed roads or trails, designating an unauthorized or user-created route (i.e., constructed or developed without adequate decision making documentation) or changing the mode of travel to increase either

motorized traffic or the "footprint" of the existing route disturbance, and designating dispersed camping sites while closing formerly open areas to camping.

For the purposes of this document, the methods used to evaluate the affected environment relied on the following: existing inventories of sites listed on the National Register of Historic Places, sites eligible for listing on the register, and unevaluated sites also known as "need data" sites that have not yet been evaluated due to the need for additional research to determine eligibility. All three of these site classes are defined as historical properties under NHPA regulations. Each agency has identified the historic properties that are on or within 10 meters of the existing system road or trail. The number of known historic properties per inventoried mile of existing route has been calculated. Inventory of the remainder of the routes would most likely yield less than the current ratio of significant cultural resources per mile for two reasons: (1) a significant portion of the remaining existing routes may not be as topographically suitable for site locations, due to steep slopes or distance from permanent water sources; and, (2) it is expected that some of the "need data" sites will be ineligible for the National Register once they are fully evaluated. It is therefore not realistic to attempt to predict the numbers of undiscovered sites that may be affected by the entire road system. Instead, it is assumed that the more miles of route designated for open travel, in particular motorized travel, the greater the number of undiscovered significant sites that may be impacted. As with other resource evaluations done at the landscape level, the more miles of roads and trails, the greater the potential for impacts associated with roads and trails.

Because existing data has been gathered from past inventories for a variety of agency activities, only about 31 percent of the existing road and trail system has been inventoried in the project area. Observed impacts to site conditions or determinations of potential impact to historic properties from inventoried sites provide the basis for extrapolating potential impacts based on total road or trail miles.

Affected Environment

Significant sites for this analysis are those that are listed on, eligible for, or have never been evaluated for the National Register of Historic Places, based on the four criteria for site significance that are listed in the regulations (36 CFR 60). Site significance is based on any one of the four criteria:

Historical associations (e.g., events making a contribution to the broad pattern of history),

Biographical associations (e.g., associated with the lives of persons significant in our past),

Design, artistic, or construction characteristics for historic structures or ethnographic sites (e.g., distinctive characteristics of a type, period, or method of construction, representing the work of a master artisan),

Scientific values, especially for buried archaeological sites.

The current level of site condition or previous modification/disturbance to the site are additional characteristics that help to determine eligibility for the National Register. Sites that are not fully evaluated, usually because there is not sufficient data to determine eligibility (referred to as 'need data" sites), are treated as if they are significant sites.

Site Sensitivity

Areas that are sensitive for presence of significant prehistoric or historic sites exist in the analysis area. Qualitative predictive models suggest that the following elements are important predictors for presence of prehistoric sites in the Gunnison area:

Vegetation zones or eco-tones (pinyon-juniper, meadows, and sagebrush/grass being the most sensitive);

Gentler slopes; proximity to reliable water sources; topographic features with shelter from the environment and good views (e.g., cliffs, caves); and,

Deep soils.

Locations with most or all of these criteria can be expected to contain prehistoric sites and are widespread across federal lands.

Historical (post 1800) sites are more visible and widely distributed over the landscape. Proximity to metal-bearing ores is a critical location criterion for presence of historic mining sites. Open meadows capable of growing hay or crops are important as potential historic ranching sites, and timber stands accessible from the old wagon roads or railroads may contain past logging, tie-hacking, or sawmill sites. Almost all historic sites would have required some form of transportation route: wagon road, railroad, Jeep trail, pack trail, etc. to access it. Many of these routes are generally still in the existing travel system today, so it is to be expected that there is a high overlap between presence of historical sites and the existing travel system.

A number of historical transportation routes are historically significant themselves. These tend to be the roads, trails, or railways that were abandoned at some point in the past, so that the construction features or outlines of the historic routes are still present, such as the grades of the early railroads and certain wagon or toll roads that were not converted to truck or automobile roads later. Truck trails constructed by the Civilian Conservation Corps in the 1930s may still contain characteristic features such as stone culvert basins, which may be considered historically significant. Associated features on roads in use today, such as certain bridges or the stone palisade on the Denver and South Park railroad grade near the Alpine Tunnel, may be considered significant sites even if the route has been impacted by modern maintenance and use. Many trails in remote areas are thought to follow trails originally created by the Ute and previous aboriginal residents of the area who pioneered travel routes suitable for foot and horse traffic prior to the arrival of Euro-Americans. Cochetopa and North Pass are examples of such routes; both were used in the early 1800s by travelers going between California and Santa Fe. The nationally designated Old Spanish Trail is a nationally designated Historic Trail which crosses the area from east to west.

BLM Public Lands

The affected environment for BLM consists of a current network of roads and mountain bike routes (all travel routes) totaling about 1,680 miles, of which approximately 704 miles (about 42 percent of existing routes) have been inventoried for cultural resources. Previous inventories have identified 141 sites on these routes that are eligible for listing on the National Register of Historic Places (NRHP) or are identified as “need data.” Of these, 122 are prehistoric sites and 19 are historic.

Forest Service Lands

The affected environment for Forest Service lands consists of a network of existing motorized roads totaling about 2,125 miles, of which 724 miles (about 34 percent) have been inventoried for cultural resources. Motorized trails (ATV and motorcycle) total 557 miles, with approximately 104 miles (about 19 percent) inventoried for cultural resources.

Table 3-54. Summary of Known Cultural Resources on Forest Service Travel Routes

Type	Number
Eligible Prehistoric	11
Eligible Historic Archaeological	7
Eligible Historic Town sites, Mine camps, or Districts	6

Type	Number
Unevaluated: 10 historic, 17 prehistoric	26
Total Historic Properties on Motorized Routes	50

Of these sites, 10 are located on existing passenger vehicle type roads or highways. There are 31 located on existing high-clearance roads and two sites have an existing ATV/OHV trail through them. The remaining eight sites are on routes currently managed for administrative use only.

Environmental Effects of Alternatives

The existing transportation system includes routes that traverse a wide variety of landscapes with varying terrain and changes in elevation. Under existing conditions, the currently allowed modes of transportation as well as maintenance of the transportation routes can adversely impact significant cultural resources under certain circumstances.

Direct impacts include motorized vehicles causing rutting or down-cutting across archaeological sites, which may disturb surface and sub-surface artifacts, and fragile surface features such as hearths, tepee rings, wood foundations, or activity area floors. This may cause impacts to portions of potentially eligible cultural sites through loss of data and physical integrity. Erosion of the soil matrix that contains the archaeological record can be an indirect result of vehicle use on sites.

Continued use and maintenance of a designated road or trail that runs through a site can further degrade the site. However, roads such as county roads, state or federal highways, and engineered Forest Service and BLM roads maintained for passenger cars, when constructed, often resulted in extensive ground disturbance. Cuts and fills and ongoing grading, graveling, or paving result in a road prism that usually has disturbed any archaeological deposits or historical features that may have existed there. User-created, two-track roads, ATV trails, or even old wagon roads were not constructed with much ground disturbance. These routes can have archaeological remains within the prism or running surface of the road or trail that continue to suffer damage and degradation when vehicles create ruts or down-cutting that erodes surface soils. If these user-created routes become part of the managed and maintained system of roads or trails on federal lands, they may also damage existing cultural sites through maintenance grading, creation of roadside or lead-off drainage ditches, and installation of culverts. Therefore, an increased level of mechanized maintenance on a route, which is usually associated with an upgrade in the mode of travel designation and traffic levels, is considered to have a potential to increase impacts to sites.

Opening a closed road increases the impact potential to cultural resources, varying according to the mode of travel and volume of traffic that would be allowed. Hiker and horseback trails may also be subject to rutting and erosion depending upon traffic and the underlying soils and have the potential to damage cultural resources. Therefore, non-motorized trails, including mountain bike and horse routes, also can cause impacts to cultural resources.

Closing a route would reduce or eliminate the impacts associated with vehicle travel, but the methods for closing (e.g., decommission) a road may include actions that cause ground disturbance that could potentially impact cultural resources. These ground-disturbing actions would be addressed on a site-specific basis at a future time when the details of such decommissioning activities have been determined.

Indirect impacts from visitors, in the form of vandalism and general wear and tear to historical structures or features, can occur as travel increases on access roads or roads adjacent to historic properties. Sites that are both highly visible and easy to reach as well as attractive to the inquisitive visitor are most likely to receive more visitation as travel increases. Vandalism studies show that pot-hunting and theft of cultural items from sites increases the closer the site is to a primitive road.

Locations that are slightly remote, yet accessible by motor vehicle, are the most likely to be vandalized. GMUG site monitoring suggests that generally, removal of small artifacts, bottle hunting, and loss of attractive structural components of visible sites on existing travel routes have already occurred in the last 30 years.

Environmental Effects of No Action

BLM Public Lands

The affected environment for BLM consists of a current network of roads and mountain bike routes (all travel routes) totaling about 1,680 miles, of which approximately 704 miles (about 42 percent of existing routes) have been inventoried for cultural resources. Previous inventories have identified 141 sites on these routes that are eligible for listing on the National Register of Historic Places (NRHP) or are identified as 'need data." These sites would continue to be impacted by vehicular use and some maintenance activities.

Forest Service Lands

With the No Action Alternative, 2,125 miles of road and 557 miles of motorized trails would remain in use. Of these routes, 724 miles have been surveyed for cultural resources. Along these routes or within 10 meters of the road, there are 50 eligible and "need data" sites. These sites have the potential to continue to be impacted from vehicular use and some maintenance activities.

Environmental Effects of the DEIS Proposed Action (Alternative 2)

No new road or motorized trail construction would be authorized by the Proposed Action. There are conceptual plans to create 60 miles of new trail with a portion of those being motorized trail miles. New route construction would require site-specific environmental analysis, public involvement, and decision making prior to construction.

There would be about 3 miles of road previously closed that would be reopened to the public for motorized travel.

BLM Public Lands

Under the DEIS Proposed Action, approximately 1,035 miles of roads and trails would be managed for motorized and mountain bike travel. This is about 62 percent of the road and trail miles that would be open to motorized travel with No Action. Because of the proposed road closures, at least 26 sites that are eligible for listing on the NRHP or "need data" would potentially *not* be impacted under this alternative. There are 25 to 30 miles of new BLM routes proposed to be carried forward for future analysis. These routes would require site-specific environmental analysis, cultural resource clearances, public involvement, and decision making prior to construction. Planning routes to avoid known cultural sites would be a high priority during route design.

Forest Service Lands

Under this alternative, approximately 1,839 miles of roads and trails would remain open to the different modes of motorized travel. An estimated 32 sites eligible for listing on the NRHP or "need data" have been identified on or within 10 meters of these routes (64 percent of the total under the existing conditions). Closure of routes under this proposal would potentially prevent some 18 sites from being impacted by travel. Other as yet unidentified sites may be located on travel routes; however, there would be proportionally fewer routes and potentially fewer unidentified sites.

Environmental Effects of Alternative 3

No new road or motorized trail construction is planned under this alternative, but there could be about 36 miles of new non-motorized use trails planned for possible development in the future. Planned new routes would undergo additional site-specific environmental analysis, public involvement, and decision making before approval and implementation. There would be about 2 miles of road previously closed that would be reopened to the public for motorized travel.

BLM Public Lands

Under this alternative, the lowest number of miles of roads and motorized trails would remain open for public travel. Due to the greater number of miles of roads that would ultimately be closed to vehicular travel, it is expected that at least 36 sites eligible for listing or identified as “need data” for NRHP listing would potentially not be impacted by travel. There is 1 mile of new non-motorized trail on BLM lands proposed to be carried forward for future analysis. This route would require site-specific environmental analysis, cultural resource clearances, public involvement, and decision making prior to construction. Planning routes to avoid known cultural sites would be a high priority during route design.

Forest Service Lands

Under this alternative, the lowest number of miles of roads and motorized trails (a 37 percent reduction in currently used miles) would remain open for public travel. This alternative is expected to keep 20 sites (eligible for listing or identified as “need data”) from being impacted because travel along the routes near the sites would be closed or limited to administrative use only.

Two unevaluated sites along routes designated to remain open may receive less use and potentially reduced impacts compared to the DEIS Proposed Action. These routes are proposed to have a change in the travel mode under this alternative. One route would change from high clearance roads to hiker and horseback trails, and the other to an administrative road. Other as yet unidentified sites may be located on travel routes; however there would be proportionally fewer routes and potentially fewer unidentified sites.

Environmental Effects of Alternative 4

No new road construction would be planned or authorized under this alternative, but there are conceptual plans to create about 10 miles of new motorized trail. There are conceptual plans for 90 to 100 miles on new non-motorized trail. Site-specific environmental analysis, public involvement, cultural resource clearances, and decision making would be required before approval and construction of new motorized and non-motorized use trails.

There would be about 6 miles of road previously closed that would be reopened to the public for motorized travel.

BLM Public Lands

Under this alternative, approximately 1,225 miles (73 percent of the total miles under existing conditions) of motorized and mountain bike roads and trails would remain open. Because of road closures, at least 19 sites eligible for listing on the NRHP or identified as “need data” before determination of their eligibility for the NRHP would potentially *not* be impacted by travel. Under this alternative, there are 65 to 80 miles of new non-motorized trail on BLM lands proposed to be carried forward for future analysis. This route would require site-specific environmental analysis, cultural resource clearances, public involvement, and decision making prior to construction. Planning routes to avoid known cultural sites would be a high priority during route design.

Forest Service Lands

Under this alternative, approximately 1,977 miles of roads and trail would remain open for different modes of motorized travel. While this equates to a possible 7 percent reduction in motorized routes, it shifts motorized use more towards OHV and motorcycle use than the DEIS Proposed Action. Under this alternative, there would be about 659 miles of motorized trail (18 percent increase over existing conditions and about a 33 percent increase over the DEIS Proposed Action). Under this alternative, 15 sites would not be impacted since travel along the adjacent routes would ultimately be closed or limited to administrative use only. It is not clear whether the slight shift from full-size vehicular travel to OHV and motorcycle travel would change the effects on cultural resources or historic features.

Two sites on high-clearance roads and one site on an administrative road under the Proposed Action would experience a change in the mode of travel under this alternative. There would be a potential for increased impacts to these sites when the change in mode of travel would result in more traffic. The two high-clearance roads would change to OHV/ATV trails and the administrative road would be open to mountain bike use. It is not clear that shifts in the type of mechanized or motorized vehicles allowed on a route would result in greater impact, but it might if it resulted in significantly increased traffic Other as yet unidentified sites may be located on travel routes, however there would be proportionally fewer routes and potentially fewer unidentified sites.

Environmental Effects of the Preferred Alternative (Alternative 5)

No new road or motorized trail construction would be authorized by the Preferred Alternative. There are conceptual plans to create 40 miles of new trail with a small portion of those trail miles to be for motorized travel. New route construction would require site-specific environmental analysis, public involvement, and decision making prior to construction.

There would be about 3 miles of road previously closed that would be reopened to the public for motorized travel.

BLM Public Lands

Under the Preferred Alternative, approximately 1,060 miles of roads and trails would be managed for motorized and mountain bike travel. This is about 63 percent of the road and trail miles that would be open to motorized travel under the No Action alternative. The majority of the reduction in miles is in the full sized vehicle category. Because of proposed road closures, at least 27 sites that are eligible for listing on the NRHP or identified as “need data” for NRHP eligibility would *not* be impacted under this alternative. Under this alternative, 25 to 30 miles of new BLM routes are proposed to be carried forward for future analysis. These routes would require site-specific environmental analysis, cultural resource clearances, public involvement, and decision making prior to construction. Planning routes to avoid known cultural sites would be a high priority during route design.

Forest Service Lands

Under this alternative, approximately 1,840 miles of roads and trail would remain open for different modes of motorized travel. An estimated 33 sites eligible for listing on the NRHP or “need data” have been identified on or within 10 meters of these routes (64 percent of the total under the existing conditions). There is one additional known site that might be impacted with the change of one road from being decommissioned (No Action) to being designated as a high-clearance road in this alternative. Closure of routes under this alternative would potentially prevent some 17 sites from being impacted by travel. Other sites located along travel routes could be identified in the future.

One known historical site where a number of motorized routes converge would have one route changed from ATV trail to high-clearance use. This site, Pie Plant historical area, has known travel

management concerns and needs further study to determine if management of motorized recreation should be changed to better protect the cultural resource.

Table 3-55. Comparison of Impacts by Alternative

Alternative	Open Motorized Routes (miles)		Known Sites Potentially Impacted[1]	Known Sites No Longer Impacted[1]
	BLM	Forest Service		
No Action	1,680	2,125	191	0
Alternative 2	1,035	1,839	147	44
Alternative 3	896	1,464	135	56
Alternative 4	1,225	1,977	157	34
Preferred Alternative	1,060	1,840	147	44

[1] Known Sites applies to 1) sites eligible for listing on the NRHP and 2) sites identified as "need data" before being able to determine eligibility for the NRHP.

