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Environmental Assessment

SOUTH RAMPART TRAVEL MANAGEMENT PLAN

USDA Forest Service, Pike and San Isabel National Forests, Cimarron and Comanche National Grasslands

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USDA Forest Service, Pikes Peak Ranger District

Abstract:

This environmental assessment documents the environmental consequences of alternative ways to address recreation opportunities and existing problems relating to the network of system roads and trails and non-system routes in the South Rampart planning area of the Pikes Peak Ranger District. Three alternatives are analyzed in detail. Alternative A (No Action) would retain the current road and trail system in the planning area and not change existing designations. Alternative B (the Preferred Alternative) and Alternative C would both reduce the overall miles of system road open to unlicensed vehicles, restrict motorized uses in the Manitou Experimental Forest, and add motorized recreation opportunities targeted to specific user groups in the Rainbow Falls area. The intensity of motorized opportunities in the Rainbow Falls area and changes in designations for specific motorized and non-motorized routes vary between the two action alternatives (Alternative B and Alternative C).

Location:

USDA Forest Service, Pike and San Isabel National Forests, Cimarron and Comanche National Grasslands

Douglas, Teller, and El Paso Counties, Colorado

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ACRONYMS AND ABBREVIATIONS

ATV	all-terrain vehicle
BMP	best management practice
CDOW	Colorado Division of Wildlife
CDPHE	Colorado Department of Public Health and Environment
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CNHP	Colorado Natural Heritage Program
CWA	Clean Water Act
DAU	Data Analysis Unit
dB	decibel
dBA	A-weighted decibel
EA	Environmental Assessment
EPA	Environmental Protection Agency, United States
EPM	environmental protection measures
ESA	Endangered Species Act of 1973
Forest Service	United States Department of Agriculture, Forest Service
FHWA	Federal Highway Administration
FSH	Forest Service Handbook
FSM	Forest Service Manual
GIS	Geographic Information System
GMU	Game Management Units
GPS	global positioning system
HABCAP	habitat capability model
HCI	habitat capability index
hp	horsepower
HUC	Hydrologic Unit Code
ID Team	interdisciplinary team
L_{eq}	equivalent sound level
MA	Management Area
MEF	Manitou Experimental Forest
Mi	mile
MIS	management indicator species
MVUM	Motor Vehicle Use Map
NAAQS	National Ambient Air Quality Standards

NEPA	National Environmental Policy Act of 1969
NFMA	National Forest Management Act
NFS	National Forest System
NFSR	National Forest System Road
NHPA	National Historic Preservation Act of 1966
NMHC	non-methane hydrocarbons
OAHP	Office of Archaeology and Historic Preservation
OHV	off-highway vehicle
PAC	protected activity center
PM_x	particulate matter
PSICC	Pike and San Isabel National Forests, Cimarron and Comanche National Grasslands
R2Veg	Region 2 vegetation
RFSS	Regional Forester's Sensitive Species
ROS	Recreation Opportunity Spectrum
SHPO	State Historic Preservation Officer
TAP	travel analysis process
TEPC	threatened, endangered, proposed, or candidate
TMDL	total maximum daily load
TMP	Travel Management Plan
U.S.	United States
U.S.C.	United States Code
USDA	United States Department of Agriculture
USFWS	United States Fish and Wildlife Service
UTV	utility terrain vehicle
VMS	Visual Management System
VQO	Visual Quality Objectives
WIZ	water influence zone

1 PURPOSE OF AND NEED FOR ACTION

1.1 Introduction

The United States Department of Agriculture, Forest Service (Forest Service) is proposing to implement a travel management plan (TMP) for the Pikes Peak Ranger District (Pike and San Isabel National Forests, Cimarron and Comanche National Grasslands [PSICC]). This Draft Environmental Assessment (EA) discloses the direct, indirect, and cumulative environmental impacts that would result from implementation of the action and no-action alternatives. This Draft EA has been prepared in accordance with the National Environmental Policy Act (NEPA) of 1969, as amended (42 United States Code [U.S.C.] Sections [§§] 4321-4374), the Council on Environmental Quality (CEQ) regulations for implementing the procedural provisions of NEPA (40 Code of Federal Regulations [CFR] Parts 1500-1508), and Forest Service NEPA procedures (36 CFR Part 220).

The document is organized into seven chapters and three appendices:

Chapter 1. Purpose of and Need for Action: The chapter includes background information on the project area and travel management, a statement of the project's purpose and need, and a brief description of the agency's proposal for achieving that purpose and need. This section also details how the Forest Service informed the public of the proposal and solicited public input.

Chapter 2. Description of the Proposed Action and Alternatives: This chapter describes the agency's alternatives for achieving the stated purpose and need, implementation priorities and strategies, and design criteria and environmental protection measures common to all alternatives. A summary comparison of the environmental effects of the action and no-action alternatives is also provided.

Chapter 3. Affected Environment and Environmental Consequences: This chapter describes the existing baseline condition (or affected environment) and the environmental effects of implementing the proposed alternatives. This analysis is organized by resource area.

Chapter 4. Cumulative and Other Impacts: This chapter describes the cumulative impacts, unavoidable adverse impacts, and irreversible and irretrievable commitments of resources that would result from implementation of the proposed alternatives, and the relationship between short-term uses of the environment and long-term productivity.

Chapter 5. Consultation and Coordination: This chapter provides a list of agencies consulted during development of the TMP and EA.

Chapter 6. List of Preparers: This chapter identifies resource specialists involved in the preparation of the EA.