Possible Mitigation

Monitoring of known or inventoried sites, while not a mitigation measure, will serve to assess if adverse impacts are occurring from authorized vehicular travel. Under the PA with the SHPO, if monitored sites are subjected to apparent damage from travel, a site treatment plan would be developed applying some or all of the approved options for site protection or minimization of impacts. These include:

Rerouting of existing routes to avoid sites or features; or plating or padding over significant deposits, accompanied by maintenance plans to preserve the plating;

Rehabilitation of eroded areas to reduce excessive rutting or wash outs through water barring or scarification;

Limited or extensive data recovery of the impact areas, including recovery or recordation of surface structures, features, or artifacts, via documentation or excavation as appropriate; or,

Closure of the route.

All of these mitigation measures are proven effective in mitigating or eliminating damage to cultural resource sites. Closures can provide the most cost effective mitigation, but can require continued enforcement or erosion monitoring as well, which over the long term may, in some situations, be more expensive than rerouting or data recovery.

Cumulative Effects

Cumulative impacts regarding cultural resources are affected by erosion, compaction and theft, which are influenced by traffic volume. There is limited traffic volume information for some roads on or crossing Forest Service lands, but for the majority of high-clearance, backcountry routes, the traffic levels are unknown. There are other activities occurring on federal lands that could potentially increase the miles of road within the Gunnison Basin travel analysis area (see Cumulative Impacts Considered and Evaluated) and they would have the potential to impact cultural resources and historic features. There is no evidence that suggests closure of existing routes would directly lead to increased traffic on the remaining routes open to public travel. Since the majority of routes that would be closed to all motorized use are typically spur roads or dead-end routes, there would not necessarily be an offsetting increase on another route. Typically, such closures would result in recreational opportunities lost rather than a rerouting of traffic to an alternative through-route. There are no routes proposed to be closed that connect important destinations (e.g., getting from one community or

another). Some people contend that closure of roads and trails will displace users to other areas, thereby increasing traffic. While the concept of user displacement is valid, the extent to which this might occur is difficult to predict because it is based on social, economic, physical, and personal preferences that are unknown in the context of this analysis.

Once a road or trail exists across an archaeological deposit, it may be subject to erosion regardless of use or even if use were discontinued. Factors that increase erosion would tend to also cumulatively increase erosion on existing roads through archaeological deposits; these factors could include such natural events as fires, droughts, flash floods, or high runoff. Generally, routes used by motorized vehicles would be subject to more erosion forces than those that are not used or are closed, especially if surface rehabilitation accompanies the closing.

ROADLESS AREAS

Affected Environment

Roadless areas on Forest Service lands have been of great public and political interest since the early 1960s as laws were passed creating Wilderness. The creation of the roadless area review and evaluation (RARE) process and the resulting RARE I and RARE II inventories for the purpose of determining Wilderness eligibility in the 1970s, is a testament to this fact. With the passage of the 1980 Colorado Wilderness Bill, lands identified in the RARE II inventory that were not designated as Wilderness no longer were required to be managed for their unroaded, primitive character and could be managed for multiple use pursuant to forest plan direction. In the ensuing years, multiple-use management activities occurred within the RARE II inventoried lands, which sometimes included the development of new roads associated with those management activities.

In January 2001, the Forest Service adopted the Roadless Area Conservation Rule (RACR). This rule was intended to have the Forest Service manage those lands associated with the RARE II inventory for their roadless values, but not necessarily for their wilderness potential. The 2001 RACR has been the focus of much public and legal debate; it has been enjoined and over-ruled multiple times. Currently, the federal district court of Wyoming has enjoined the 2001 RARC nationwide for a second time (August, 12, 2008).

With all the controversy over the 2001 RARC, the Forest Service adopted the State Petitions Rule (2006), which allowed individual states to develop specific roadless area management direction. The State of Colorado petitioned the Secretary of Agriculture for rulemaking on roadless area management on November 11, 2006. As a result of Colorado filing a petition, the Forest Service and the State began the analysis of roadless areas and a public participation process to develop a Roadless Rule. The corresponding roadless inventory would define Colorado's roadless areas on NFS lands. In order to adopt the Colorado Roadless Rule, the Forest Service will complete an EIS that evaluates and documents the environmental consequences of such a rule. Currently, the DEIS for the Colorado Roadless Rule undergone public review and comment and the FEIS is now being prepared. The roadless area inventory identified within the DEIS under the preferred alternative is referred to as the 2008 Roadless Inventory.

For the purposes of this analysis of roadless area impacts, the 2008 Roadless Inventory, as identified in the Colorado Roadless Rule DEIS, is the roadless area inventory used to evaluate each of the Gunnison travel management planning alternatives. There are motorized trails within some roadless areas; however, the presence of those trails is not considered in conflict with the roadless area management objectives.

Environmental Effects of No Action

Under existing conditions, there are seven segments of primitive, high-clearance road, totaling about 2 miles, that are currently open for public motorized travel in roadless areas, as defined by the 2008 Roadless Inventory.

While these intrusions into inventoried roadless areas are not very extensive and involve very few miles of road, they are contrary to the objectives for roadless area management.

Environmental Effects of the DEIS Proposed Action

The DEIS Proposed Action would close all of the existing roads in inventoried roadless areas (2008). These closures would be consistent with the objectives of the Colorado Roadless Rule. There would be no adverse impacts to the Colorado Roadless Rule.

Environmental Effects of Alternative 3

Under this alternative, all of the existing roads in the 2008 inventoried roadless areas would be closed. These closures would be consistent with the objectives of the Colorado Roadless Rule. There would be no adverse impacts to the Colorado Roadless Rule.

Environmental Effects of Alternative 4

Under this alternative, all of the existing roads in the 2008 inventoried roadless areas would be closed. These closures would be consistent with the objectives of the Colorado Roadless Rule. There would be no adverse impacts to the Colorado Roadless Rule.

Environmental Effects of the Preferred Alternative (Alternative 5)

Under the Preferred Alternative, all of the existing roads in the 2008 inventoried roadless areas would be closed. These closures would be consistent with the objectives of the Colorado Roadless Rule. There would be no adverse impacts to the Colorado Roadless Rule.

SOCIETAL VALUES

Affected Environment — Noise and Dust

Vehicle use of unpaved roads typically results in the re-entrainment of fine textured soils (i.e., movement of dust into the air). During summer months, when much of the public travel occurs on the routes in the Gunnison Basin travel analysis area, soil conditions are often dry and vehicle use creates dust. Dust can have an impact to the environment in essentially two ways: one is related to air quality, which is addressed in a later section of this document (Air Quality and Emissions, Fugitive Dust), and the other is related to annoyance to humans. People typically find dust generated by vehicle travel to be offensive in terms of visibility and cleanliness. This adverse impact tends to be most offensive to those people who reside adjacent to unpaved roads either on private lands or in campgrounds or picnic areas. Most of the roads within the scope of this analysis are unpaved. There are no known studies that quantify the human annoyance related impacts of dust in this area.

The existing road and trail conditions result in airborne dust, and there are people that are adversely impacted by this dust. The levels of impact vary by person and depends on such factors as tolerance for dust, location, and duration of exposure. The factors that can alter the amount of dust are the road surface, road surface moisture, the amount of traffic using the route, and the speed of the vehicles using the route. None of these factors would be directly altered or changed based on the decisions to be made.

Within the analysis area, there are approximately 1,680 miles of federal, state, and county roadway with road surfaces that produce less dust because they are paved, chip sealed, or treated (e.g., sprayed with magnesium-chloride, watered) to reduce dust. Under the existing conditions, there are another 4,000 miles or more of unpaved road and trail where vehicular use causes dust when there are dry road conditions. The majority of these routes have little daily traffic or are not adjacent to locations where people reside. For these routes, the impacts of dust are minimal.

There are several routes where dust has been identified as an adverse impact. These routes tend to be where there are greater concentrations of people living or camping near or next to the unpaved roads. Some of these roads are: the Gothic road (CR 317), the road near the Forest Service boundary along Cement Creek (FR 7740), the Kebler Pass road (CR 12), the East Muddy Creek road (CR 265), Waunita Hot Springs road (CR 887), upper Taylor Park road (FR 7742), the Tincup road (FR 7765), the White Pine road (CR 888 and FR 7888), the Doyleville Cuttoff road, the Los Pinos road, the Henson Creek road, and the Alpine Loop road. It is reasonable to believe that the presence of the route, vehicle speed, road surfacing, and vehicular traffic are the causes of these dust impacts.

Many of these same roads are associated with noise concerns, but more often vehicular noise concerns are associated with motorized travel on trails located in primitive recreational settings. In the more primitive settings, hikers, horseback riders, and mountain bike riders often have expectations of quiet recreational experiences. Neither the Forest Service nor the BLM regulate noise from motorized vehicles; however, there are national and state standards for engine exhaust noise. Colorado recently passed OHV noise legislation that will go into effect July 2010 that limits motorcycles and other OHVs to 96 decibels. Random testing conducted in the past couple of seasons by various organizations and agencies has shown that the majority of OHVs are in compliance with this noise level. It is the understanding of the Forest Service that the Colorado Off-Highway Vehicle Coalition has purchased sound testing equipment that will be made available to national forests throughout Colorado to help facilitate monitoring of OHV noise. Such equipment may provide for better enforcement of noise limits, help to provide information on levels of compliance regarding noise restrictions, and help better define potential noise impacts. The Forest Service and BLM are expected to enforce noise limits to the extent possible. It is also expected that those agencies with the authority or responsibility for such enforcement, whether they are state, federal, or the vehicle manufacturer, would adhere to enforcement of the Colorado OHV noise limits.

Environmental Effects of No Action

With No Action, existing conditions will continue. There will most likely be an increase in traffic on some or all of the unpaved routes within the scope of this analysis. For the most part, any increase in traffic will have little or no adverse dust impacts on people. However, the existing routes where dust impacts have been identified will continue to cause dust impacts. Most of these identified routes are well-established county roads or transportation arteries that provide access to private lands and development as well as to federal lands. For these reasons, they will continue to experience traffic and vehicular use and may experience more dust as private lands within the area are developed for residential use.

Environmental Effects of the DEIS Proposed Action

Under the DEIS Proposed Action, there will be fewer miles of unpaved road and trail than currently exist. The DEIS Proposed Action would result in about 2,850 miles of unpaved road and trail within the analysis area within the scope of this travel management decision. There would be a 25 percent reduction in unpaved road miles, but that reduction may have little effect on the level of dust emissions that annoy humans. This is because the majority of those roads that will be closed to public travel are dead-end routes, do not access private property, or are not integral to the transportation system as an arterial route. As with the No Action alternative, the roads where dust has been

identified as an annoyance-type impact will remain open to public travel. This action does not cover decisions related to road surfacing, vehicle speed, or traffic control; therefore, it does not directly affect the factors that create dust. Relocation of roads and trails to move them further from private residences or campgrounds was not considered to be within the scope of this action.

Environmental Effects of Alternative 3

Under this alternative, the fewest miles of unpaved road and trail would remain open to public travel. This alternative would result in about 2,340 miles of unpaved road and trail remaining open to vehicles and public travel. All other consequences related to dust would be similar to the DEIS Proposed Action.

Environmental Effects of Alternative 4

Under this alternative, the miles of unpaved road and trail would be almost identical to the DEIS Proposed Action, but because of the emphasis on providing expanded recreational opportunities, there are more miles of motorized trail. There would be about 714 miles of motorized trail compared to 559 miles of motorized trail for the Preferred Alternative (Alternative 5) and 608 miles of trail under existing conditions (No Action). This difference in motorized use trail miles compared to unpaved road miles would not likely show a measurable or noticeable change in dust annoyance impacts. All other consequences related to dust would be similar to the Proposed Action.

Environmental Effects of the Preferred Alternative (Alternative 5)

Under the Preferred Alternative, there would be fewer miles of unpaved road and trail than currently exist. Implementation of the Preferred Alternative would result in about 2,780 miles of unpaved road and trail within the analysis area. There would be fewer miles of unpaved road and trail than under existing conditions and the environmental consequences related to dust would be very similar to those of Alternative 2, the original DEIS Proposed Action.

Affected Environment - Vehicle Speed

Vehicle speed for roads on federal lands is regulated by Colorado State traffic laws. Those roads under county jurisdiction crossing federal lands are regulated by the county. The Forest Service may, by forest order, post speed limits on NFS roads if necessary to provide for public safety. The Forest Service has not posted speed limits on any of their roads within the Gunnison and Paonia Ranger Districts.

The Colorado State Drivers' Manual states, "Unless posted otherwise, Colorado speed limits are as follows**:** 20 mph on narrow, winding mountain highways and blind curves, 25 mph in any business district, 30 mph in any residence district, and 40 mph on open mountain highways." County roads have varied speed limits on the roads crossing federal lands within the analysis area, and those are typically based on road design standards, road surface, residential development, and sight distance. Speed limits are generally intended to provide for safe travel.

There were public concerns expressed during scoping related to vehicle speed on some roads on NFS lands. While many people cited safety as an issue with vehicle speed, the lack of documented accidents on federal roads make it difficult for federal land managers to justify posting speed limits. It is likely that the dust and noise caused by vehicle travel speed is more at issue than identifiable safety problems. Those potential impacts are addressed in other sections of this document.

Vehicle speed on trails within the analysis areas was identified as a public concern. The speed of ATVs[13] on trails is not regulated by Colorado State law or by the federal agencies. The Forest Service and BLM do have the authority to cite ATV operators for reckless driving, but there are no standards or limits for ATV speed. The majority of ATV trails on federal lands are not conducive to high speed travel due to their rough trail surfaces, limited sight distances, and short radius turns. There is little evidence that speeding ATVs are a widespread problem within the analysis area, but agency staff observations of ATV travel on some of the smoother surfaced dirt roads indicate that speeding is a concern and a potential safety problem on some roads, particularly in the Taylor Park area. There are some trails where ATV operators may be able to attain higher vehicle speeds and may push the limits of safe travel. The Forest Service and BLM do not anticipate the need to regulate ATV speed on federal trails, but if vehicle speed results in unsafe conditions on the trails, those agencies could take actions to reduce or regulate vehicle speed for safety reasons.

Environmental Effects of No Action

The existing situations would continue to occur with respect to vehicle speed. State and county speed limits would continue to provide all of the vehicle speed regulation on the roads within the analysis area. The Forest Service and BLM would still have the ability to regulate vehicle speed on federal roads within the analysis area if deemed necessary to provide for user and public safety.

OHV speed on federal trails would continue to be unregulated under state and county laws. User discretion would continue to determine what vehicle speeds are attained on federal trails.

Environmental Effects of the DEIS Proposed Action

The conditions identified for this alternative would be the same as those for the No Action Alternative. Regulation of vehicle speed is outside the scope of this travel management planning effort because it does not address the purpose and need for determining which routes on federal lands need to remain open for public travel. Both the Forest Service and the BLM have separate authorities that can regulate and address vehicle speed issues if there is a need to regulate vehicle speed to provide for user or public safety.

Environmental Effects of Alternative 3

Conditions under this alternative would be the same as the DEIS Proposed Action.

Environmental Effects of Alternative 4

Conditions under this alternative would be the same as the DEIS Proposed Action.

Environmental Effects of Preferred Alternative (Alternative 5)

Conditions under this alternative would be the same as the DEIS Proposed Action.

Possible Mitigation

There are many methods that can be employed to regulate or reduce vehicle speed if it is deemed necessary and appropriate. Posting of speed limit signs or regulations is only one way to regulate vehicle speed. Posting speed limits for roads and trails would be an administrative action and not require additional environmental analysis because such actions would be taken to provide for user and public safety.

[13] *The reference here to ATVs applies to OHVs 50 inches or less in width and UTVs where these vehicles are traveling on trails rather than roads.*

Other more intrusive and costly methods are often more effective in remote and backcountry areas where compliance with speed limits requires more enforcement capabilities than most federal agencies can provide. These other methods may include, but are not limited to, reducing sight distances, making the road or trail surface rougher, realignment of the road or trail to create more turns with tighter turn radius, narrower roads or trails, and speed bumps. All of these actions can and may be implemented independent of this decision on travel. These types of actions would typically be site-specific and could require additional project-level design and project-specific environmental analysis and NEPA compliance. Such traffic-calming mitigation practices have been proven very effective in controlling speed, but are more costly than enforcement in the short term.

Affected Environment – Local Economy

Many of the local economies that are linked to the federal lands in the analysis area rely on the transportation system of the BLM and Forest Service. Mining, timber, and grazing industries all have close ties to the federal lands in this region. More recently, recreational use of these same federal lands has become an industry unto itself. The Outdoor Industry Foundation's "2008 Active Outdoor Recreation Economy Report" (SCORP) reports that annual economic activity generated by outdoor recreation in Colorado is likely to be $10 – $15 billion dollars based on the results of nine known economic studies related to outdoor recreation activities. These recreational activities occur on much of the federal land in Colorado and account for about 10 to 15 percent of the state's total economy. Based on a Colorado Off-Highway Vehicle Coalitions (COHVCO) report, OHV recreational expenditures (direct and indirect contributions) account for approximately $949 million of economic activity annually within the state (Economic Contribution of Off-Highway Vehicle Recreation in Colorado 2009). Using numbers from the COHVCO report and the SCORP report, motorized recreation would account for about 6 to 10 percent of the total recreation-based economic activity, which would be a little less than one percent of the state's total economy.