Chapter 7. References: This chapter provides a list of references cited in the EA.

Appendices: The appendices provide more detailed information to support the analyses presented in the EA.

1.2 Background

1.2.1 Project Area

The project area consists of approximately 121,000 acres of National Forest System (NFS) lands located approximately six miles northwest of the greater Colorado Springs metropolitan area in Douglas, Teller, and El Paso counties (Map 1-1). The project area comprises the northeast portion of the Pikes Peak Ranger District on the PSICC, and includes the Rainbow Falls Motorized Trail System and connections to the South Platte Ranger District. The Manitou Experimental Forest (MEF) is located on the western edge of the project area, approximately six miles north of Woodland Park. The MEF is 17,256 acres in size with 14,152 acres located within the project area. The MEF is part of the USDA Forest Service Rocky Mountain Research Station. Established in 1936, its early research focused on range and watershed management. Current research at the site focuses on ponderosa pine habitat, wildlife, weather, history, and potential preservation and enhancement of Colorado Front Range forests. The primary purpose of the MEF is to ensure protection for current and future research related activities without further degradation to the natural environment.

The major watersheds in the project area include the Arkansas and South Platte River Basins and six sub-watersheds including Trout Creek and the headwaters of Monument Creek. The elevation in the project area ranges from approximately 6,500 to 11,500 feet. The topography of the area varies from steep, rugged forested terrain including numerous drainages and mountains to relatively flat, open, park-like grassland meadows. The forested areas consist of a mosaic of ponderosa pine, Douglas-fir, limber pine, white fir, Colorado blue spruce, Engelmann spruce, Rocky Mountain juniper, and aspen. Nonforested areas include grass and shrubland meadows, stands of mountain mahogany and Gambel oak, and rock outcroppings.

Access to the project area is provided by four primary transportation routes: Rampart Range Road (National Forest System Road [NFSR] 300) from north of Manitou Springs, State Highway 67 north out of Woodland Park, NFSR 350 in the Rainbow Falls Motorized Trail System, and from Interstate 25 west of Monument on the Mount Herman Road (NFSR 320). However, given the project area's adjacency to private neighborhoods and subdivisions, municipal or county parks and open spaces, and other non-Federal land holdings, many users access the area via unauthorized, non-system routes.

The project area offers diverse opportunities for motorized and non-motorized recreation. Typical motorized and non-motorized recreational uses of the project area include: four-wheeling (challenging four-wheel driving), trail motorcycles, all-terrain vehicles (ATVs), mountain biking, hiking, and equestrian use. Existing recreational uses are concentrated in the Mount Herman, Blodgett Peak, Walden Canyon, Rampart Reservoir, and Rainbow Falls areas. Unlike many NFS lands within Colorado, the project area generally remains accessible to motorized and non-motorized travel in all seasons due to relatively low elevations. The proximity to major metropolitan areas and the extended seasons of use make the South Rampart project area one of the most heavily traveled units on NFS lands in Colorado.

1.2.2 Travel Management

In 2005, the Forest Service adopted the Travel Management Rule (36 CFR 212). The Travel Management Rule provides guidance to the Forest Service on how to designate and manage motorized recreation on the forest as well as how to address the issue of unmanaged recreation. The Travel Management Rule requires all 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 and/or vehicle class. The Forest Service characterizes land travel by the following modes: hiking, equestrian, mountain bike, single-track motorized (e.g., motorcycles), off-highway vehicles (OHVs) 50 inches or less in width (e.g., ATVs), OHVs greater than 50 inches in width (e.g., utility terrain vehicles [UTVs], four-wheel drive trucks or sport utility vehicles), and full-sized passenger vehicles (e.g., two-wheel-drive passenger cars and trucks or sport utility vehicles).

The Travel Management Rule 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, conflicts among uses of NFS lands, and the need for maintenance and administration of those travel routes (36 CFR 212.55). The rule directs responsible officials to minimize harassment of wildlife and impacts to wildlife habitat; damage to soil, watersheds, and vegetation; conflicts between different classes of motor vehicle uses; and conflicts between motorized and other recreational uses when designating roads, trails, and areas for motor vehicle use. The Travel Management Rule also requires roads, trails, and areas designated open for motorized uses on NFS lands to be identified on a Motor Vehicle Use Map (MVUM) and made available to the public.

The current MVUM for the Pikes Peak Ranger District is available on-line at http://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5177645.pdf.

1.2.2.1 South Rampart Travel Management Plan

The TMP prepared for the South Rampart planning area fulfills the following requirements of the Travel Management Rule:

- Proposed routes for motor vehicle use on NFS roads, on NFS trails, and in areas on NFS lands are designated by vehicle class and, if appropriate, by time of year (36 CFR §212.51).
- The public has been invited to participate in the designation process at several points in the planning process, including scoping, alternatives development, and review of the Draft EA (36 CFR §212.52).
- The Forest Service has consulted with Federal, State, and local agencies and tribal governments during the EA process, as described in Chapter 5, Consultation and Coordination (36 CFR §212.53).
- The general and specific criteria for designation of roads, trails, and areas (36 CFR §212.55) were considered during route by route evaluations for the alternatives development and as part of the analysis for this EA.

- Upon completion of the NEPA process, decisions regarding route designations will be shown on an updated MVUM (36 CFR §212.56). Motorized use inconsistent with the designations will be prohibited.