Another economic aspect to recreational activity is the direct and indirect expenditures made by residents and non-residents that are hunting and fishing. According to the report "Economic Impacts of Hunting, Fishing and Wildlife Watching in Colorado" (Colorado Division of Wildlife 2008) hunters and anglers spent an estimated $1.0 billion on trip expenses and equipment in addition to the license fees paid ($58 million), which comes back into the economy as indirect economic activity through salaries and operating expenditures. Hunting and fishing activities are affected by travel decisions more indirectly than OHV recreation.

According to SCORP, 85 percent of the active resident recreation users participate in some form of trail-, street-, or road-related activity. It is estimated that about 180,000 households in Colorado participate in some sort of motorized recreation (e.g., ATVs, motorcycles, snowmobiles, and 4-wheel drive vehicles) (COHVCO 2009). Summer OHV registrations (ATV and motorcycles) have increased by 145 percent over the period between 2001 and 2008 (COHVCO 2009). Camping accounts for about 50 percent of the resident recreation users and hunting accounts for about 12 percent (SCORP 2008). Colorado residents account for about 82 percent of the statewide hunting and fishing trip expenditures. Hunting activity has only increased about 6 percent between 2002 and 2007, while fishing has shown a 30 percent increase for that same period (CDOW 2008).

All of these recreational activities require a road or trail system as part of the experience. Neither the Forest Service nor BLM have data or studies that define the level of economic activity associated with recreational road/trail use, camping, or hunting for the analysis area. The COHVCO report (2009) does break down economic contributions by motorized recreation for Colorado by region. Unfortunately, the Gunnison Basin travel analysis area is partially located in two different regions, Central and South Central. According to that study, these two regions rank first and second in estimated economic contributions for the 2007–2008 season of use. This data would suggest that motorized recreation plays a big part in the overall economy of these areas. Some individuals who

commented during scoping believe motorized recreational users contribute more to the local economy than other recreational users because they are typically more affluent. The COHVCO report (2009) did not have information on average or median incomes for families who participate in OHV recreation (180,000 households), but it did report that OHV users spend, on average, from $101 to $122 per day when they recreate on their OHVs and that amount increases to $405 to $413 when the trip involves an overnight stay. It may be true that these users spend more money while recreating in the area, but the only direct link to motorized recreational activity and user spending would be related to purchasing petroleum products, lodging, and food while in the area or traveling to the area.

Hunting has traditionally been a strong recreational activity in the Gunnison Basin travel analysis area. Hunting provides a definable niche in the local communities' economies. This can be attributed to several factors, such as a high percentage of federal land open to the public, large numbers of deer and elk in the analysis area, trophy game units, and high hunter success ratios. In the CDOW report (CDOW 2008), resident hunters spend about $106 per day while hunting and non-resident hunters spend about $216 per day. Travel management decisions that would improve hunter success or enhance the hunting experience would be beneficial to the economic activity associated with this form of recreational activity.

Factors that would impact the local economic influence of road/trail use, camping, and hunting would include prohibitions of those activities, diminished quality of the experience, or shifts in the public's recreational preferences for activities. The analysis area is well known for its OHV and mountain bike recreation, with some users characterizing the Gunnison Ranger District motorized single-track trails as the "gold standard" for use opportunity, while others claim that Crested Butte is the birthplace of mountain biking. Both of these claims demonstrate how these recreational activities define the area and bring in users that contribute to the economy of the local area. Camping is also a big part of the recreational activity on federal lands, and those users also contribute to the local economy.

The traditional extraction-based business activities, such as mining, timber, and grazing, all are major contributors to the local economies. Under existing conditions, the vehicular access and road/trail system needed to support and sustain those industries on federal lands can be authorized through permit or use authorizations specific to the activity and the user. These commercial activities can utilize designated routes for travel or be allowed to travel on or off designated routes on a project-specific or site-specific basis for the purposes of conducting their business. Designating routes open for public travel has little or no affect on those commercial endeavors because those industries or users can be allowed travel on federal lands for those activities.

Environmental Effects of Alternatives

Travel management decisions would not close areas to the public, but they could alter or restrict the mode of travel the public may use to access federal lands. Closing some routes would restrict motorized and mountain bike use on those specific trails, but it would not close the area to the public. The consequences of restricting motorized use and mechanized travel in an area are that users wishing to access those areas of federal land would be required to hike or ride horses (i.e., change in the mode of travel). Some users who may not be able to physically or economically change to another mode of travel would be adversely affected and would feel some loss of opportunity. If suitable substitute areas are not available, those users unable to change their mode of travel or that are unsatisfied with other areas may cease to visit the area.

There is insufficient information to determine how many motorized and mechanized users are unable or unwilling to change their mode of travel to access areas where roads or trails may be closed. More complex than determining the number of users who may be adversely affected is to determine if those users would cease coming to the area. The Forest Service and BLM believe that the motivation to visit the analysis area to pursue recreational opportunities is multi-purpose. Attributes such as

scenery, solitude, open landscapes, conifer forests, camping facilities, historic properties, miles of motorized trail, Wilderness hiking, rough four-wheel-drive roads, and other attractions motivate the public to visit the analysis area, and they may continue to visit the area because of the other attributes even when some of the roads or trails they enjoy are closed. Factors that may have a significant influence on recreational activities and economic influences are related to the changing recreational preferences (e.g., people shifting to motorized equipment over hiking or mountain biking or the converse), overcrowding, less discretionary spending, higher travel costs associated with travel to and from the Gunnison Basin travel analysis area and changing regional and local population demographics.

It is understood that changes in the mode of travel on some roads or trails may shift the type of available recreational use. Closures of some routes to public travel would reduce the number of miles of roads or trails, but there is no indication that reduced miles of one type of travel would adversely impact the recreational experience or lower the quality of the experience. It can be assumed that if the recreational opportunity continues to exist and there would be no definable change in the quality of experience, then there would be little or no change in the levels of use and no measurable economic impact.

Overall, under existing conditions, none of the federal lands within the scope of this analysis (designated Wilderness areas are outside the scope of the travel decisions) are closed on a year-long or permanent basis. The costs associated with travel are expected to increase but are not expected to adversely impact travel to the analysis area over the next 5 to 10 years. Based on the past two summer seasons (2007, 2008) when travel costs have noticeably increased, recreational travel and motorized recreation do not seem to be adversely affected. There does not seem to be a direct effect on recreational use as it relates to cost to travel to and from the area. Over-crowding can still be a factor that would adversely affect recreational use in the analysis area. As the number of users increases, there can be specific situations or prime recreational periods when overcrowding would diminish the experience and some users would opt to go to other locations (i.e., substitution) or curtail their use. Such changes would have an adverse impact on local economies if the number of recreational users dropped below current levels, but all indications are that the number of recreational users is increasing in the analysis area, especially those participating in motorized recreation.

Environmental Effects of No Action

Economic activity associated with recreational use, motorized travel, and access for commercial or business endeavors would not change. The economic influence of public travel is expected to stay the same as current conditions. Again, other factors such as increasing travel costs, overcrowding, and changing recreational use preferences could have an effect on economic activity associated with travel on federal lands. More stringent restrictions on recreational travel in areas adjacent to the Gunnison Basin could transfer recreation use to the analysis area and increase the economic activity in the area. This would have a positive impact or economic benefit though such increased use may have a different or negative effect on the quality of recreational experiences (see Recreation).

Environmental Effects of the DEIS Proposed Action (Alternative 2)

There will be a reduction in the total miles of road and trail open to recreational users under this alternative, but there is no direct correlation to miles of road or trail open to use and the quality of the recreational experience. Under this alternative, it is believed that there will continue to be ample recreational opportunity for all forms of travel. There would be some improvements in the road and trail system that would provide for better ATV, motorcycle, and mountain bike looped trail configurations. There would be roads specifically managed to accommodate the rougher, more challenging Jeep travel desires of some motorized users. The effects of restricting public travel or route closures proposed under this alternative are expected to be un-measurable in terms of economic

activity. Recreational users are expected to continue to come to the analysis area to pursue recreational activities that have been available to them in the past and will continue to be available. Under this alternative, the mode of travel to some of the federal lands varies and in some cases may change. Some recreational users may not be able to access areas using the same type of vehicle as in the past or may have to access the areas on foot or by horseback. Changing the mode of travel on certain routes may alter the recreational use in that immediate area, but overall, the level of recreational use and associated economic activity is not expected to measurably change from existing conditions.

There is also a scenario where the restrictions on motorized travel in some areas could improve big game population numbers or create older, more desirable trophy animal populations. These travel management consequences would have the potential to improve the quality of the hunting experience. Areas known for quality hunting opportunities are often sought after by out-of-state hunters and residents alike. Whether hunters seeking better hunting conditions would generate more economic activity is not known. An increase in total hunter numbers would be dependent on increases in available animal tags for an area. Decisions on numbers of big game tags are made by the state and are not within the scope of this travel management planning.

Environmental Effects of Alternative 3

Under this alternative, the number of miles of road and trail that would no longer be open for public travel is the greatest. Some individuals would contend that if more miles of road and trail are closed to the public, there will be greater impacts to the local economy. As stated for the DEIS Proposed Action, there is no direct correlation between miles of route and recreational activity. Under this alternative, there will continue to be users that seek to travel on roads and trails for their recreational activity. All indications suggest that the number of recreational users participating in motorized and non-motorized recreational travel will increase in the future due to the growing population in Colorado and the continuing demand for more outdoor recreational opportunities.

The rationale behind many of the restrictions to public travel under this alternative were specifically focused on trying to further improve wildlife habitat and provide for larger wildlife security areas. As with the DEIS Proposed Action, such consequences of improved wildlife habitat and larger wildlife security areas may have the potential to improve hunting experiences. Whether this would create a benefit to the local economy is not known.

Effects on the local economy are not expected to be more adverse under this alternative than under the Proposed Action, and there is little indication that there would be a measurable change in the local economy as a result of travel management decisions on the federal lands in the analysis area.

Environmental Effects of Alternative 4

Although there would be fewer miles of road and trail open to public travel under this alternative than under existing conditions, the recreational opportunities for motorized travel would be expanded in terms of looped routes and more trails designated for ATV use and motorcycle use. One aspect of this alternative is a potential improvement in trail riding experiences for recreational motorized trail riding.

Even with a focus on enhancing motorized recreation in the analysis area, there is no data available that would demonstrate an increase in local economic activity related to efforts to improve the quality of recreational experiences or increase opportunities for motorized trail riding. As with all the alternatives considered, there is an expectation that recreational use in the analysis area will increase in the future due to a growing population in Colorado and the continuing demand for more outdoor recreation opportunities.

Some individuals contend that under this alternative there would be increased economic benefit because there would be increased recreational opportunities for motorized trail riding by users who are thought to spend more money on their recreational endeavors than other users. There is little evidence or data that would demonstrate such economic increases would occur.

Environmental Effects of the Preferred Alternative (Alternative 5)

The environmental effects of the Preferred Alternative are very similar to those identified for the DEIS Proposed Action (Alternative 2).

There would be a reduction in the total miles of road and trail open to recreational users under this alternative, as with all of the action alternatives, but there is no direct correlation to miles of road or trail open to use and the quality of the recreational experience. Under this alternative, specialists believe that there will continue to be ample recreational opportunity for all forms of travel. Changing the mode of travel on certain routes may alter the recreational use in that immediate area, but overall, the level of recreational use and associated economic activity is not expected to change from existing conditions.

Under the Preferred Alternative, recreational use in some areas could increase as a result of restrictions on travel and dispersed camping in adjacent areas, which could shift or increase economic activity associated with recreational use in the preferred areas.

Affected Environment – Civil Rights

The U.S. Department of Agriculture civil rights policy goals are that responsible officials when making decisions on actions to be taken by the agencies are to ensure that USDA employees and the public are treated fairly and equitably, with dignity and respect and equal treatment is provided by agency programs to all; regardless of race, sex, national origin, age, or disabilities (USDA Regulation 4300-4). Under Executive Order 12898 on Environmental Justice, federal activities, programs, and policies are not to have a disproportionately high or adverse effect on minority or low-income populations.

The Gunnison Basin travel management decision would designate those existing roads and trails on federal lands that are to remain open for public travel. As part of these designations, decisions on the mode of travel and possible seasonal restrictions would also be made. The factors considered in developing the action alternatives were identified in the Travel Analysis process (See Chapter 1) and include a long list of physical, resource, and safety considerations as well as compliance with other plans and regulations. The basis for change regarding which routes should remain open was based on natural resource management objectives. None of the factors considered in making these determinations considered or was related to the race, sex, national origin, age, or disability of the possible users. The public, regardless of income, race, sex, national origin, or age, was invited to participate in the planning process that helped to define the scope of analysis and formulate the alternatives considered in this environmental analysis. Based on the public's comments received, there were no issues raised that would suggest the travel management decisions would negatively affect protected groups or classes of people.

The proposed route designations (e.g. closed, seasonal restriction, OHV trail, non-motorized trail, etc.) apply to all people equally and do not favor or exclude any group of the public based on their race, sex, national origin, age, or disability. The lands (e.g. properties) to be effected by travel management decisions are un-developed, rural federal lands where there is essentially no resident population and all of the roads and trails addressed in this analysis are located on these un-inhabited federal lands.

There are some people, because of their personal preferences regarding how they recreate and what modes of travel they choose may be adversely impacted by travel restrictions (See Chapter 3, Recreation Opportunities) and other people that would support restrictions on certain modes of travel.

Effects on Civil Rights under all Alternatives

All alternatives would reduce the number of miles of road and trail and that would result in reduced recreational travel opportunities. Such reductions in use would not be specific or disproportionate relative to the civil rights or opportunities of any protected group (USDA Regulation 4300-004. 3.(b)) nor would there be any affect any local or regional minority or low-income communities (Environmental Justice). All travel restrictions (e.g. closures, seasonal restrictions) would apply equally to all of the public regardless of race, sex, national origin, age or disability. Under all of the alternatives, persons with disabilities that prevent them from engaging in some modes of travel (e.g. hiking, horseback riding, OHV riding) still have ample opportunity (over 4,000 miles of road) to travel in full-sized motor vehicles on federal lands for recreational purposes.

The roads and trails that are to be closed, would be closed regardless of race, age, nation of origin, sex, or disability of the potential user. All restrictions are to be applied and administered without discrimination.

AIR QUALITY AND VEHICLE EMISSIONS

Affected Environment

The analysis area for direct, indirect, and cumulative effects on air quality is the Gunnison Basin travel analysis area and an approximately 40-mile radius buffer; it includes both Class I and Class II air-sheds.

Comparative information, such as ambient air quality, atmospheric conditions, and existing air emission sources, were derived from databases maintained by the United States Environmental Protection Agency (U.S. EPA 2006a) and Colorado Department of Public Health and Environment, Air Pollution Control Commission (CAPCC 2006). Regulatory standards for air quality (e.g., criteria pollutants) were obtained from U.S. EPA (U.S. EPA 2006b) and Colorado Department of Public Health and the Environment Air Pollution Control Commission (CAPCC 2006).

The federal government and State of Colorado have established ambient air quality standards for criteria air pollutants. The criteria pollutants are carbon monoxide (CO), lead (Pb), sulfur dioxide (SO_2), particulate matter smaller than 10 microns (PM_{10}), ozone (O_3), and nitrogen dioxide (NO_2). In 1997, the U.S. EPA revised the federal primary and secondary particulate matter standards by establishing annual and 24-hour standards for particulate matter 2.5 micrometers in diameter or smaller ($PM_{2.5}$). Ambient air quality standards must not be exceeded in areas to which general public has access.

National primary standards are levels of air quality necessary, with an adequate margin of safety, to protect public health. National secondary standards are levels of air quality necessary to protect public welfare from known or anticipated adverse effects of a regulated air pollutant. The attainment status for pollutants in the project area is determined by monitoring levels of criteria pollutants (CO, Pb, SO_2, PM_{10}, O_3, and NO_2) for which National Ambient Air Quality Standards (NAAQS) and Colorado Ambient Air Quality Standards exist. Air quality in the analysis area is designated as attainment for all criteria pollutants, meaning no violations of Colorado or national air quality standards have been documented in the area.

No data is available regarding current ambient greenhouse gas concentrations in air unless they are already regulated constituents.