1.2.2.2 Travel Analysis Process

Forest Service travel management guidelines (FSH 7709.55, Chapter 20) recommend a travel analysis process (TAP) as part of travel management planning. Travel analysis is an integrated ecological, social, and economic science-based approach to transportation planning that addresses existing road and motorized trail management options. This science-based travel analysis will inform management decisions about the benefits and risks of routes in unroaded areas; relocating, stabilizing, changing the standards of, or decommissioning unneeded routes; access issues; and increasing, reducing, or discontinuing route maintenance. An appropriate balance between the benefits of access to the national forest and the risks of route-associated effects to ecosystems is necessary to develop an optimum transportation system. One of the Forest Service's top priorities is to provide road and motorized trail systems that are safe for the public, responsive to public needs, environmentally sound, affordable, and efficient to manage. Completing a TAP is a key step to meeting this objective.

Travel analysis provides information to Forest Service decision makers by disclosing the important issues and effects relevant to route management. All system motorized routes (and some non-system motorized routes) within the project area were inventoried by the Forest Service in 2005 and 2006 (USDA Forest Service 2006). The TAP prepared for the South Rampart area, based on this inventory, is provided as Appendix A. Results of the TAP led to subsequent development of the TMP alternatives analyzed in this EA (see Section 2.1, Alternatives Development).

1.3 Regulatory and Administrative Framework

1.3.1 National Environmental Policy Act

This EA has been prepared in accordance with the NEPA of 1969, as amended (42 U.S.C. §§ 4321-4374), the CEQ regulations for implementing the procedural provisions of NEPA (40 CFR Parts 1500-1508), and Forest Service NEPA procedures (36 CFR Part 220).

1.3.2 National Forest Management Act

The 1984 *Pike and San Isabel National Forests and Comanche and Cimarron National Grasslands Land and Resource Management Plan* (USDA Forest Service 1984) (herein referred to as the "Forest Plan"), as amended, is the existing land management plan required by the National Forest Management Act of 1976 (16 U.S.C. §1600 et seq.). This plan provides management direction and guidelines for resource management and land use on NFS lands within the PSICC. The interdisciplinary team (ID Team) reviewed the management direction found in the Forest Plan and developed alternatives for detailed analysis that are consistent with the Forest Plan. Information on Forest Plan consistency as it relates to specific resource areas may be found in the Environmental Consequences section of this document.

S O U T H R A M P A R T

Legend

- South Rampart Study Area
- National Forest Land

Travel Management Plan/ Environmental Assessment

Project Location Map

Pikes Peak Ranger District PSICC

Map 1-1
March 2, 2011

1.3.3 Endangered Species Act

The Endangered Species Act (ESA) of 1973 (16 U.S.C. §§ 1531-1544) requires federal agencies, in consultation with the U.S. Fish and Wildlife Service and/or the National Oceanic and Atmospheric Administration Fisheries Service, to ensure that actions they authorize, fund, or carry out are not likely to jeopardize the continued existence of any listed species or result in the destruction or adverse modification of designated critical habitat of such species. The law also prohibits any action that causes a "take" of ESA-listed species. Consultation under Section 7 of the ESA will be initiated for project-specific elements of the Preferred Alternative (Alternative B) described in Section 2.4.2, including the Highway 67 trailhead, Illinois Gulch parking area improvements, and the Little Moab and Quarry open riding areas. New road and trail construction is proposed in the preferred alternative within 1,320-ft planning corridors and are evaluated at a programmatic level in this EA. Additional consultation for proposed new construction would be conducted during development of engineering designs for new routes authorized in the decision document accompanying the Final EA.

1.3.4 National Historic Preservation Act

The National Historic Preservation Act (NHPA) of 1966 (16 U.S.C. §§ 470 et seq.) establishes as Federal policy the protection of historic properties in cooperation with State and local governments, Indian tribes, and other stakeholders. Section 106 of the NHPA directs Federal agencies to take into account the effect of federally funded or licensed undertakings on any district, site, building, structure, or object either listed or eligible for listing on the National Register of Historic Places. Consultation under Section 106 of the NHPA will be completed for project-specific elements of the Preferred Alternative (Alternative B) requiring new construction or substantial reroutes of roads or trails, prior to commencement of any ground disturbing activities.

1.3.5 Forest Service Directives

The Forest Service Directive System consists of the Forest Service Manual (FSM) and Forest Service Handbooks (FSH), which codify the agency's policy, practice, and procedure. The system serves as the primary basis for the internal management and control of all programs and the primary source of administrative direction to Forest Service employees. Forest Service directives applicable to travel management include FSM 7700 (Travel Management) and FSH 7709.55 (Transportation Planning Handbook).

1.4 Purpose of and Need for Action

The purpose of the proposed project is to determine which motorized roads and trails and non-motorized trails in the South Rampart planning area are necessary to provide a diverse, functional, and sustainable transportation system that balances resource protection, public safety, current and anticipated future recreational use demands, and public and administrative access needs.

The proposed project is needed to:

- Proactively manage public access to allow recreational experiences for motorized and non-motorized travelers while balancing resource management objectives, public safety, and current and anticipated future recreational use demands
- Designate a sustainable transportation system on NFS lands that can be maintained given the existing and expected maintenance funding, partnership support, and management capability
- Further refine the official travel system by specifying roads, trails, and areas open to motorized use and update the current MVUM
- Develop a transportation system that meets the increasing demand for recreational travel opportunities and provides a diverse range of experiences for a wide variety of Forest users
- Eliminate adverse resource impacts caused by unauthorized travel and maintain and/or improve the condition of ecosystems and watersheds
- Identify high-use, potentially sustainable, non-system routes to be considered for formal designation as non-motorized system trails
- Ensure and protect the integrity of research activities at the Manitou Experimental Forest.
- Comply with the 2005 Travel Management Rule (36 CFR 212)and other subsequent guidelines and regulations
- Address area-specific resource concerns and/or recreational opportunities and conflicts

1.5 Proposed Project

In order to meet the purpose of and need for action, the Forest Service is proposing redesignation of the types of use permitted on existing system roads and trails; new construction of OHV, motorcycles only, and non-motorized trails; decommissioning of non-system and unclassified roads; and closure and rehabilitation of specific trails or roads. Proposed facility improvements include drainage and other improvements at parking areas and trailheads, and new trailhead construction. This proposal would also designate specific sites where camping and camp fires would be allowed along roads where there are high levels of dispersed camping associated with OHV use.

1.6 Decision Framework

1.6.1 Decision to be Made

The Responsible Official will review the purpose and need, the proposed action and alternatives, and the environmental consequences in order to decide which roads and trails in the planning area best provide for a diverse, functional and sustainable transportation system that balances resource protection, public safety, current and anticipated future recreational use demands, and public and administrative access needs.

As part of this overall decision, specific decisions will be made regarding:

- Redesignation of system roads and trails
- Decomissioning, or closure and rehabilitation, of roads
- Seasonal restrictions on motorized trails
- New motorized and non-motorized trail construction
- Trailhead and parking area improvements, and
- Designation of camping areas

The decision document accompanying the Final EA will detail the decision. The MVUM will be updated subsequent to release of the Final EA and decision document, where existing system roads and trails have been reclassified. Decisions regarding facility improvements (e.g., trailhead and parking area improvements) could also be implemented with the decision document.

Proposed alignments for new routes considered in this EA are conceptual and are proposed within 1,320-ft planning corridors. Decisions made by the Forest Service that provide for new routes would require additional design to determine specific route alignments, and biological and cultural clearances before route additions could be implemented or constructed. The MVUM would be updated to reflect decisions regarding new routes following completion of construction.

1.6.2 Framework for Decision-Making

The South Rampart Travel Management Plan will only make decisions for lands within the project area that are under national forest jurisdiction. Decisions to be made within this EA will be consistent with the current Forest Plan (USDA Forest Service 1984). Decisions to be made regarding motorized roads and trails must also conform to the Travel Management Rule (36 CFR 212), Executive Order No. 11644, as amended by Executive Order No. 11989, and Forest Service policies and procedures.

1.6.3 Responsible Official

The Pikes Peak District Ranger is the Responsible Official for travel management decisions related to NFS lands in the South Rampart planning area of the Pikes Peak Ranger District.

1.7 Public Involvement

Actions taken to date to inform the public of the proposal and solicit public input are summarized in Section 1.7.1 and 1.7.2 below.

1.7.1 Scoping Activities

Notification letters were sent to agencies, stakeholders and the Forest Service's public mailing list describing the South Rampart Travel Management Plan and outlining the public scoping process on May 30, 2009. Notification letters invited agencies, stakeholders, and tribal governments to submit comments and/or participate in an agency scoping meeting or stakeholder interviews facilitated by Forest Service and contractor staff. A legal notice for the

plan was published in the Colorado Springs Gazette on June 7, 2009, commencing a 30-day public scoping period that began June 7, 2009 and ended July 6, 2009.

Two open-house format public scoping meetings were held to identify issues early in the project planning process. Representatives from the Forest Service and the project planning team were available to answer questions, offer more information about the project, and discuss ideas and concerns regarding motorized and non-motorized travel in the project area. Written comment sheets were distributed as well.

The first meeting was held Wednesday, June 24, 2009 from 4:00 p.m. to 8:00 p.m. at the Coronado High School in Colorado Springs. The meeting was attended by 73 members of the public and 10 Forest Service and contractor staff. The second meeting was held Thursday, June 25, 2009 from 4:00 p.m. to 8:00 p.m. at Woodland Park High School in Woodland Park. The meeting was attended by 46 members of the public and 10 Forest Service and contractor staff. All attendees were encouraged to sign up for the project mailing list to stay informed of the project's progress. Scoping comments received and, a scoping summary report that details activities undertaken during scoping, is available on the project webpage at http://www.southrampart.net.

1.7.2 Alternatives Development Workshops and Public Meeting

The Forest Service hosted two public workshops in October 2009 to receive public input on development of the alternatives for the South Rampart Travel Management Plan.

The objectives of the public workshops were to:

- Provide information about the project and study area
- Communicate outcomes of previous public scoping (outreach) efforts
- Review and discuss preliminary objectives and travel management concepts
- Work in small groups to identify potential road and trail networks
- Record public opinion about the information and ideas discussed

The first public workshop has held on October 14, 2009 from 6:00 p.m. to 8:00 p.m. at Woodland Park Middle School in Woodland Park, CO. The meeting was attended by 21 members of the public and eight Forest Service and contractor staff. The second public workshop was held on October 15, 2009 from 6:00 p.m. to 8:00 p.m. at the Colorado Springs Utilities, Leon Young Service Center in Colorado Springs, CO. The meeting was attended by 29 members of the public and 10 Forest Service and contractor staff.