Table 3-56. State of Colorado and National Ambient Air Quality Standards

Source: Deer Creek Shaft and E Seam Methane Drainage Wells Project FEIS (2007)

Pollutant	Averaging Time	Air Quality Standard Concentration [(a)]	
		Colorado	National
Ozone	1 hour	235 μg/m^3 (0.12 ppm)	235 μg/m^3 (0.12 ppm)
	8 hours	--	157 μg/m^3 (0.08 ppm)
Carbon Monoxide	1 hour	40,000 μg/m^3 (35 ppm)	40,000 μg/m^3 (35 ppm)
	8 hour	10,000 μg/m^3 (9 ppm)	10,000 μg/m^3 (9 ppm)
Nitrogen Oxides	Annual Arithmetic Mean	100 μg/m^3 (0.05 ppm)	100 μg/m^3 (0.053 ppm)
Sulfur Dioxide	Annual Arithmetic Mean	10 μg/m^3 (0.004 ppm)[(c)]	79 μg/m^3 (0.03 ppm)
	24 hours	50 μg/m^3 (0.02 ppm)[(c)]	367 μg/m^3 (0.14 ppm)
	3 hours	--	1,310 μg/m^3 (0.5 ppm)[(b)]
Particulate Matter as PM_{10}	Annual Arithmetic Mean	50 μg/m^3	50 μg/m^3
	24 hours	150 μg/m^3	150 μg/m^3
Particulate Matter as $PM_{2.5}$	Annual Arithmetic Mean	--	15 μg/m^3
	24 hours	--	65 μg/m^3
Lead (Pb)	Quarterly Arithmetic Mean	--	1.5 μg/m^3

Note: μg/m^3 = micrograms per cubic meter; ppm = parts per million; PM_{10} = Particulate Matter smaller than 10 microns; $PM_{2.5}$ = Particulate Matter smaller than 2.5 microns.

Sources: Colorado Code of Regulations (CCR) 5 CCR 1001-14 and Code of Federal Regulations, 40 CFR Part 50, National Primary and Secondary Ambient Air Quality Standards

(a) Primary Standard unless otherwise noted

(b) Secondary Standard

(c) Category II increment per 5-CCR-1001-14

In the vicinity of the analysis area, the primary sources of air pollution include underground coal mines and coal mining surface operations (loading, methane drainage, well drilling), concrete mix plants, gravel pits, lime storage facilities, gas-fired electrical power generating plants, various sources associated with oil and gas production, crematoriums, landfills, gravel crushers/processing equipment, asphalt plants, smoke from grass and forest fires, fugitive dust from roadways/natural wind-blown dust, and vehicle emissions. The primary pollutants of concern associated with these existing sources are oxides of nitrogen (NO_X), carbon dioxide (CO), sulfur dioxide (SO_2), and particulate matter with an aerodynamic diameter less than 10 microns (PM_{10}) and with an aerodynamic diameter less than 2.5 microns ($PM_{2.5}$) . The combustion of fossil fuels is the primary source of NO_X, CO, and SO_2 emissions. Vehicle traffic and wind erosion contribute to PM_{10} emissions.

The analysis area is designated a Class II area, as defined by the Federal Prevention of Significant Deterioration (PSD) provision of the Clean Air Act. The PSD Class II designation allows for moderate growth or degradation of air quality within certain limits above baseline air quality. The standards for significant deterioration are more stringent for Class I areas than for Class II. Federal Mandatory Class I Areas located adjacent to the analysis area include West Elk Wilderness, La Garita Wilderness, and Black Canyon of the Gunnison National Park just west of the analysis area, Maroon Bells-Snowmass Wilderness north of the analysis area, and Weminuche Wilderness south of the analysis area. However, no management activities related to motorized travel will occur in these areas. Due to the nature of the project (i.e., public vehicle travel on designated routes), no specific permit requirements apply to gaseous emissions.

Fugitive Dust

When a vehicle travels an unpaved road, the force of the wheels on the road surface causes pulverization of surface material. Particles are lifted and dropped from the rolling wheels, and the road surface is exposed to strong air currents in turbulent shear with the surface. The turbulent wake behind the vehicle continues to act on the road surface after the vehicle has passed. Emissions associated with vehicle traffic include fugitive particulate emissions as a result of travel on unpaved roads. Fugitive dust particles are generally large enough that long-range transport of these emissions does not occur. Fugitive dust generated from road use is expected to be short-term and localized.

Vehicle Exhaust

Nitrogen oxides form when fuel burns at high temperatures, such as in motor vehicle engines. Motor vehicles are responsible for approximately 34 percent of all nitrogen oxide emissions in the United States (U.S.EPA July 2007). The EPA, through the implementation of standards for new vehicles, regulates vehicle exhaust emissions. States may also impose vehicle emissions testing programs for vehicles registered in their state. Emissions associated with vehicle traffic would include NO_X and CO emissions from vehicle tailpipes. Diesel fueled vehicles also emit sulfur oxides (SO_x).

Carbon monoxide (CO) is a product of motor vehicle exhaust, which contributes about 60 percent of all CO emissions nationwide. High concentrations of CO generally occur in areas with heavy traffic congestion such as cities (U.S. EPA,1999). Locally, the analysis area has a background concentration of 6.41 to 27.13 tons/year/square mile (U.S. EPA 1999). Nationally, CO concentrations have consistently declined over the last 30 years. Carbon monoxide emissions will not be further addressed as the declining trend is expected to continue.

Sulfur oxides will not be addressed specifically as they apply only to a small number of vehicles that will be using the public routes and will not occur in quantities that show a meaningful comparison between alternatives.

Climate Change

Climate change was a concern for this project as indicated in the public scoping process. Analysis of climate change on federal lands can be framed with two fundamental challenges: how our management decisions may influence climate change through incremental changes to global pools of greenhouse gases and how climate change may affect our management activities. Projected climate change would impact the public in the form of changes in the timing of storm events and the frequency of such events that would cause flooding, heat waves, or droughts.

It is not anticipated that climate change would have an effect on public travel at the level of analysis being conducted for Gunnison travel management planning. Public travel, as it is evaluated for this travel management decision (e.g. remain open, mode of travel, and seasonal restrictions), is expected to continue into the near future much as it does under existing conditions regardless of changes in climate. Climate change would not have a direct impact on public travel within the scope of this analysis and the decisions to be made.

Travel by motor vehicles does influence climate as a function of vehicle emissions, primarily carbon dioxide (CO_2) emissions. Increases or decreases in travel can have an effect on CO_2 emissions. Under all of the action alternatives evaluated, travel is expected to be reduced as a function of fewer miles of road open to public travel. Less travel should result in less CO_2 emissions from motor vehicles. This would be a benefit of travel management, although quite small, to changes in global pools of greenhouse gases. Vehicle emissions also contain nitrogen, principally in the form of nitrogen oxides (NO_x). Approximately 14 percent of United States NO_x emissions come from vehicle traffic (EIA, Nov 2007). Nitrogen oxides have approximately 310 times the global warming

potential of carbon dioxide equivalency. However, the percentage of NO_x emitted is very low compared to other green house gases. Even considering the greater global warming potential, vehicle emissions, NO_x emissions count for less than 1 percent of total United States global warming potential.

With the closure of roads and some trails another consequence of travel management is the potential to revegate areas used for travel. These travel footprints (e.g. roads and trails) are typically devoid of vegetation and the dust caused by travel can impact the ability of vegetation to photosynthesis. Carbon dioxide is captured by plants as part of the basic photosynthesis process. Revegetation of these closed roads and trails would have a very slight, but positive, effect on increasing vegetative cover and thereby indirectly reducing greenhouse gases such as CO_2.

The almost 1.3 million acres of federal lands within the Gunnison travel management analysis area are forested and well vegetated. The photosynthesis process that occurs on the forests and grasslands in the analysis area utilize CO_2 These lands create a sizable carbon sink and as such help to mitigate the effects of CO_2 emissions from the expected public travel and other regional sources of greenhouse gas.

The overall or net climate change effects associated with travel management decisions are very small and are not expected to be adverse.

Environmental Effects of All Alternatives

Fugitive Dust

Fugitive dust emissions from vehicles on unpaved roads are calculated from the following formula (Air Pollutant 42, Fifth Edition, Volume I, Chapter 1 Section 13.2.2 Date):

$$E= [(k\ (s/12)^a(S/30)^d)/(M/05)^c]-C$$

Where:

k (0.18 for $PM_{2.5}$), a (1 for $PM_{2.5}$), c (0.2 for $PM_{2.5}$) and d (0.5 for $PM_{2.5}$) are empirical constants

E = size-specific emission factor (lb/VMT)

VMT = vehicle miles travelled per day

s = surface material silt content (percent); 19.25 percent (assumes average 12.5 percent for aggregate surfacing (FP-03 U.S. Customary Units 2003) for passenger vehicle roads and estimated average, and 20 percent for native surface routes based on soil types then further weighted by route miles)

M = surface material moisture content (percent); 6.5 percent (varied conditions depending on precipitation, therefore, used average of EPA values)

S = mean vehicle speed (mph); 30 mph

C = emission factor for 1980s vehicle fleet exhaust, brake wear, and tire wear; 0.00036 lb/VMT for $PM_{2.5}$

Or where: k (0.18 for PM_{10}), a (1 for PM_{10}), c (0.2 for PM_{10}) and d (0.5 for PM_{10}) are empirical constants

E = size-specific emission factor (lb/VMT)

s = surface material silt content (percent); 19.25 percent (assumes average 12.5 percent for aggregate surfacing (FP-03, U.S. Customary Units. 2003) for passenger vehicle roads and

estimated average, and 20 percent for native surface routes based on soil types then further weighted by route miles)

M = surface material moisture content (percent); 6.5 percent(varied conditions depending on precipitation, therefore, used average of EPA values)

S = mean vehicle speed (mph); 30 mph

C = emission factor for 1980's vehicle fleet exhaust, brake wear, and tire wear; 0.00047lb/VMT for PM_{10}

Therefore, the expected fugitive $PM_{2.5}$ and PM_{10} emission factors, respectively, would be 0.1725 lbs/VMT and 0.0168 lbs/VMT. These emissions would occur throughout the project area. Actual vehicle miles traveled per day are assumptions only and described in the Vehicle Exhaust section. The average speed limit on unpaved motorized use routes will likely be less than the assumed 30 mph, further reducing actual dust emissions. Any dust generated by vehicles at a given location would be localized and short-term. Fugitive dust emissions would also occur from wind-blown erosion; however, because of the large expanses of forested and vegetated areas on the federal lands, wind-blown dust is considered to be negligible.

Vehicle traffic and associated emissions would increase slightly as a result of the increased future demand and use of roads for all alternatives. See Table 3-57. Summary of Air Quality Effects by Alternative.

Vehicle Exhaust

Vehicle exhaust emissions can be estimated for NOx using the equation:

$$E = \frac{\left(1.5\frac{gm}{mile}\right)\times\left(VMT\frac{miles}{day}\right)}{\left(454\frac{gm}{lb}\right)}$$

Where:

The NO_x emission factor of 1.5 gm NO_x per vehicle mile for project vehicles is taken from (Air Pollutant-42, Volume II, Table I.18)

E = NO_x emissions in lbs/day

VMT= Vehicle miles traveled / day

Vehicle miles traveled would be greatest during the 3 to 4 month long use season (primarily summer through fall); therefore, vehicle miles traveled will be estimated for use for the purposes of comparison only. Actual vehicle miles traveled will be much lower the rest of the year. Because traffic is varied by 1) types of routes, 2) mode of transportation used, and 3) miles traveled by each user of the Gunnison Basin, and because alternatives may or may not affect user demand, it is assumed solely for the purpose of comparison of the alternatives that vehicle miles traveled will use the following assumptions to calculate a very rudimentary estimate:

All miles of motorized (motorcycles through passenger vehicle) routes as proposed in alternatives are traveled each day, and

A typical day of activity involves 1 round trip (i.e., two passes) by 10 vehicles over the entire motorized route network.

2 x (10 vehicles) x (# miles of routes by alternative) = VMT/day.

Calculation of the emissions using an EPA methodology and a NO_x emission factor of 1.5 gm NO_x per vehicle mile results in an estimated 2.0 lbs. of NO_x produced per day, or about 0.001 tons per day. These emissions would be distributed over the project area. These emissions estimates represent the highest expected road use days and are not considered substantial enough to warrant concern. Actual vehicle miles traveled per day are likely to be less than those estimated here.

Exhaust emissions from vehicles would be short term and localized. These emissions are not regulated other than by methods previously described above.

Vehicle traffic and associated emissions would increase slightly as a result of the increased future demand and use on the transportation system under any of the alternatives. None of the alternatives are expected to cause or contribute to violations of state or federal air quality standards or to result in adverse effects on ambient air quality within the analysis area.

It is acknowledged that use of 4-stroke engines would further reduce emissions from the continued use of 2-stroke engines; however, there has been no evidence in the area that emissions are so problematic that this should be required or that emission standards should be revised.

Table 3-57. Summary of Air Quality Effects by Alternative

	No Action Alternative 1	DEIS Proposed Action Alternative 2	Alternative 3	Alternative 4	Preferred Alternative Alternative 5
Expected Fugitive Dust Emission Factors (lbs/ VMT)*					
Particulate Matter ($PM_{2.5}$)	0.1725 lbs/VMT	0.1725 lbs/VMT	0.1725 lbs/VMT	0.1725 lbs/VMT	0.1725 lbs/VMT
Particulate Matter (PM_{10})	0.0168lbs/VMT	0.0168lbs/VMT	0.0168lbs/VMT	0.0168lbs/VMT	0.0168lbs/VMT
Vehicle Miles Traveled Per Day *	86,780	58,660	47,060	62,260	57,720
Nitrogen Oxides (NO_X) emissions (lbs/day)	286.7	193.8	155.48	205.7	190.7
Summary Fugitive Dust	Slight increases in traffic on existing roads may occur as trends in recreation use change over the years, yielding slight increases in fugitive dust emissions. 7.5 tons of $PM_{2.5}$ and 0.7 tons of PM_{10} emissions/day are estimated to occur on designated unpaved motorized routes. These emissions are not considered significant.	Slight increases in traffic on existing roads may occur as trends in recreation use change over the years, yielding slight increases in fugitive dust emissions. 5.1 tons of $PM_{2.5}$ and 0.5 tons of PM_{10} emissions/day were estimated to occur on designated unpaved motorized routes. These emissions are not considered significant.	Slight increases in traffic on existing roads may occur as trends in recreation use change over the years, yielding slight increases in fugitive dust emissions. 4.1 tons of $PM_{2.5}$ and 0.4 tons of PM_{10} emissions/day are estimated to occur on the designated unpaved motorized routes. These emissions are not considered significant.	Slight increases in traffic on existing roads may occur as trends in recreation use change over the years, yielding slight increases in fugitive dust emissions. 5.4 tons of $PM_{2.5}$ and 0.5 tons of PM_{10} emissions/day are estimated to occur on designated unpaved motorized routes. These emissions are not considered significant.	Slight increases in traffic on existing roads may occur as trends in recreation use change over the years, yielding slight increases in fugitive dust emissions. 5.0 tons of $PM_{2.5}$ and0.5 tons of PM_{10} emissions/day are estimated to occur on designated unpaved motorized routes. These emissions are not considered significant.
Summary Exhaust	Slight increases in traffic on existing roads may occur as trends in recreation use change over the years, yielding slight increases in vehicle exhaust emissions. 0.14 tons of NO_x	Slight increases in traffic on existing roads may occur as trends in recreation use change over the years, yielding slight increases in vehicle exhaust emissions Due to 1,406 fewer	Slight increases in traffic on existing roads may occur as trends in recreation use change over the years, yielding slight increases in vehicle exhaust emissions Due to 1,986 fewer	Slight increases in traffic on existing roads may occur as trends in recreation use change over the years, yielding slight increases in vehicle exhaust emissions. Due to the 1,226 fewer	Slight increases in traffic on existing roads may occur as trends in recreation use change over the years, yielding slight increases in vehicle exhaust emissions. Due to the 1,453 fewer miles of motorized routes proposed in this alternative than in the

	No Action Alternative 1	DEIS Proposed Action Alternative 2	Alternative 3	Alternative 4	Preferred Alternative Alternative 5
Expected Fugitive Dust Emission Factors (lbs/ VMT)*					
	emissions/day are estimated to occur using the assumptions above.	miles of motorized routes proposed in this alternative than the No Action alternative, 0.10 tons of NOx emissions/day are estimated to occur from vehicle traffic on motorized routes. Emissions would be slightly less than those estimated for No Action alternative and the same as that for Alternative 4.	miles of motorized routes proposed in this alternative than in the No Action alternative, 0.08 tons of NO_x emissions per day are estimated to occur from vehicle traffic on motorized routes. Emissions would be slightly less than those estimated for all other alternatives.	miles of motorized routes proposed in this alternative than in the No Action alternative, 0.10 tons of NO_x emissions per day are estimated to occur from vehicle traffic on motorized routes. Emissions would be slightly less than those estimated for the No Action alternative.	No Action Alternative, 0.10 tons of NO_x emissions per day were estimated to occur from vehicle traffic on motorized routes. Emissions would be slightly less than those estimated for No Action Alternative and the same as that for Alternative 4.

** VMT is vehicle miles travelled, and assumes standard size pick-up truck for the purposes of comparison. Actual vehicle may vary from motorcycle to heavy duty vehicle. Numbers have been refined since DEIS to account for database clean-up. Cumulative Effects*

Vehicle traffic and associated emissions in the analysis area would increase slightly as the demand for recreation or other uses in the Gunnison Basin increases under any of the alternatives. However, these increases are not considered significant. These increases are not expected to cause or contribute to violations of state or federal air quality standards, and would not likely result in adverse effects on ambient air quality within the analysis area.