At the beginning of each workshop, participants were greeted and assigned to workgroups with project staff. Poster displays and handouts described the planning process, existing conditions in the project area, information about good stewardship, and a summary of public scoping to date for the project. In each workgroup, project staff introduced the status of the project and explained three sets of preliminary travel management concepts, which were developed based on initial public and agency comments. These concepts were developed to compare and contrast issues and opportunities. None of them was developed as a preferred concept. Participants had the opportunity to discuss the concepts, ask questions, provide feedback, and

make notes/additions on the poster-sized maps of each concept. Comment forms were distributed to participants to provide an opportunity for additional written feedback.

On March 10, 2010 a public meeting was held to present the draft travel management alternatives. Approximately 165 people attended the meeting. The meeting started with a presentation that provided an overview of the project and a detailed description of the draft alternatives. Questions and comments were addressed in front of the entire audience after the presentation. Following the presentation and discussion, participants were encouraged to review the exhibits displaying the draft alternatives to understand details of the proposed changes. Participants were encouraged to provide comments in writing at or after the meeting. All meeting materials were provided on the project webpage (http://www.southrampart.net) for public and agency review following the meeting. The project Core and ID Teams met again on July 13, 2010 to discuss changes to the alternatives based on public input, and the alternatives were then finalized by the Core Team in November 2010.

1.8 Issues

The ID Team used information from the scoping process to identify issues related to the initial proposal. Issues identified by the ID Team during scoping were separated into two groups: significant issues and non-significant issues. Issues were determined to be non-significant if they were found to be (1) outside the scope of the proposal, (2) already decided by law, regulation, Forest Plan, or higher level decision, (3) irrelevant to the decision to be made, or (4) conjectural and not supported by scientific or factual evidence. Non-significant issues are not carried forward for analysis in the EA, as they fall outside the scope of the proposal or decisions to be made.

Issues were determined to be significant if they addressed: (1) the NEPA process or other regulatory requirements, (2) existing recreational uses or preferences, (3) environmental effects or conflicts that would result from implementing the proposal, or (4) the methodology to be used to analyze impacts. Significant issues define the scope of the EA analysis. Key issues are those significant issues of public or agency concern that become the focus of the NEPA analysis and guide the development of alternatives. Key issues serve to highlight the effects or unintended consequences that may result from an action, giving opportunities during the analysis to reduce adverse effects and to compare trade-offs between the alternatives.

All public comments were considered by the Forest Service, and are documented in the project record. Issues raised during the public comment periods are summarized in the scoping summary report that is available on the project webpage at http://www.southrampart.net. Those key issues that guided the development of alternatives are described in Section 2.1, Alternatives Development.

2 DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES

2.1 Alternatives Development

Alternatives development sought to (1) diversify and improve the quality of trail-based recreational opportunities in the planning area, (2) incorporate public comments regarding inclusion/exclusion of specific motorized and non-motorized routes, (3) remove motorized routes with low administrative or recreational value from the system, and (4) develop alternatives that address the key issues identified during scoping.

These key issues included the following:

- Trail sustainability and impacts of trail-based recreation and dispersed camping to forest resources (i.e., soils, hydrology, wildlife, & vegetation)
- Inadequate opportunities for trail-based recreation in the planning area and proliferation of user-created routes
- Minimization of motorized/non-motorized user group conflicts
- Consistency of proposed uses with adjacent land uses and special management areas, including roadless areas and the MEF

2.2 Activities Common to All Action Alternatives

The licensed vehicles minimum road system is common to all alternatives. The minimum road system consists of access points and roads connecting to recreational amenities, assisting in Forest operations, and providing for public safety and law enforcement. All non-system and unclassified roads on Forest Service lands would be decommissioned. Additional information on the road system can be found in Appendix A, Travel Analysis Process.

Common to all alternatives is the provision of no unlicensed motorized recreation access to the MEF, in order to be consistent with the MEF's management objectives. Non-motorized travel in the MEF is allowed in all alternatives. The existing Rainbow Falls OHV trailhead and specific designated routes located on the north edge of MEF are accepted as necessary OHV access routes in the MEF.

Both action alternatives would add new single-track motorcycle trails, new ATV trail connections, and new high clearance 4x4 trails to the designated road and trail system. The proposed high clearance 4x4 trails are roads that are currently classified as "roads open to all vehicles." These high clearance 4x4 trails would provide an opportunity for major challenges for vehicles over 50 inches in width including side-by-sides, UTVs, modified trucks and jeeps. High clearance 4x4 trails would be allowed to become more challenging over time as they become more rough (rocky) through use over time. High clearance 4x4 trails may be modified

to make them even more challenging to drive on and would have signs posted at their ends to advise the public of their condition.

Both action alternatives propose to convert roads open to all vehicles to roads open to licensed vehicles only. Overall, the miles of motorized roads and trails open to unlicensed vehicles (e.g., OHV travel) would be reduced under both action alternatives, and miles of roads open to licensed vehicles only would increase. Both action alternatives propose additional miles of non-motorized trails for hiking, biking, and equestrian uses in the southern portion of the project area that have relatively easy access for day use recreation. The miles of motorized roads and trails and non-motorized trails proposed under each of the alternatives is summarized in Table 2-1 below.

Trail inventories completed for the Pikes Peak Ranger District in 2005 and 2006 (USDA Forest Service 2006) identified approximately 119 miles of user-created (non-system) motorized routes in the planning area. Motorized use of non-system routes would continue to be prohibited under all alternatives, in accordance with existing policy. Motorized use of non-system routes would be discouraged through such methods as informational signage, barrier installation, and/or tread obliteration, as site-specific conditions warrant.