While any of the alternatives for this analysis will incrementally contribute to climate change whenever traffic levels increase, the extent of the change is directly attributable to the proposed action or the alternatives. These changes are not discernable between alternatives or even on a national scale due to the limited size of the analysis area and the unknown vehicle miles traveled by the general public. There would be no climate change effects from fugitive dust.

Possible Mitigation

Watering of roads to control fugitive dust would be a successful mitigation measure to reduce impacts to local air quality. Based on information in Air Pollutant-42 (date), it is expected that approximately 70 percent control efficiency (reduction) would be achieved through watering of roads. As a mitigation measure, this is cost-prohibitive relative to the benefit it would bring and is unlikely to occur due to lack of funding and equipment. Additionally, of available water becomes an issue if water is to be taken from streams and reservoirs where most of that water is already appropriated for other beneficial uses by the State of Colorado.

The use of magnesium chloride as a binding agent for road surfacing would be a successful mitigation measure to reduce impacts to local air quality. This is cost-prohibitive relative to the benefit it would bring and is unlikely to occur due to funding and equipment shortfalls within the BLM and Forest Service. This technique is occasionally used under county road maintenance agreements and other contracted uses. Additionally, this mitigation, although it has beneficial results on air quality, may have negative effects on vegetation <10 meters from road treated and may alter water chemistry by slightly increasing magnesium chloride levels in streams below application sites, even when application buffers are applied (Goodrich 2008).

Slower speeds also reduce fugitive dust potential. Enforcing speed limits is a very effective control. All members of the public, the Forest Service, and other authorized users are expected to adhere to safe driving practices including obeying speed limits. Enforcement of speed limits is subject to the availability of law enforcement personnel.

TRANSPORTATION SYSTEM

Affected Environment — General Transportation System

The baseline for this analysis considered system (i.e., roads and trails actively managed and maintained), non-system, user-created, and otherwise identified routes that were included in the 2001 road and trail inventory and on the “green to yellow” travel map. One purpose of that inventory of routes was to stop route proliferation. The 2001 Interim Travel Restrictions included non-constructed and user-created routes regardless of whether they were needed for resource management or located in environmentally sound locations. The 2001 inventory of transportation routes does not necessarily represent a manageable or desirable transportation network for the Gunnison Basin travel analysis area. There were approximately 150 miles of Forest Service routes identified on the “green to yellow” map that were found not to exist after being further analyzed (i.e., ground-truthing) in the travel analysis process. These were, therefore, not considered in alternatives brought forward (including the No Action Alternative). In addition, subsequent NEPA project specific decisions have resulted in changes to some inventoried routes. BLM has conducted comprehensive data and field investigations

since 2001 to better record all known routes and has clarified which routes were considered existing routes for the No Action Alternative.

For the purposes of defining the No Action Alternative, the "green to yellow" map was further revised to remove routes that did not exist on the ground, did not have public access easements or rights-of-way, or had been closed by other agency plans or decisions. Based on past and present concerns as well as agency rules and policies regarding cross-country travel by motorized vehicles on federal lands, it has been determined that there is no need for change of the current prohibition for cross-country or off-route travel. For NFS lands, 36 CFR 212.50 (a) further specifies the national management direction adopted in 2005 to "…[Provide] for a system of National Forest System roads, National Forest System trails, and areas on National Forest System lands that are designated for motor vehicle use. After all roads, trails, and areas are designated, motor vehicle use type and time of year will become part of route designation, unless these designations are prohibited by 36 CFR 261.13. Motor vehicle use off designated roads and trails and outside designated areas is prohibited by 36 CFR 261.13" on NFS lands and by 43 CFR 8341.1 on BLM Public lands.

The routes designated for public travel are generally considered open to the public and are managed and maintained by either the Forest Service or the BLM. Routes on federal lands are managed in the following manner: open to the public; restricted public use; closed to the public; decommissioned; or, converted to other uses. Routes with restricted public use can involve seasonal closures or use restrictions and they can be administratively authorized routes for a single purpose (i.e., access to a private residence, irrigation ditch, etc. or resource management activity such as timber sale, range developments). Occasionally, administratively authorized roads are open to the public for other purposes (usually as trails). Where this situation applies, it is considered a public route in the effects analysis. Routes that have public rights-of-way such as federal or state highways or county roads (approximately 1,850 miles) are considered existing base routes that will not change under any alternative of this travel analysis. Administrative, county, state, and private routes within the analysis area are considered in the cumulative effects analysis areas for many of the resource areas within this document. Some administrative roads are open to the public as trails and their environmental impacts are evaluated based on trail use. Other administrative roads are closed to the public as a condition of a Forest Service or BLM use permit and there is limited or no decision spaced afforded the agencies regarding public use of those roads.

Travel is generally categorized and managed based on the mode of travel. The Forest Service and BLM characterize land travel by the following hierarchy of travel modes:

Hiker,

Horseback,

Mountain bike (i.e., mechanized),

Single-track motorized (i.e., motorcycle),

OHV (i.e., all-terrain vehicle) less than or equal to 50 inches wide,

OHV greater than 50 inches in width (i.e., UTV, Jeep),

Full-sized motorized vehicles (i.e., four-wheel-drive pickups or SUVs) , and

Two wheel-drive passenger vehicles

Typically, the management of these modes of travel also reflects an inherent travel distance or design feature for each mode of travel that can be expected to be traversed in a day. These travel mode categories help the agencies develop transportation systems that provide for the safety of the user and meet overall transportation objectives. These travel modes relate to the type of travel routes available, specifically:

Hiking trails,

Hiker/Horse trails,

Mountain bike trails (hikers and horseback riders allowed),

Motorcycle trails (mountain bike, hikers, and horseback riders allowed),

ATV/OHV trails (motorcycles, mountain bikes, hikers, and horseback riders allowed)

Jeep trails (OHVs 50 inches or more in width, ATV/OHVs 50 inches in width or less, motorcycles, mountain bikes, hikers, and horseback riders allowed),

High-clearance road /full-size vehicle route, (all modes of travel allowed), and

Roads designed for passenger vehicles (some passenger roads may allow unlicensed motor vehicles).

It was determined that a desirable transportation network:

Meets a continued demand for rough, high-clearance roads (NFSR maintenance level 2);

Preserves Jeep trails;

Provides OHV day travel looped trail opportunities with approximate lengths between 50 and 80 miles;

Provides motorcycle day travel looped trail opportunities with approximate lengths between 50 and 80 miles; and,

Provides mountain bike day travel looped trail opportunities with approximate lengths between 5 and 25 miles.

While travel for recreation and tourism has, in general, been increasing since the 1940s, recent (past 5 years) Forest Service traffic counter numbers do not suggest a noticeable change in vehicle travel as measured on passenger vehicle roads. But, over the past 10 years traffic counts show about an 18% increase in use for the roads where the Forest Service has long-term traffic data. Passenger vehicle roads typically provide access to other high clearance roads and trails that provide much of the recreation for the analysis area. Route restrictions (seasonal closures) may be warranted as a mitigation measure to protect natural and cultural resources and road structure or to ensure compliance with existing laws or regulations. Restrictions have been imposed by special orders as project mitigation and through “terms of use” in permits issued to protect resources. Under existing conditions, there are some individual route/area restrictions or limitations that exist for the following items within the analysis area:

Motorized use limited to designated routes,

Dispersed camping,

Firewood cutting or rock gathering (see terms of permit),

Seasonal/timing limitations (for wildlife needs or mud/snow),

Wilderness and special areas

When a route is no longer needed and is to be closed to public travel, the actual closure procedures for the route are considered as part of the implementation process. Levels of treatment for route closures fall into two broad categories.

1) No additional disturbance outside of the existing footprint:

Leave as is, do nothing on the ground (i.e., allow to naturally revegetate)

Block entrance (i.e., install signs or barricades)

Revegetate road prism (i.e., rip and seed)

Drainage controls on road prism (i.e., water bars, out sloping)

2) Disturbance outside of previously disturbed footprint:

Drainage structures removed (i.e., removal of bridges, large culverts, cross-drain culverts)

Re-establishment of natural drainage patterns (i.e., re-establishing channels)

Re-contouring (i.e., large cut and fill operations)

Physical closure may include a combination of any of the above examples. The type of closure activity (level of treatment) recommended for the facility will dictate the level of future NEPA decision documents applicable, if any. Closure of routes will be determined on a case-by-case basis and NEPA compliance will be conducted based on the expected level of disturbance, area of disturbance, and anticipated adverse impacts. Route-specific NEPA analysis considers legal, policy, and regulatory requirements that must be incorporated into project design to avoid or minimize effects to the environment. The Forest Service and BLM would determine the specific level of treatment based on agency staff recommendations. Even if a NEPA decision document is not required, closures will be carried out in accordance with agency specifications, designs, and standards.

Safety

The GMUG completed a Roads Analysis Report in July 2005. One objective of that report (FS-643) was to document information on NFS roads with regards to safety, public transportation needs, management objectives, ecological effects, and funding. The scope of the report only addressed NFS roads that are managed for passenger car or all-season use (maintenance level 3 to 5), not high-clearance (level 2) roads. While the Roads Analysis addresses public demands for transportation, it also incorporates an analysis of transportation and infrastructure issues and strategies to better manage road maintenance funding on the GMUG National Forests. The Roads Analysis Report makes no decisions, but did find that all of the existing level 3 to 5 roads were needed to provide for an adequate transportation system on the GMUG. It provides an outline of management opportunities to: 1) better manage roads from a maintenance funding perspective and 2) address environmental impacts caused by roads and road maintenance. This FEIS further analyzes the environmental and social impacts as identified in the Roads Analysis Report to make determinations on which roads (maintenance level 2 and level 3 to 5) are, in fact, needed in the analysis area.

Motorized mixed-use analysis was considered for all maintenance levels of public roads managed by the Forest Service and BLM as a method to determine appropriateness of OHV operation on these roads. Additionally, high-clearance routes were considered as were special circumstances where motorized mixed-use would occur on administrative roads that were open to the public for something other than full-size vehicle use. A management challenge exists with regard to county roads under operation agreements (Schedule A), as the jurisdiction and decision for OHV operation would fall under their purview. Counties within the analysis area treat OHV use differently on these roads (either allowing it or not, some have licensing requirements, etc.), so OHV users need to check local regulations to accurately determine the existing conditions.

A safety concern exists for motorized mixed use where children (especially those who are unsupervised) are allowed to operate non-licensed vehicles on higher standard passenger vehicle roads. This issue is outside the scope of this document because State law is applicable to motor vehicle operations, and the Forest Service and BLM may need to work with the Boards of Commissioners from the different counties involved to re-evaluate motorized mixed-use in the future.

An additional public safety concern was expressed in terms of funding maintenance of open routes. Generally, before there is a public safety issue occurring due to lack of maintenance activities, there are resource damage issues that are addressed through cyclical maintenance activities. This particular concern will not specifically be addressed in this document as a safety concern.

Route Integrity

There are times, under existing conditions, where travel on roads and trails, due to muddy conditions, causes rutting, down-cutting, or rough travel surfaces to persist. Sometimes these rough travel surfaces make travel for some modes of travel difficult and even impassible.

Rough travel surfaces on trails are typically leveled out or smoothed out as a result of continued use and travel. Rarely do the agencies mechanically grade trails, but when trails receive maintenance it can include filling down-cut trails, armoring trail segments to prevent erosion and further down cutting or re-alignment to provide a more stable and smoother travel surface.

Another aspect of route integrity involves situations where narrow trails designated or traditionally used by hikers, horseback riders, mountain bikes and/or motorcycles (i.e., single-track trails) are used by ATV/OHVs that have a wider track. Such use causes the trail to become wider and have a different travel surface. These changes can adversely affect the route integrity of a single-track trail and make its use less desirable for those single-track users. This is also true when single-track trails that have been traditionally non-motorized trails get used by motorcycles. Although the motorcycles do not necessarily widen the trail, they can change the recreational experience (see Recreational Opportunity) or cause more rapid or severe erosion.

Road maintenance does include mechanical grading to level or re-contour the travel surface after it has become rutted or down cut. The miles of road grading under existing conditions is very limited (see Maintenance section below).

Sustainability, Maintenance and Funding

Affected Environment

The 2005 Travel Rule calls for a designated system of roads and trails for motor vehicle use that will enhance public enjoyment of the National Forests while maintaining other important values and uses on those federal lands. As part of the travel analysis process, one key factor considered was development of a sustainable transportation system on federal lands that accounted for recreational experiences, environmental concerns, and operational issues. To define the designated system of roads and trails to be open for public use and meet the objectives of multiple use management on federal lands, a sustainable transportation system must include roads and trails for a full range of uses including but not limited to recreation, resource management, and commercial and private access. Sustainability of a transportation system is a balance of environmental effects and land use needs versus fiscal considerations.

Minimum Transportation System

When developing a sustainable transportation system, Forest Service officials are also required to identify what would be a minimum road system needed for safe and efficient travel and for administration, utilization, and protection of NFS lands (36 CFR 212.5(b)). This minimum road system should meet resource and other management objectives adopted in the National Forest land management plan (36 CFR 212.5(b)). Based on this direction, a minimum road system or designated transportation system needs to effectively address: 1) societal needs and recreational expectations, 2) access for resource management, or 3) the unpredictable and ever-increasing costs of maintenance of an existing transportation system including heavy equipment, personnel, fuel costs, and enforcement.

Such a minimum system is not necessarily a least cost maintenance option, instead, the Forest Service is directed to meet land and resource management plan goals/objectives while considering long-term funding expectations and cost-effective maintenance. Whether the transportation network will be adaptable to meet future demands to ensure health of forests, continue multiple-use management activities, and provide desirable recreation opportunities is an additional consideration.

Maintenance

Current approximated maintenance costs for a non-improved ("dirt"), lower standard passenger vehicle roads (i.e., Forest Service maintenance level 3) are approximately $700/mile for maintenance, $25,000/mile for reconstruction, and $50,000 per mile for new construction. These values will be greater for higher standard passenger vehicle gravel roads (i.e., Forest Service maintenance level 4 or 5) and lower for high-clearance roads where only minimal maintenance is needed for things like drainage features. Approximately 280 miles of lower standard passenger vehicle roads are able to be maintained (includes reconstruction) with current funding levels while most higher-standard passenger vehicle roads are maintained at regular intervals. Other non-appropriated funding is available for maintaining approximately 538 miles of higher standard passenger vehicle roads in the project area.

The BLM also has a limited ability to manage and maintain routes. Of approximately 1,634 miles of routes on BLM land under the current vehicle designations, the BLM gets enough money to maintain about 20 miles of roads and 20 miles of trails each year. Labor contributed by volunteers has extended abilities to maintain some trails and added another 20 miles of trail maintenance to yearly totals. Under a Schedule A agreement with Gunnison County, the county maintains about 72 miles of BLM roads using money from the Federal Highway Works Administration. That adds up to maintenance for about 25 percent of BLM trails each year and only 5 percent of BLM roads. A road may only receive maintenance once every 20 years, and that may be adequate to sustain the road. No additional funding for road or trail maintenance is anticipated for the near future. There is a possibility that increased collaboration with volunteer groups could extend the BLM's ability to maintain more miles of trails. Currently, there is no volunteer effort focused on maintaining roads on public land. The need for route maintenance decreases when routes are well designed and constructed.

Approximate earthwork costs for decommissioning roads is dependent upon level of decommissioning but ranges on average from $500/mile (natural obliteration) to $5000/mile (obliteration with re-contouring).

Enforcement/Signing

Public availability of maps, information and education coupled with signing or other physical barriers on the ground have been somewhat effective in preventing undesired entry on unauthorized routes or proliferation of cross-country routes. Enforcement of travel rules, through law enforcement actions, is effective in preventing reoccurrence of violations when those violators are caught. The Forest Service has one dedicated full-time law enforcement officer for each of its districts in the Gunnison Basin travel analysis area. The BLM has only intermittent law enforcement service in the analysis area because they rely on personnel from the Montrose Area Office to cover law enforcement duties in the Gunnison area.

The most overlooked, but most effective enforcement and educational tools are the self-policing of organized user groups, especially those willing to form partnerships with the agencies. Recently, the State of Colorado gave authority to Colorado Division of Wildlife officers to issue travel management violation citations on federal lands. This should be helpful because the majority of infractions are known to occur during hunting season.

Access

Public access across adjacent private lands is an issue outside the scope of consideration for this travel analysis unless there is a legal mechanism in place such as easements or rights-of-way. If a legal access instrument (e.g., easement, right-of-way) is in place, those routes have been considered public routes in this document. Those routes that enter public lands through private land without existing legal mechanisms for the public to use them are not considered part of the public transportation system because access may be denied by the owner at any time. However, historic use and existing unrestricted access across private lands may provide public access to routes on federal lands. In those situations, the routes on federal lands that connect to the private land segments are generally included in the designations for open travel routes, and those portions of the route on federal lands are considered part of the federal system.