2.3 Alternatives Overview

This EA analyzes a No Action Alternative (Alternative A) and two action alternatives (Alternatives B and C). Alternative A is based on the continuation of existing management of designated system routes. Alternative B (the Preferred Alternative) focuses on enhancing the recreational experience while balancing resource conservation and management. Alternative C focuses on solutions to existing issues. Table 2-1 compares miles of roads and trails by route type and alternative. Figure 2-1, Figure 2-2, and Figure 2-3 provide thematic comparisons of alternatives for licensed vehicle only routes, unlicensed vehicle (e.g., OHV) routes, and non-motorized trails. Table 2-2 provides a comparison of facilities improvements by alternative.

Table 2-1: Comparison of System Road and Trail Miles by Alternative

	Alternative A No Action	Alternative B Preferred Alternative	Alternative C
Total Miles System Road and Trail			
Non-motorized trail system	53.6	60.0	67.0
50 inchesor less OHV trail system	10.2	20.4	12.4
Single-track motorized trail system	-	16.5	7.5
4x4 challenge trail system	-	7.4	6.0
Road system open to licensed vehicles	60.5	114.9	102.7
Road system open to all vehicles			
Administrative (closed) road system	37.4	45.6	48.7

	Alternative A No Action	Alternative B Preferred Alternative	Alternative C
Miles of New Construction Included in Total			
New construction non-motorized trail	-	5.8	11.2
New construction 50 inchesor less OHV trail	-	9.4	2.7
New construction single-track motorized. trail	-	16.5	7.5
Miles Closed and Rehabilitated Included in Total			
Close and rehabilitate non-motorized trail	-	0.3	-
Close and rehabilitate 50 inchesor less OHV trail	-	0.9	0.9
Close and rehabilitate road open to all vehicles	-	13.4	9.1
Close and rehabilitate road open to licensed vehicles	-	-	-
Close and rehabilitate administrative/special use road	-	1.1	1.1
Closed road open to all vehicles	1.8	-	0.1
Total Unlicensed Vehicle Road and Trail	139.5	95.9	91.3
Total Road System Open to Public Motorized Travel	189.8	166.5	168.1
Total Motorized Road and Trail (licensed and unlicensed vehicles, and administrative roads)	237.4	256.4	242.7
Total Closed and Rehabilitated Roads and Trails	1.8	15.7	11.2

[1] Mileages are approximate. The exact locations and lengths of new trail construction or trail re-routes would be determined during the final design phase of the project. Minor variations may occur due to: 1) changes in on-the-ground conditions, 2) use of more accurate measuring techniques, or 3) the occurrence of unforeseen obstacles and opportunities. New trail alignments are proposed within a 1,320 ft planning corridor for evaluation in this EA. If final trail alignments are outside of this planning corridor, additional NEPA analysis may be required.