Likewise, if the sole purpose of a route through public land is for access to private lands, reasonable administrative access should be granted per 16 U.S.C. §§ 3101-3233. Such access would need to be authorized by a Forest Service special use permit or a BLM right-of-way if the route is not part of the public transportation system. A Forest Service or BLM authorization would also be needed for any property owner who would need to maintain and/or improve an access route through public land and who would make more frequent use of the route beyond what is defined as casual use. Additionally, private property ownership should not afford or result in exclusive access to public land. This analysis does not negate or infringe on any valid existing rights. The Forest Service and BLM regulation of any occupancy occurring under valid rights may be adjusted to a level consistent with the full protection and recognition of R.S. 2477, consistent with current applicable law and direction. Amendment or modification of the proposed travel designations or restrictions may be required as other rights are validated.

Environmental Effects on the Transportation System Common to All Alternatives

Statewide, the number of wheeled-vehicle users, hikers, and horseback riders is continuing to grow (COHVCO 2009 and SCORP 2008). With increasing use, problems identified by federal land managers and the public in 2000 continue to occur on public lands. New routes continue to be created by users, some existing routes continue to cause resource damage, some routes have adverse impacts on wildlife and wildlife habitat, and others result in conflicts among users. On the other hand, there are routes that provide high quality travel opportunities with limited or negligible adverse impacts associated with their use.

There will continue to be a demand for quality experiences by all travelers regardless of the mode of travel. All alternatives address to varying degrees quality of experience. Very few new routes were identified; therefore, the challenge in developing alternatives was to create higher quality transportation networks that meet user demand by changing the mode of travel on routes. Varying length looped trails were considered for ATVs/OHVs, motorcycles, and mountain bikes to try to meet user desires. All user groups desire exclusivity of use; unfortunately, this is inconsistent with the hierarchy of uses where routes are open to all modes of travel below the specified use. For example, an ATV/OHV trail is open to use by motorcycles, mountain bikes, horses, and hikers. Some of these users may feel like their experience has been compromised; however, other opportunities exist in all alternatives at varying degrees of convenience.

All alternatives provide opportunity and at the same time represent a compromise between user groups. The three action alternatives, despite having fewer miles of routes, are more likely to lead to more satisfied users as routes are better networked and fewer are random or lead to dead-ends.. The networked system will also lead to more definitive interpretations of traffic data as patterns of use emerge. Further, the Forest Service and BLM will be able to determine the rate at which uses are

increasing and use that information to manage maintenance needs and facilitate future travel management activities.

Desire for more hiker/horse trails adjacent to residential areas and maintaining “quiet zones” was not necessarily the purpose of this travel management planning, but if there were opportunities to accommodate such use and better management of motorized travel would result, such changes were incorporated into the action alternatives. Contrary to the general belief that only motorized and mechanized travel creates new routes, there is also some proliferation of hiker/horse trails in the analysis area, many of which are unmanaged routes. Although these routes are not illegal routes, they are not system routes, and therefore are not reflected in the mileage comparisons. In some cases, these trails are difficult to distinguish from game trails or livestock trails, and therefore, would not be counted in a travel management system.

Trail designation varied by alternative: uses shifted between motorcycle trails, mountain bike trails and hiker/horse trails depending on the action alternative. In general, alternatives with more motorized routes had fewer non-motorized routes and vice versa.

Specific restrictions on routes may change slightly by alternative. Some restrictions provide greater protection for natural resources and some restrictions meet desired management objectives; these changes do not noticeably affect the overall network of connecting routes.

It is assumed for the purposes of this analysis that if a route is closed and decommissioned, it has been done to the appropriate standard to properly stabilize and recover the area. Site-specific decommissioning of routes that require additional ground-disturbing activities and identification of protective measures are not being addressed in this programmatic assessment document; therefore, there is no effect on this process other than identification of routes to be closed and potential additional NEPA analysis that may be required to complete decommissioning.

Comparison of Route Miles by Design Classes for Alternatives

A summary of routes that address recreation opportunity can be found in the recreation section. This section summarizes routes based upon their engineering and design.

Table 3-58. Summary of Route Miles by Design Class for Alternatives

Type of Route	Motorized Routes										Non-Motorized Routes (outside Wilderness)						Unmanaged Non-motorized		Wilderness Trails (Horse/ Hiking) (No decision being made on these routes)		Closed Routes		Converted Class of Use From Road to Trail in Alternative	
	Passenger, Highway-legal Vehicle Road *		Full-size/ High-clearance Road (4-wheel drive)		Jeep (OHV >50") Trail		ATV (OHV 50") Trail		Motorcycle Trail		Mountain Bike Trail		Horse Trail		Hiking Trail		Unmanaged Hiking/ Horse/ Livestock & Game Trails							
No Action Alternative 1 (miles)	563		3168		0		212		396		147		313		9		156		510		454		0	
	FS 407	BLM 156	FS 1718	BLM 1450	FS 0	BLM 0	FS 209	BLM 3	FS 348	BLM 48	FS 87	BLM 22	FS 306	BLM 7	FS 9	BLM 0	156	unk	FS 438	BLM 72	FS 454	BLM 0	FS 0	BLM 0
DEIS Proposed Action Alternative 2 (miles)	520		1872		49		174		318		179		252		9		252		510		1689			
	FS 370	BLM 150	FS 976	BLM 896	FS 49	BLM 0	FS 174	BLM 0	FS 270	BLM 48	FS 142	BLM 41	FS 245	BLM 7	FS 9	BLM 0	252	unk	FS 438	BLM 72	FS 1129	BLM 560	FS 106	BLM
Alternative 3 (miles)	510		1474		37		100		232		178		312		6		254		510		2141			
	FS 363	BLM 147	FS 776	BLM 698	FS 37	BLM 0	FS 100	BLM 0	FS 188	BLM 44	FS 166	BLM 7	FS 305	BLM 7	FS 6	BLM 0	254	unk	FS 438	BLM 72	FS 1343	BLM 798	FS 76	BLM
Alternative 4. (miles)	508		1891		64		260		390		308		173		9		248		510		1515			
	FS 361	BLM 147	FS 957	BLM 934	FS 64	BLM 0	FS 260	BLM 0	FS 335	BLM 55	FS 223	BLM 89	FS 166	BLM 7	FS 9	BLM 0	248	unk	FS 438	BLM 72	FS 1049	BLM 466	FS 106	BLM
Alternative 5 Preferred (miles)	516		1818		59		149		351		279		124		6		252		510		1757			
	FS 369	BLM 147	FS 969	BLM 849	FS 59	BLM 0	FS 148	BLM 1	FS 302	BLM 49	FS 260	BLM 14	FS 112	BLM 12	FS 6	BLM 0	252	unk	FS 438	BLM 72	FS 1146	BLM 611	FS 112	BLM
Routes Common to All Alternatives (miles)	508		1474		0		44		208		52		119		6		156		510		399			
	FS 361	BLM 147	FS 776	BLM 698	FS 0	BLM 0	FS 44	BLM 0	FS 164	BLM 44	FS 95	BLM 7	FS 112	BLM 7	FS 6	BLM 0	FS 156	unk	FS 438	72	FS 399	BLM 0		

*** (No design or construction; not part of system)*
Updating of the transportation data sets has changed some route miles between this column and other transportation categories from the DEIS.

Safety

In general, the higher the maintenance level, such as paved or improved roads that lend themselves to travel at higher speeds, the greater the likelihood and severity of accidents between different types of vehicles. Therefore, OHV use is generally only recommended on non-paved public roads or trails with lower traffic levels and slower speeds.

Due to restrictions or safety mitigations in place on some of the higher standard routes, and due to the lower traffic levels and speeds on high-clearance routes, the likelihood of mixed-use accidents occurring for all alternatives is low.

Safety was also a concern on single purpose routes (e.g., administratively approved road for coal mine activities, ditch operations, etc.) that were open to the public as trails. As minimal data exists, it is assumed that single purpose concerns would be consistent with the motorized mixed-use scenarios for all alternatives where the higher the speed, the greater the likelihood and severity of accidents.

Motorized mixed-use safety mitigations (i.e., share the road signing) as prescribed by engineers began to be implemented on the Gunnison National Forest in 2009.

Table 3-59. Motorized Mixed-Use Summary of Types of Routes

Type of Route Where Motorized, Mixed-use May Occur	Accident History	Applicable Driver, Traffic, and Roadway Factors	Risk Determination
Administrative (generally non-public routes) routes (FS Level 1)	Reported accident histories on administrative routes involving motor vehicle vs. OHV were not found in law enforcement databases	Varying speeds, low traffic volume, generally not open to the public for full-sized access, varying road surfacing	There will be minimal risk to public safety as these routes are generally not open to the public. However, where public used is allowed, effects will be similar to those below depending on design of the route.
Full-size/high-clearance (FS Level 2 or full-size trail)	Reported accident histories on full-size trails or high-clearance roads involving motor vehicle vs. OHV were not found in law enforcement databases	Very low speed, low traffic volumes, rough/native road surface	There will continue to be a minimal risk to public safety by retaining the designation full-size/high-clearance roads for motorized mixed use in the analysis area, unless otherwise specifically noted. The potential for a serious motor vehicle vs. OHV accident on any full-size/high-clearance road is low due to numerous factors including, but not limited to: very low differential speeds between full-sized motor vehicles and OHVs, severe vertical and horizontal curves limiting operating speeds, and rough roadway surfacing that tends to keep operating speeds very low, coupled with very low average daily traffic (ADTs) in general, and predominantly low-speed, high-clearance vehicle travel on these routes. Unless specifically noted otherwise, motorized mixed use is recommended on full-size/high-clearance roads in the analysis area.
Lower standard passenger vehicle road (FS Level 3)	Reported accident histories on lower standard passenger vehicle roads involving motor vehicle vs. OHV were not found in law	Low to moderate speeds, moderate traffic volumes, generally gravel	There will continue to be a limited risk to public safety by retaining the designation lower standard passenger vehicle road for motorized mixed use in the analysis area unless otherwise specifically noted. The potential for serious motor vehicle vs. OHV accidents on any lower

Type of Route Where Motorized, Mixed-use May Occur	Accident History	Applicable Driver, Traffic, and Roadway Factors	Risk Determination
	enforcement databases.	but occasionally smooth native surfacing	standard passenger vehicle roads is reduced due to numerous factors including, but not limited to: lower differential speeds between motor vehicle and OHVs, little reported history of accidents on lower standard passenger vehicle roads, gravel roadway surfacing that tends to keep operating speeds lower, coupled with lower ADTs in general, and predominantly low-speed travel on these routes. Therefore, unless specifically noted otherwise, motorized mixed use is recommended on lower standard passenger vehicle roads in the analysis area.
Moderate standard passenger vehicle road (FS Level 4)	Reported accident histories on moderate standard passenger vehicle roads involving motor vehicle vs. OHV were very limited in law enforcement databases.	Moderate to high speeds, high traffic volumes, smooth gravel surface	There will continue to be an elevated risk to public safety by retaining the designation of all moderate standard passenger vehicle roads for motorized mixed use on a forest-wide basis, unless otherwise specifically noted. Further, professional engineers advise that the potential for a serious motor vehicle vs. OHV accident on any moderate standard passenger vehicle road is increased due to numerous factors including, but not limited to: higher differential speeds between motor vehicles and OHVs, vertical and horizontal curves that promote higher operating speeds, smoother gravel roadway surfaces that lend themselves to higher operating speeds, coupled with higher ADTs in general, and predominantly higher speed travel on these arterial routes. Therefore; unless specifically noted otherwise, motorized mixed use is NOT recommended on moderate standard passenger vehicle roads in the analysis area.
Higher standard passenger vehicle road (FS Level 5)	Reported accident histories on higher standard passenger vehicle roads involving motor vehicle vs. OHV were very limited in law enforcement databases.	High speeds, high traffic volumes, smooth paved or gravel surface	There will continue to be an elevated risk to public safety by retaining the designation of all higher standard passenger vehicle roads for motorized mixed use on a forest-wide basis, unless otherwise specifically noted. Further, professional engineers advise that the potential for serious motor vehicle vs. OHV accidents on any higher standard passenger vehicle roads is extreme due to numerous factors including, but not limited to: high differential speeds between motor vehicles and OHVs, vertical and horizontal curves that promote higher operating speeds, smooth, gravel or paved roadway surfaces that lend themselves to high operating speeds, coupled with very high ADTs in general, and predominantly high speed travel on these arterial routes. Therefore; unless specifically noted otherwise, motorized mixed use is NOT recommended on higher standard passenger vehicle roads in the analysis area.

Route Integrity

In all alternatives, route integrity will be a concern as routes within the travel hierarchy will see multiple types of use. Hiker-only trails (6 to 9 miles) are the only exception and have designated exclusive-use trails due to safety concerns. Travel analysis done for the Proposed Action and Alternatives 3 and 4 addressed this to the extent that where natural resource or recreation concerns exist, the possibility of a change in mode of transportation was considered. It is expected that some users will continue to travel on routes not designated for such use (e.g., an ATV traveling on a single-track trail). Such unauthorized use has the greatest potential to adversely impact route integrity and the Forest Service and BLM will continue to take steps to prevent unauthorized use through education, barriers, and/or enforcement.

Fiscal Sustainability, Maintenance, and Funding

A reasonable transportation system that will meet land management planning objectives would be fiscally unsustainable through appropriated funding to the Forest Service and BLM alone. Past experience has shown that only about 280 miles of roads in the Gunnison Basin travel analysis area (about 6 percent) are able to be fully maintained in any given year based on past funding and expected long-term federal funding levels. Fortunately, not every route requires maintenance every year. Other than higher standard passenger vehicle roads, which may be maintained multiple times per year, the average maintenance interval is cyclical (interval somewhere between 5 and 20 years).

Appropriated funding will not keep up with the cost of needed maintenance of any system of travel routes envisioned that minimally meets resource management or visitor use needs. Appropriated funding includes “overhead” such as salaries, project administration and other items. An additional 538 miles of roads are maintained through agreements with counties and other permitted users.

Occasionally, the opportunity presents itself for grant funding, user-group funding, or volunteered hours for construction or maintenance of particular trail routes. However, this is not a consistent source of funding or labor from year to year. These opportunities have been and will continue to be most applicable to individual trails or trail systems and are generally spearheaded by organized groups.

Although often overlooked, fiscal costs are also incurred through the closing of routes, especially if additional NEPA or cultural resource evaluation work, signing, enforcement, or earthwork is needed. Appropriated funding will also not adequately cover decommissioning when many routes or miles of road or trails are proposed for closure. This lack of funding is sometimes overcome by outside funding or agreements with conservation or wildlife groups that will work with the agencies to close routes to restore wildlife habitats.

Despite the issues with funding, it is still entirely feasible to define a transportation system that is physically sustainable. This system of roads and trails would be maintained so that all routes remain open for the designated mode of travel, with no immediate safety or resource damage problems that cannot be mitigated or repaired. Such a system would be considered a sustainable transportation system by the Forest Service.

Minimum Transportation System

All of the action alternatives evaluated, but in particular the Preferred Alternative, set forth a transportation system of roads and trails for motorized use by the public that would meet the land use management objectives for the federal lands within the Gunnison Basin travel analysis area. The transportation systems identified for each of the action alternatives would be physically sustainable.

The Forest Service believes the Preferred Alternative is the minimum transportation system for the Gunnison Basin travel analysis area because it balances the public’s needs and desires for access and

recreation opportunities (societal demands) with the multiple-use resource management activities mandated by other laws and the Forest Plan. The transportation system to be designated as open for public travel has been developed on a route-by-route basis with extensive public involvement, scientific analysis of potential resource impacts (i.e. best available science) and consideration for resource management objectives on the federal lands.

Table 3-60. Assumptions for Calculating Maintenance and Decommissioning Costs Used in Table 3-61

Types of Routes	Assumptions for Calculating Maintenance Costs
1. All miles of roads	For simplicity of calculating, this assumes all miles of road were maintained annually (not on various cyclical schedules–see this section's text) at the minimum cost. Maintenance of existing roads costs at a minimum $700/mile (this estimate does not include any reconstruction or construction costs, which are significantly higher and if considered would exponentially increase this cost). In reality, current funding, as disclosed, maintains approximately 280 miles of FS and BLM roads (FS ~250 miles, BLM ~ 30miles) in the project area with appropriated funds (FS ~$700,000 and BLM ~$24,000) and another 538 miles of FS and BLM roads (FS ~466 miles, BLM ~ 72miles) with other sources of funding and equipment such as maintenance agreements with counties, proponent funding through road use permits, private funding, etc. The amount of funding and equipment available for maintenance is not expected to increase enough to cover maintenance of all roads. Additionally, not all roads are maintained every year and some higher level roads receive maintenance more than one time per year. On average, a lower-standard passenger vehicle road will receive maintenance once every 7 years and higher standard roads will receive maintenance much more often, often at a higher cost per mile. Administratively authorized routes are not considered in this cost analysis as they are deemed part of the base routes that would generally not change by alternative.
2. All miles of trail	For simplicity of calculating, this assumes all miles of motorized/non-motorized trail were maintained at a minimum cost. Maintenance of existing trails costs at a minimum $100/mile. (This estimate does not include any reconstruction or construction costs, which are significantly higher and if considered would exponentially increase this cost).
3. Closure/ Decommissioning	BLM route mileages were derived through subtraction of total miles from existing condition. Decommissioning of routes (roads and trails are not distinguished in this analysis) generally costs an average of $2750/mile. Average length of a decommissioned route is 1 ½ miles. Of the 1 ½ miles, approximately ¼ of a mile will receive a higher level of decommissioning (up to $5000/mile) and the remainder may receive a lower amount of decommissioning (up to $500/mile) or none. Therefore, the following formula is applied to estimate costs: ((total miles/1.5 miles)(0.75)($500/mile)) + ((total miles/1. 5 miles)(0.25)($5000/mile))=(total cost/miles)(1.07 inflation factor*.

**Actual costs from the GMUG NF in 2009 show these costs approximately 7 percent higher than estimated above (average $1165/mile).*

Table 3-61. Comparison of Maintenance at Desired Level and Decommissioning Costs by Alternative

Activity		Agency	No Action Alternative1	DEIS Proposed Action Alternative 2)	Alternative 3	Alternative. 4	Preferred Alternative Alternative 5
		Miles and Estimated Annual Cost					
Maintaining all roads 1 (Assumes maintenance of existing roads is the same–a minimal cost of $700/mile).		FS & BLM	(3731 miles) $2,639,700	(2392 miles) $1,674,400	(1984 miles) $1,388,800	(2399 miles) $1,679,300	(2334 miles) $1,633,800
Maintaining All Trails 2 (Assumes maintenance of all motorized and non-motorized trails were maintained at a minimum cost of $100/mile).		FS & BLM	(1047 miles) $144,700	(981 miles) $98,100	(865 miles) $86,500	(1204 miles) $120,400	(961 miles) $96,100
Decommissioning Routes 3 (This is a one-time-only cost. Work will be performed over a 3-year period; therefore, total cost/3=annual cost)		FS & BLM	(454 miles) $526,261 total $175,421 annual	(1689 miles) $1,957,832 total $652,611 annual	(2141 miles) $2,481,776 total $827,258 annual	(1515 miles) $1,756,138 total $585,379 annual	(1757 miles) $2,036,611 $678,870
Total annual cost using assumptions given for purposes of comparison	Annual for 3 years	FS & BLM	$2,959,821	$2,425,111	$2,302,558	$2,385,079	$2,408,770
	After routes closed		2,784,400	$1,772,500	$1,475,300	$1,799,700	$1,729,900
Ten year cost of system for purposes of comparison only		FS & BLM	$28.4 million	$19.7 million	$17.2 million	$19.8 million	$19.3 million

[1,2,3] *For simplicity of calculating these costs, several assumptions were made. Please refer to the assumptions table on the previous page.*

From a sustainability perspective, all of the alternatives are hard to distinguish from one another in the short term. In the long term, after decommissioned routes are rehabilitated, there will be more benefit to those alternatives that would sustain fewer route miles. Alternatives that have higher miles of road and trail may require more funding for maintenance activities; alternatives with fewer routes would require more money to decommission routes. As there is limited funding and an ever-increasing backlog of under-funded or unfunded maintenance projects on existing routes, this financial benefit would likely never be realized. However, alternatives that anticipate and try to balance recreation and resource needs (Preferred Alternative and DEIS Proposed Action) would result in a more sustainable transportation network regardless of the continued fiscal deficit situation. Conversely, Alternative 4 may offer a unique opportunity to develop partnerships with user-groups as the travel enhancements identified for this alternative may offer a more satisfying recreational experience.

Enforcement/Signing

Both the Forest Service and BLM would continue to take steps to stop the proliferation of unauthorized routes through education, signing, barriers, and/or law enforcement. The effectiveness of such actions in controlling user-created routes is varied and depends on the location and societal attitudes towards compliance with vehicle travel restrictions.

No changes to methods of travel management enforcement are expected with the selection of any of the alternatives. Additional signing for any of the alternatives considered will be required to make on-the-ground designations compatible with approved travel management direction and decisions. The estimated 3-year cost for signing to implement travel management decision for all of the alternatives is approximately $60,000.

Access

Access to or from private lands is outside the public transportation system network for analysis purposes; there are no direct or indirect effects of any of the alternatives for the public system being considered.

Access to private properties across federal lands would either be open to the public or allowed by permit or use authorization afforded to the property owner.

Access for commercial activities on federal lands (e.g., timber sales, energy development, mining, etc.) would be provided under site- or project-specific authorizations and those roads permitted for the approved activities could become system roads designated open to the public, administrative roads to be used solely by the applicant, or temporary roads to be closed and decommissioned when the authorized use ends. Future project-specific decisions may include designating new roads for public use or administrative use roads and would require additional environmental analysis, public review, and documentation.

Cumulative Effects

The cumulative effects area for the transportation system is described as the analysis area plus all the routes connecting it to the surrounding public and private routes. Although this cannot be spatially bound to an exact distance outside of the analysis area, generally this transportation network should edge-match with other national forests or BLM field offices and other public routes (state, county, etc) so that incompatible modes of travel do not occur in the middle of a route simply by crossing jurisdictional boundaries. The historic uses of the existing transportation system include livestock grazing, mining, natural gas extraction, timber harvest, fire, maintenance of irrigation ditches, tourism, and recreation (including hunting). Additional transportation networks in the area include those items in Table 3-63.

Table 3-62. Other Travel Networks in Analysis Area (Cumulative Effects)

Type of Route (total miles)	Private, County, State, US HWY, Crested Butte Mtn Resort	Closed		Administrative Routes	Trails in Wilderness
No Action Alternative 1	1850	FS	454	240 (49 open to various public uses)	510
		BLM	0		
DEIS Proposed Action Alternative 2	1850	FS	1129	332 (28 open to various public uses)	510
		BLM	560		
Alternative 3	1850	FS	1343	391 (22 open to various public uses)	510
		BLM	798		
Alternative 4	1850	FS	1049	306 (34 open to various public uses)	510
		BLM	466		
Preferred Alternative Alternative 5	1850	FS	1146	343 (32 open to various public uses)	510
		BLM	611		
Routes Common to All Alternatives	1850	FS	399 (Common to Alt 2,3,4 & 5 = 1050)	185 (3 open to common public uses)	510
		BLM	unknown		

Regardless of which alternative is selected, the cumulative effects to the transportation system will be the same. As user numbers continue to increase, there will be a continued increase in demand for routes to meet specific user needs. Additional maintenance needs will continue to be realized and the appropriated funding maintenance backlog deficit will continue to grow. User demand and use patterns will also direct future travel management decisions.

EVALUATION OF CUMULATIVE IMPACTS AT THE LANDSCAPE LEVEL

There are actions and/or activities that can and often do occur within the Gunnison Basin travel analysis area that result in the same type or similar environmental consequences as designating routes open for public travel (i.e., Gunnison Basin travel planning). The actions or activities should be considered cumulatively at the same or comparable scale as travel management planning. Therefore, the evaluation of cumulative impacts will include those anticipated or possible impacts resulting from actions or activities occurring in the near future at the larger landscape level. These actions or activities include:

Timber harvesting,

Fuels reduction and management,

Livestock grazing,

Energy exploration and development,

Travel Management,

Mining, and

Residential and/or commercial development.

Timber Harvesting

The Forest Service, BLM, and private landowners harvest timber to provide raw wood product (e.g., logs, poles, etc.) for commercial processing. There are well-studied environmental consequences resulting from harvesting activities that both the Forest Service and BLM have experienced. This experience covers almost 10 decades of practice and study. Soil erosion and soil compaction are impacts associated with timber harvest that increase sedimentation, can impact water quality, and present concerns associated with vehicle travel and use of roads and trails. Timber harvesting can require the construction of new roads or increased travel on existing roads. Therefore, the anticipated or expected extent of timber harvesting in the analysis area can add to or cumulatively create greater impacts than those related solely to travel decisions.

It is expected that timber harvesting activities would continue and those impacts, along with the anticipated impacts related to road and trail use, would cumulatively impact public lands. For the past 5 years, the Forest Service has harvested timber on 4,067 acres of the Gunnison and Paonia Ranger Districts, which equates to about 814 acres per year. To accomplish the harvesting of trees on 4,067 acres of forest land, the agency had to build 15.1 miles of new road. Existing roads are often upgraded to facilitate timber removal. The miles of upgraded road are not considered new road construction for the purposes of this impact evaluation. Based on Forest Service timber harvesting plans, it can be expected that the Forest Service would harvest timber on about 7,200 acres and anticipate the need to construct about 13.3 miles of new road over the next 5 years.

For many years, the majority of new roads engineered and constructed on Forest Service lands were built to facilitate timber harvesting or to more easily manage timbered areas for future harvesting. This scenario is no longer commonplace on the GMUG National Forests, and for a variety of economic, societal, and environmental concerns, timber harvesting projects typically utilize existing roads for timber management and harvest rather than develop new roads. This trend is expected to continue into the future with an expectation of not more than 2.5 miles of developed new road per year for timber management. This is a relatively minor increase to the total transportation system network of roads on public lands.

Fuels Reduction and Management

The objective of fuels management for public lands within the travel management analysis areas is to develop fuel and vegetative restoration programs to reduce fire hazard and risk to public and firefighter safety, private property, and public infrastructure (e.g., powerlines, campgrounds, transmission towers, and roads). Fuel modifications (e.g., thinning and altering fuel loads with prescribed fire or manual or mechanical clearing of vegetation) are implemented to improve defensible space and create dispersed patterns of vegetative growth to modify wildfire behavior and reduce the rate of progress of wildfires on public lands.

The Forest Service and BLM, along with local governmental partners, perform fuel modifications in various areas where favorable opportunities exist or that are deemed at risk throughout the analysis area. Typically, these fuel modifications or vegetation treatments result in some level of land disturbance. These fuels management projects do not typically require new road construction and are often accomplished using existing roads and trails. The loss of vegetation or soil disturbance is the

principle cause for environmental impact. When fuel modifications involve mechanical chopping or thinning, there is some level of soil disturbance and compaction associated with the vehicles used to accomplish the treatment that can increase runoff and erosion. Burning of vegetation, removal of surface vegetation, or thinning of the tree canopy can increase runoff that can be erosive in those areas where the treatments occur. There are also particulate emissions associated with burning. A key objective of these fuel treatments is to actively manage the process of fuel modification in a preventative fashion to help reduce the potentially severe impacts associated with wildfire. The impacts associated with fuels management are best characterized as short-term impacts deemed less adverse than the greater or long-term impacts associated with catastrophic wildfire events.

Increased runoff and erosion that can occur from fuels treatment are similar impacts to those associated with roads and trails and their use. When fuels treatments occur in areas where the road and/or trail densities are high or the transportation facilities are located in fragile environments or on erodible soils, both of these activities or uses can result in adverse impacts and cumulatively are greater or more intense than their effects as individual actions.

Roads and trails are often used as breaks or boundaries for fuels treatment areas, especially if the treatments are done by prescribed fire or use of wildland fire for resource benefit. In such situations, the roads and trails are integral to the fuels treatment and provide benefit to the environment—new fire lines or firebreaks do not need to be constructed and the cumulative effects of roads and fuels treatment are limited.

Over a 2-year period (2006 to 2007), about 7,000 acres of fuels treatments were reported as accomplished on Forest Service lands and about 2,860 acres on BLM Public lands in the analysis area. On the Forest Service lands, 80 percent of the acres treated were done so by burning; only about 25 percent were accomplished by burning on the BLM Public lands. Although fuels treatment activities can cause erosion, reduce vegetative cover, and disturb soils, the majority of these activities (65 percent on all federal lands in the analysis area) where accomplished by burning, which results in very minor impacts related to erosion or soil disturbance. Both the BLM and Forest Service expect to continue fuels treatment projects in the future. The amount of acreage involved in those projects will vary annually, but it is unlikely that the next 10-year average will vary significantly from the past 2-year average because of budgets and work force constraints.

At the anticipated levels of activity for fuels treatment in the future, assuming that the majority of those treatments will be accomplished by burning, the cumulative effects of fuels treatments and public travel on a system of designated roads and trails are expected to be minor. Because the DEIS Proposed Action and the three other action alternatives would all decrease the miles of roads compared to existing conditions, the cumulative effects of the travel management decisions and fuels management activities would not be expected to be greater than existing conditions and may actually be diminished. There are no identified areas or locations where resource damage has increased or can be attributed to the cumulative effects of fuels treatment and public travel under existing conditions.

Livestock Grazing

The Forest Service, BLM, and private property owners engage in livestock grazing within the travel analysis area. Livestock grazing is widespread throughout the analysis area and has been a common practice and economic mainstay of the communities in the area for more than 100 years. Livestock grazing is expected to continue at levels similar to those that presently exist. On NFS lands within the analysis area, there are grazing permits for 21,550 cattle, 110 horses, and 19, 500 sheep. There is no indication that livestock grazing will substantially decline or increase in the next 5 years.

The environmental consequences of livestock grazing that have similar or common impacts to roads, trails, and vehicle travel are cropping of vegetation, soil compaction, soil erosion, invasive species dispersion, and damage to wetlands and riparian areas. Like roads, trails ,and vehicular travel,

livestock grazing impacts are less severe or adverse when properly managed. The location of the grazing activity, the duration, and the number of livestock all are components of grazing management that, if managed properly, can reduce or minimize adverse environmental effects. Grazing on public lands is actively managed. Based on agency range evaluations, overall range conditions are considered to be in good condition. At the landscape level, this indicates that the adverse effects of grazing are minimized.

Livestock grazing may create small pockets where animals concentrate, where the adverse impacts of livestock grazing will occur. These isolated areas of soil damage, excessive defoliation of vegetation, invasion of weeds, or disruption of wetland or riparian habitat will continue to occur under a few grazing systems. Roads and trails located in these same areas do result in greater impacts due to the cumulative effects of both activities.

Active livestock grazing management works to disperse animal concentrations, manage for stocking rates that do not over utilize vegetation, and provide for recovery of grazing impacts to ensure healthy range, wetland, and riparian areas. When prescribed livestock grazing management practices are implemented, these techniques are effective in reducing adverse effects. Road and trail locations in sensitive areas such as wetland and riparian areas or on highly erodible soils have a greater potential to create adverse impacts. Avoidance of these areas for travel would also reduce adverse effects.

Cumulatively, livestock grazing and the presence of roads and trails in some areas can cause adverse environmental consequences, but management of these activities and avoidance of the more sensitive or less suitable areas greatly reduces the adverse impacts by either of these activities. Moreover, range managers contend that active livestock management would nullify the adverse impacts of livestock grazing. Over time, both the Forest Service and BLM have improved livestock grazing management on public lands and the proposed action to manage public travel through a sustainable transportation system of roads and trails would further reduce adverse impacts associated with roads and trails and their use. Based on these proactive practices, the existing conditions would not be expected to deteriorate in terms of cumulative effects and would most likely see improvement in range conditions and a reduction in adverse environmental impacts for these two activities on public lands.

Livestock grazing on private lands will continue to occur, and the management of that grazing activity is not within the jurisdiction of either the BLM or the Forest Service. Therefore, it is not within the scope of the agencies to attempt to control or minimize impacts associated with private land grazing. Private landowners manage livestock use on their lands, but the management objectives for those lands are often more driven by economic factors than resource management objectives.

Energy Exploration and Development

Energy exploration and development is expected to account for the greatest increases in new roads and localized increases in travel. These activities most likely create the greatest cumulative impact to the transportation system on federal lands, as they have the need and the economic strength to construct new roads. Energy exploration has accounted for the greatest amount of new road construction within the analysis area. Most of these new roads are developed for single-purpose use, are not open to the public, and are classified as administrative roads. The construction and maintenance of these energy-related administrative roads is controlled by the Forest Service and BLM as part of the permitting and project approval process. These new roads are generally located away from environmentally sensitive areas, engineered to incorporate stable and adequate drainage, constructed using best management practices (BMPs) for construction and maintenance. All of the energy-related road development in the travel analysis area has occurred in the Paonia Ranger District.

With approximately 53,408 acres of public land leased for oil and gas exploration without road-building restrictions within the Paonia Ranger District, it can be expected that more energy-related

road construction will occur in the future; however, no proposals have been received. In the past 5 years, the Forest Service has authorized approximately 5 miles of administrative road construction for oil and gas exploration and development (approximately 1 mile of road per year and 1 well drilled per year). This slowly increasing trend is expected to continue into the future. Previous to this, there was a 20 year gap in development of oil and gas wells and associated access roads. These roads are generally considered long-term due to the lifespan of oil and gas wells. Most of the oil and gas development roads are of a higher standard of construction and maintenance than the roads open to the public on Forest Service and BLM lands because of the requirements to travel these roads with heavy equipment and service trucks. Often these roads are heavily traveled during exploration and development, but once a well goes into production the travel to the well locations typically declines. As energy resources are depleted or become uneconomical to produce and the well is shut-in or abandoned, the access roads to these facilities are generally decommissioned and restored.