Figure 2-1: Comparison of Alternatives – Licensed Vehicles Only Routes

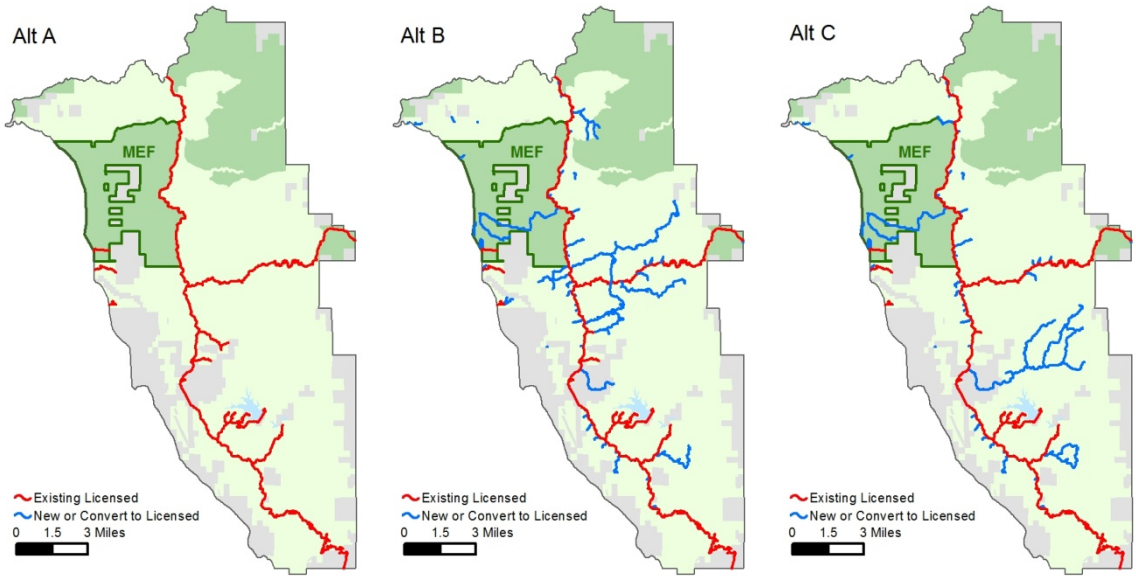


Figure 2-2: Comparison of Alternatives – Unlicensed Vehicle (OHV) Routes

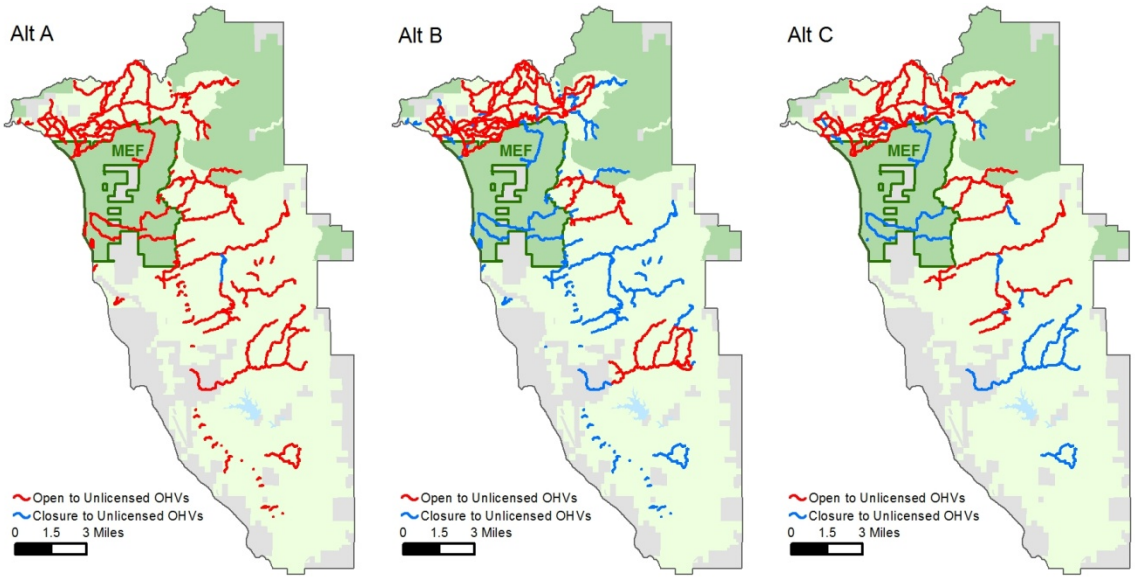


Figure 2-3: Comparison of Alternatives – Non-Motorized Trails (hiking, biking, equestrian)

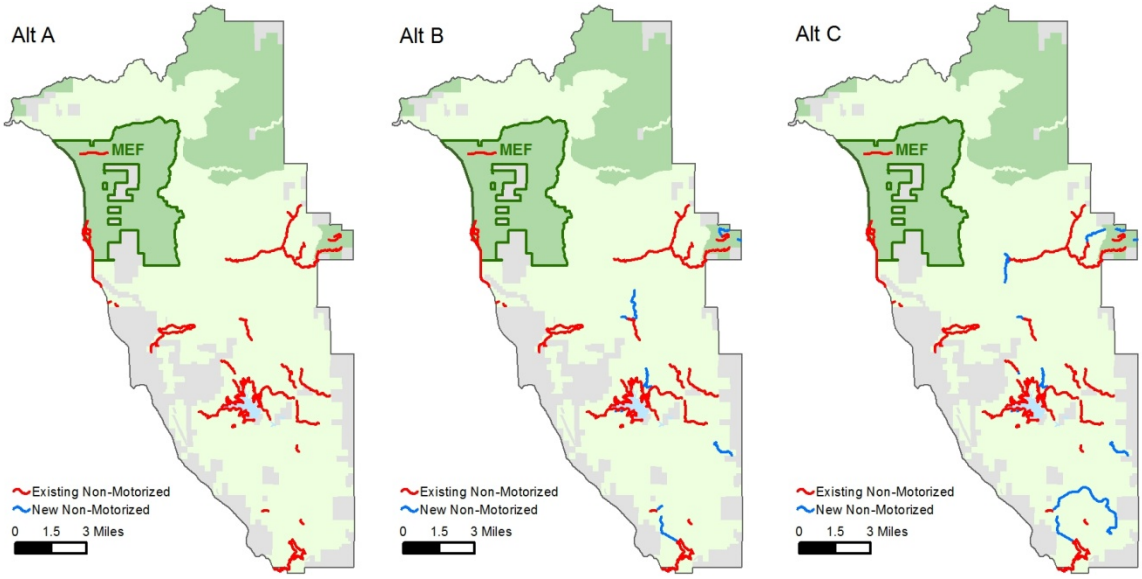


Table 2-2: Comparison of Facilities Improvements by Alternative

Facility Type	Map ID	Size (acres)	Proposed Alternative Actions
Trailheads			
Rainbow Falls	TH1	1.3	ALT C - Redevelop the existing trailhead to improve its quality and functionality with an emphasis on OHV recreational use
Highway 67	TH2	8.4	ALT B - Develop a new trailhead and access road with an emphasis on OHV recreational use
Lovell Gulch	TH3	0.5	ALT B - Develop a new trailhead with an emphasis on non-motorized recreational use
Parking Areas			
Illinois Gulch	P1	0.6	ALT B – Improve a small parking area
Fern Creek	P2	0.3	ALT B & C - Develop a new small parking and designated camping area
Open Riding Areas			
Little Moab	O1	3	ALT B - Develop a new designated open riding area to provide opportunity for creative OHV recreation
Quarry	O2	5	ALT B - Develop a new designated open riding area to provide opportunity for creative OHV recreation

2.4 Alternatives Considered in Detail

2.4.1 Alternative A

Under the No Action Alternative, the existing 291 mile road and trail system would continue under current management direction (Map 2-1 and Map 2-2). Approximately 61 miles of roads open to licensed vehicles would provide the primary access to the area. Approximately 129 miles of routes would be open to all vehicles, consistent with current conditions depicted on the MVUM for the Pikes Peak District. A total of 10 miles of the motorized system trails would be open to ATV and motorcycles only. Approximately 54 miles of trail would be available for non-motorized trail users (Table 2-1). The existing motorized and non-motorized trail system would continue to be maintained as funding permits. Motorized use of non-system routes would continue to be prohibited, in accordance with existing policy, and would be discouraged through such methods as informational signage, barrier installation, and/or tread obliteration, as site-specific conditions warrant.