Also in the past 5 years, the Forest Service has authorized approximately 50 miles of administrative road construction for coal exploration and surface facilities related to underground mining.; However, some of these miles have already been decommissioned and approximately 20 miles have not yet been constructed but are anticipated in the next 10 years. Road construction for coal mining is generally considered short-term, as the access roads are needed only for 2 to 3 years for surface drainage of methane gas associated with individual coal mining panels. Coal is not made available for leasing like oil and gas, but it is located in known deposit areas identified by BLM. Some of the coal mining area is also covered by oil and gas leases.

Existing administrative roads were included in the environmental effects analysis of existing conditions and the alternatives.

Travel Management

As a result of the 2005 Travel Rule, all National Forests are to designate a system of roads and trails to be open and managed for motorized travel (See Chapter 1, Why Replace the Current Travel Management Direction) by 2010 (See Chapter 1, Purpose and Need for Action). All National Forests are to depict those designations on motor vehicle use maps (MVUMs) that are to be provided at no charge to the public. The basis for these route designations on other National Forest can come from prior land use decisions such as the Forest Plan, previous travel restrictions, or new decisions that restrict motorized travel to designated routes rather than allow open travel (off-route or cross-country travel). Gunnison travel management is slightly different in that the 2001 Interim Travel Restrictions closed the Gunnison National Forest to cross-country motorized travel (open travel) and restricted motorized travel to existing roads and trails, but the Interim Restrictions called for further evaluation to determine which existing routes should remain open for public travel which is the basis (i.e. need) for this new decision.

Development and publication of MVUMs on adjacent and other regional National Forests has occurred in the past 4 years or will occur in time for the 2010 summer recreation season. Compliance with the 2005 Travel Rule and the publication of the MVUMs has resulted in better accounting and public information on which routes are designated system routes open for public travel. The impacts resulting from compliance with the 2005 Travel Rule and publication of the MVUMs has been to restrict all motorized travel to designated routes. Such restrictions, in some cases, has resulted in little change from conditions prior to the adoption of the 2005 Travel Rule with regard to motorized travel and in other cases, where the National Forest Unit went from open travel to designated route travel, there were more significant changes in travel opportunities for the public. None of the National Forests adjacent to the Gunnison travel management analysis area went from open travel to designated routes under the 2005 Travel Rule. All of these adjacent Forests had some level of travel management in place that had previously shifted the Forest from open travel to a designated system of roads and trails. On the Uncompahgre, Grand Mesa, and White River National

Forests (all adjacent to the Gunnison National Forest) previous or pending travel management decisions have resulted in reductions in miles of road or trail open to motorized travel.

The cumulative effects of travel management decisions on National Forests adjacent to the Gunnison travel management analysis area combined with the proposed changes for the Gunnison National Forest is an overall regional reduction in miles of road and trail open to motorized travel. The impact or consequences of reduced miles of road or trail have been perceived by many as a loss of recreational opportunity for motorized users. Reductions in miles or road or trail may not necessarily result in diminished recreational enjoyment (See Recreation Opportunity) because many of the routes closed as a result of travel management decisions often are dead end routes where there is little recreation opportunity provided or parallel routes where access to other routes or attractions is still available. Overall, the shift from open travel to designated route travel on federal lands in the region has had a cumulative effect of restricting motorized use. Public travel on un-designated, non-system, or user created routes on National Forest lands is not allowed as a result of the 2005 Travel Rule. The consequence of implementing travel management at the regional level has been greater control over motorized vehicle travel on public lands and in general a reduction in total miles of road and trail open to the public for motorized travel.

For federal lands managed by the BLM, the situation is different since the Forest Service 2005 Travel Rule does not apply to those public lands. But, the BLM national strategy for managing motorized OHV use does provide direction for travel management that attempts to define a manageable system of designated routes open for public travel (See Chapter 1, Why Replace the Current Travel Management Direction). Other BLM offices in the region are involved in travel management decisions and, as with the National Forests, have gone to designated routes shifting from open travel to designated routes or designated areas for motorized OHV travel. The cumulative effect of travel management on other BLM lands is similar to those described for National Forest lands, there is greater control of motorized travel and often there is a reduction in miles or road open to public travel because travel on un-designated or user-created routes is not allowed.

The cumulative effects of travel management on federal lands is more control of motorized travel and a perceived loss of opportunity for motorized users because, in general, there are typically fewer miles of road and trail open to those users. Often the recreational impact of these cumulative effects is displacement of users or substitution. Some motorized users will travel to other areas outside the region where there it is perceived there are less restrictions or controls or they may alter their recreational expectations and activities for some areas. Some displaced motorized users may seek private lands where specific recreational opportunities for various forms of motorized OHV travel are allowed or provided for.

Mining

Mining for locatable minerals (i.e., hard rock mining) on federal lands is allowed under provisions of the 1872 Mining Law and subsequent regulations and revisions. Historically, many areas within the Gunnison Basin travel analysis area were mined. Towns like Crested Butte, Pitkin, Tincup, White Pine, and other historic settlements owe their origins to hard rock mining. Many of the major roads leading into and out of these communities were built to service the mines and provide access for miners. Historic mining activities also included building many remote and high-elevation roads that have become, over time, trails or rough, high-clearance roads now used for recreational travel.

Based on Colorado Geological Survey inventories of abandoned mines on NFS lands in the travel analysis area, there are over 1,700 old mine openings. Typically about half of these inventoried mine openings also have related tailings dumps, tailing piles, and other mining operational features. Of the abandoned mines, about 20 percent have been identified to have some level of environmental degradation. The environmental degradation typically associated with abandoned mines is heavy

metal contamination, acid mine drainage, and erosion. Because these abandoned mines are mostly relics of a past era of land use in the analysis area, their environmental impacts have been occurring for many years and are considered to be existing conditions. The Forest Service, BLM, and EPA, along with state agencies, have active programs in place to manage and clean up abandoned mines with environmental degradation problems.

These abandoned mines, while having serious environmental impacts, would not necessarily be considered cumulative to those environmental consequences associated with the designation of roads and trails open for public travel since their impacts are part of the existing conditions.

The development of new mining operations would add to the cumulative effects of travel management because of the need to build new roads, reconstruct existing roads to meet use needs, increase access demands, and change the level of road design and capacity associated with a mining operation.

The Forest Service has received a Notice of Intent from U.S. Energy Corporation to conduct environment and geotechnical studies on some of the almost 4,500 acres of federal land the company has mining or mill site claims to in the area west of Crested Butte. These studies are to gather information and data necessary for U.S. Energy and their consultants to prepare a proposed Plan of Operations for resumption of molybdenum mining at the Mount Emmons mine site (i.e., Lucky Jack mine). Preliminary planning indicates that a full-scale mining operation at the Mount Emmons site would involve several thousand acres of surrounding lands in the area.

Because the Lucky Jack mine project is still in the planning stages and a plan of operations has not been received by the Forest Service, this possible mining activity is speculative in nature. The cumulative effects of a new mining operation with the potential scope of the Lucky Jack project could be significant, but this project is not a reasonably foreseeable activity that can be evaluated along with the decisions to be made relative to designating routes open to public travel at this time.

Residential and Commercial Land Development

Development of rural private lands adjacent to federal lands within the analysis area has occurred in the past. Most of the development of these private lands has been related to ranching and mining. It is becoming more common for residential development to be occurring on these rural private lands than in the past. Subdivision of tracts of private land adjacent to federal lands appears to be steadily increasing. Residential and commercial development of private lands typically requires the installation of and connection to other development infrastructure such as roads, electricity, water, and sewer.

Road construction on private lands has the ability to cumulatively impact the environment when considered together with decisions to be made regarding designation of routes open for public travel. Decisions on new roads or trails to be constructed on private lands are made without consultation or consideration to the decisions to be made on routes to remain open on federal lands. The environmental impacts of these separate actions on private lands can cumulatively impact watershed conditions, runoff, and erosion. Wildlife concerns related to road densities and secure areas can be adversely impacted as roads, powerlines, and pipelines are built on private lands. Subdivision and commercial development on private lands may have the greatest potential to increase the miles of new road within the analysis area.

Under the existing conditions, there are about 1,340 miles of roads that may be open to public travel but are located on private lands outside the boundaries of federal lands in the analysis area. This inventory of road miles on private lands does not include those roads or driveways that provide exclusive access across private lands or to residences. In some of the more rural locations, these

access roads or driveways can involve several miles of roadway that would not necessarily be included in the 1,340 miles of private road.

Based on this inventory of roads on private lands, calculations were made to determine road densities (i.e., miles of road per square mile) for the watersheds within the Gunnison Basin travel analysis area. Table 3-64 shows the road density calculations by watershed for the 5th level hydrologic units (HUCs) that include roads on private lands, roads on federal lands, and the cumulative effect of road densities when both federal and private land road miles are used to calculate road density.

At this scale of analysis, there is no clear pattern to road density with regard to land ownership, except that in those watersheds (5th level HUC) where federal lands comprise the majority of land ownership (more than 80 percent), the private roads probably do not play a significant role in the cumulative impacts related to the travel management decisions on federal lands. Those watersheds include East River, Soap/Antelope Creeks, Gunnison River, Cebolla Creek, Lake Fork of the Gunnison, Razor Creek, Cochetopa Creek, Lower Tomichi Creek, Quartz Creek, and East Muddy Creek. In the other 5th level HUC watersheds, the development of private roads can have a cumulative effect on road densities. This is particularly true for the Leroux/Cottonwood Creek and Smith Fork/Crawford Reservoir watersheds, where private land acreages exceed federal lands in road density calculations.

To address issues related to comparative road densities in the Gunnison Basin travel analysis area and other adjacent areas, the most comprehensive data was found in the Aquatic, Riparian, and Wetland Ecosystem and Current Landscape Assessment (ARW Assessment, USFS 2005). This assessment considered current landscape and ecological conditions at the landscape level (an area comprised of eighteen 4th level HUC watersheds in southwestern Colorado and eastern Utah, approximately 22,260 square miles) comprising both the GMUG and San Juan National Forests. In this landscape, there is a mix of lands under various private and public ownership. At this larger landscape scale analysis, 4th level HUC watersheds were used to calculate motorized road and trail densities and addressed all lands, both public and private. For this larger landscape, private lands comprised approximately 48 percent of the area and BLM and Forest Service lands comprised about 45 percent; in the Gunnison Basin travel analysis area, BLM and Forest Service lands comprise approximately 55 percent of the area.

Table 3-63. Road Density by Watershed and Land Management Jurisdiction

5th Level HUC name	Federal Land Road Density (mi/mi^2)	Private Land Road Density (mi/mi^2)	Cumulative Road Density (mi/mi^2)
Taylor River	1.38	5.60	1.38
East River	1.39	2.90	1.64
Ohio Creek	0.62	1.28	0.77
Soap/Antelope Creeks	0.91	0.78	0.90
Smith Fork/Crawford Reservoir	0.46	1.13	0.86
Blue Mesa Res./Gunnison River	1.25	1.33	1.28
Black Canyon	0.00	0.46	0.46
Blue/Pine Creeks	0.27	0.81	0.44
South Beaver Creek	0.89	0.25	0.80
Crystal/Curecanti Creeks	1.18	0.69	1.07
Gunnison River	2.04	2.70	2.18

5th Level HUC name	Federal Land Road Density (mi/mi^2)	Private Land Road Density (mi/mi^2)	Cumulative Road Density (mi/mi^2)
Willow Creek	1.28	0.23	1.02
Lake Fork	0.44	1.03	0.54
Cebolla Creek	0.84	0.85	0.84
Razor Creek	1.47	0.65	1.40
Cochetopa Creek	1.56	0.84	1.50
Lower Tomichi Creek	2.10	1.32	1.96
Quartz Creek	1.76	1.91	1.77
Anthracite Creek	2.31	1.19	2.26
East Muddy Creek	0.49	0.88	0.53
N. Fork Gunnison River	0.54	1.34	0.82
West Muddy Creek	1.69	0.02	1.53
Hubbard Creek	0.85	0.25	0.76
Leroux/Cottonwood Creeks	1.20	1.63	1.54

For this larger analysis area, private lands were shown to have the highest road densities, but this landscape area includes many more urban areas than the Gunnison Basin travel analysis area.

Using the data set of roads and motorized trails analyzed for the ARW Assessment (USFS 2005), 18 separate 4th level HUC watershed road/trail densities can be compared with the four 4th level HUC watersheds that comprise the Gunnison Basin travel analysis area. For the analysis area, the range of cumulative road and trail density values were calculated to be 1.44 to 1.62 mi/mi^2. The highest road and trail density value for the 4th level HUC watershed in the larger landscape area was 2.21 mi/mi^2 for the Uncompahgre HUC watershed with four other 4th level HUC watersheds having higher cumulative road/trail densities (Animas: 1.72, McElmo: 1.72, Piedra: 1.73, and San Miguel: 1.75) than the watersheds in the analysis area. Within this landscape assessment area, the 4th level HUC watersheds with the lowest motorized road/trail densities (Upper San Juan and Upper San Juan west: 0.58 and 0.68, respectively) are dominated by Wilderness.

Irreversible and Irretrievable Commitments of Resources

None of the alternatives considered in this document would result in irreversible or irretrievable commitments of the natural environment. The decisions determining which routes would remain open for public travel constitute a management commitment to the public regarding use of those routes into the future, but such management decisions can be amended, reversed, or changed. Planned or conceptual new routes are not approved under this travel decision; further project-specific environmental analysis and documentation is required before any planned new routes would be approved and implemented. Both the Forest Service and BLM travel management procedures and provisions have formal processes to effectuate change.

The physical scar on the landscape caused by a road or trail may endure for many years, even if the route is not to remain open for travel. There are actions that can be taken and natural processes that can help to erase those scars. Some of those actions would occur as part of future, separate actions related to route decommissioning. Decommissioning actions may include full restoration of the landscape that was disturbed by the road or trail. Physical restoration is one way to erase the scar of a

road or trail, but there are natural processes that, over time, will also reduce or eliminate the evidence of a road or trail on the landscape.

Under existing conditions, the roads and trails being evaluated and considered to remain open have already been built and their imprint on the landscape is in place. But, it is possible that in the future any road or trail can be closed to travel and the imprint or scar of that route may be removed from the visual landscape through restoration, rehabilitation, or time.

The construction of new routes would have the potential to impact natural resources in such a manner that there would be loss of visual character and earth disturbing activities that would leave a long-term scar on the landscape. Such scars or physical evidence of earth disturbing activities could result in long-term changes, but they still would not necessarily be irreversible or irretrievable impacts.

Short-term Uses and Long-term Productivity

Roads and trails are typically not considered to be short-term uses. Constructed roads and trails are intended to be in place and functioning for many years. These roads and trails provide for access, commerce, and recreation and are desired facilities on federal lands needed by the public, business, and land managing agencies. A functional transportation system maintains long-term productivity of the federal lands in terms of public access and recreation. The actual presence of the road or trail on the ground does eliminate or impede other natural functions such as vegetative cover, infiltration, and soil productivity. These roads and trails also create a change to or a scar on the visual landscape. These alterations of the natural visual images are often considered long-term for humans but may actually be only a short-term change to the natural environment.

Unavoidable Adverse Effects

Closure of existing routes and restrictions on public travel deemed appropriate and necessary to protect the natural environment have an unavoidable adverse effects on those people who use roads and trails for the sole purpose of recreation. The Preferred Alternative, the DEIS Proposed Action, and the action alternatives continue to provide what is considered by the Forest Service and BLM to be adequate motorized access to federal lands. The roads and trails that would remain open provide the public with a reasonable transportation system that supports allowed commercial, private, and public activities on the federal lands.

Specialists expect a continued increase in motorized vehicle trips in the future due to the growing popularity of OHV recreational travel. Due to these factors, it is expected that there will be unavoidable adverse effects with respect to air quality, carbon emissions, and particulates. Although these adverse effects may not degrade air quality to levels of adverse health effects or raise pollutant levels to exceed air quality standards, the emissions generated by motorized travel on federal lands is not expected to diminish over time.

Other Required Disclosures

As a proposed federal project, the Gunnison Basin travel planning decisions are subject to compliance with other federal and state laws. The Forest Service and BLM will take appropriate and customary steps to document or ensure compliance with the following other laws that the proposed action would have to adhere to:

National Historic Preservation Act, due to the potential for ground disturbing actions and changing the existing mode of travel on existing routes that may increase use;

U.S. Fish and Wildlife Service and the National Marine Fisheries Service in accordance with the Endangered Species Act, implementing regulations for projects with threatened or endangered species; and

Code of Federal Regulations 36 § 212.56, by which the Forest Service must make available to the public motor vehicle use maps (MVUMs) identifying those roads, trails, and areas designated open to public travel as determined by Gunnison Basin Travel planning decisions.

CHAPTER 4. CONSULTATION AND COORDINATION

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