2.4.2 Alternative B – Preferred Alternative

Under Alternative B, an approximately 316 mile system would be managed to provide a broad spectrum of motorized and non-motorized trail opportunities while also enhancing resource protection, operational efficiency, and safety. The functionality of the system and experience of trail users would be improved by providing (1) designated trails for both motorized and non-motorized users, (2) additional miles of non-motorized, ATV/motorcycle only, and motorcycle

only trails in popular recreation areas, (3) new motorized trails and open riding areas designed for different user types and skill levels, (4) new trail connections and looped trails, and (5) new or improved parking and trailhead facilities.

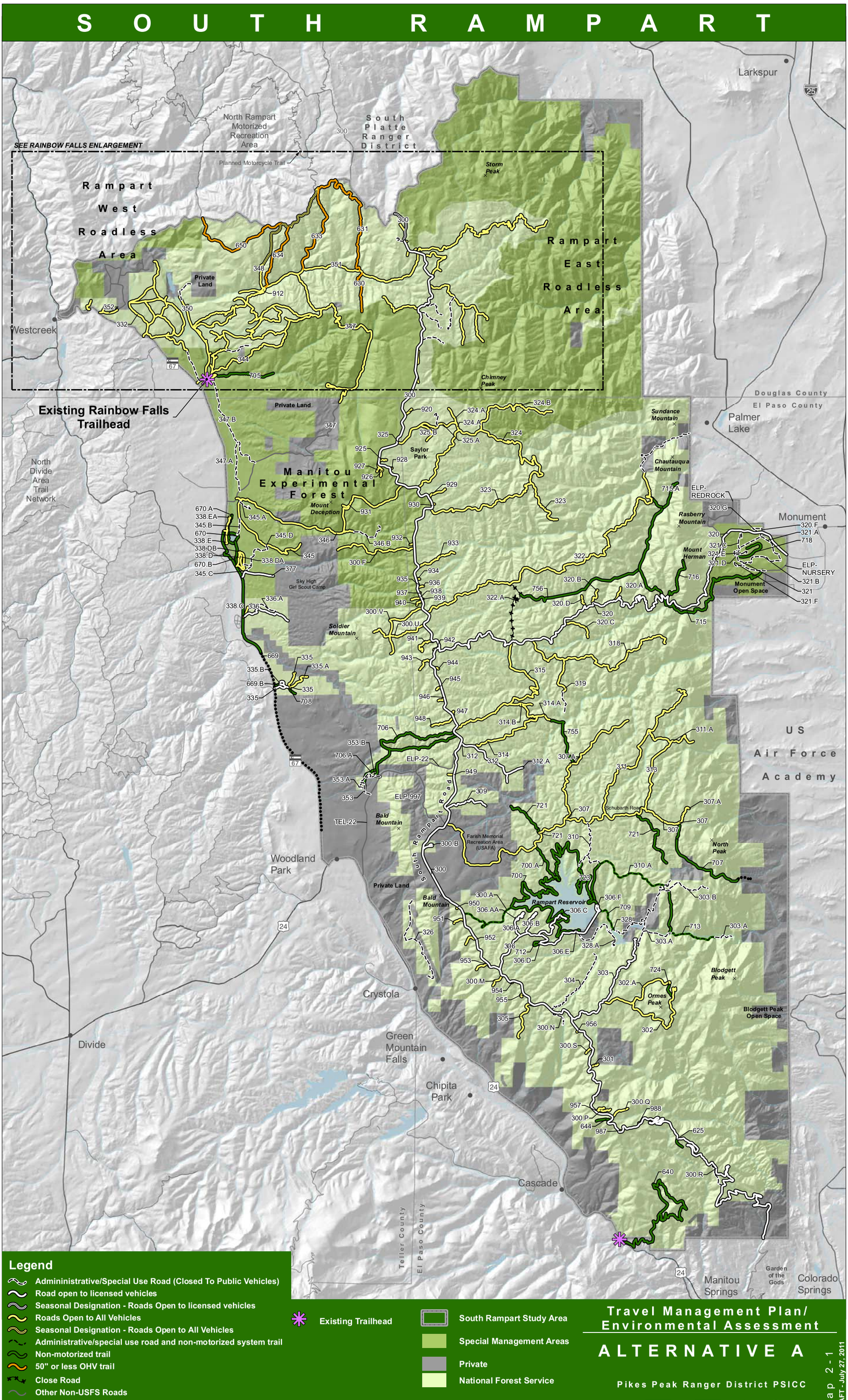
Actions to further resource protection, and remove road and trail redundancy, include (1)decommissioning of non-system and unclassified roads, (2) closure and restoration of non-system motorized trails, (3) decommissioning and seasonal closure of motorized routes, in the MEF, (4) closure and rehabilitation of roads that dead-end in roadless areas, (5) restriction of non-licensed motor vehicles on roads where limited motorized opportunities exist, and (6) designation of camping and campfires along sites in the Rainbow Falls Area.

2.4.2.1 Motorized and Non-motorized Routes

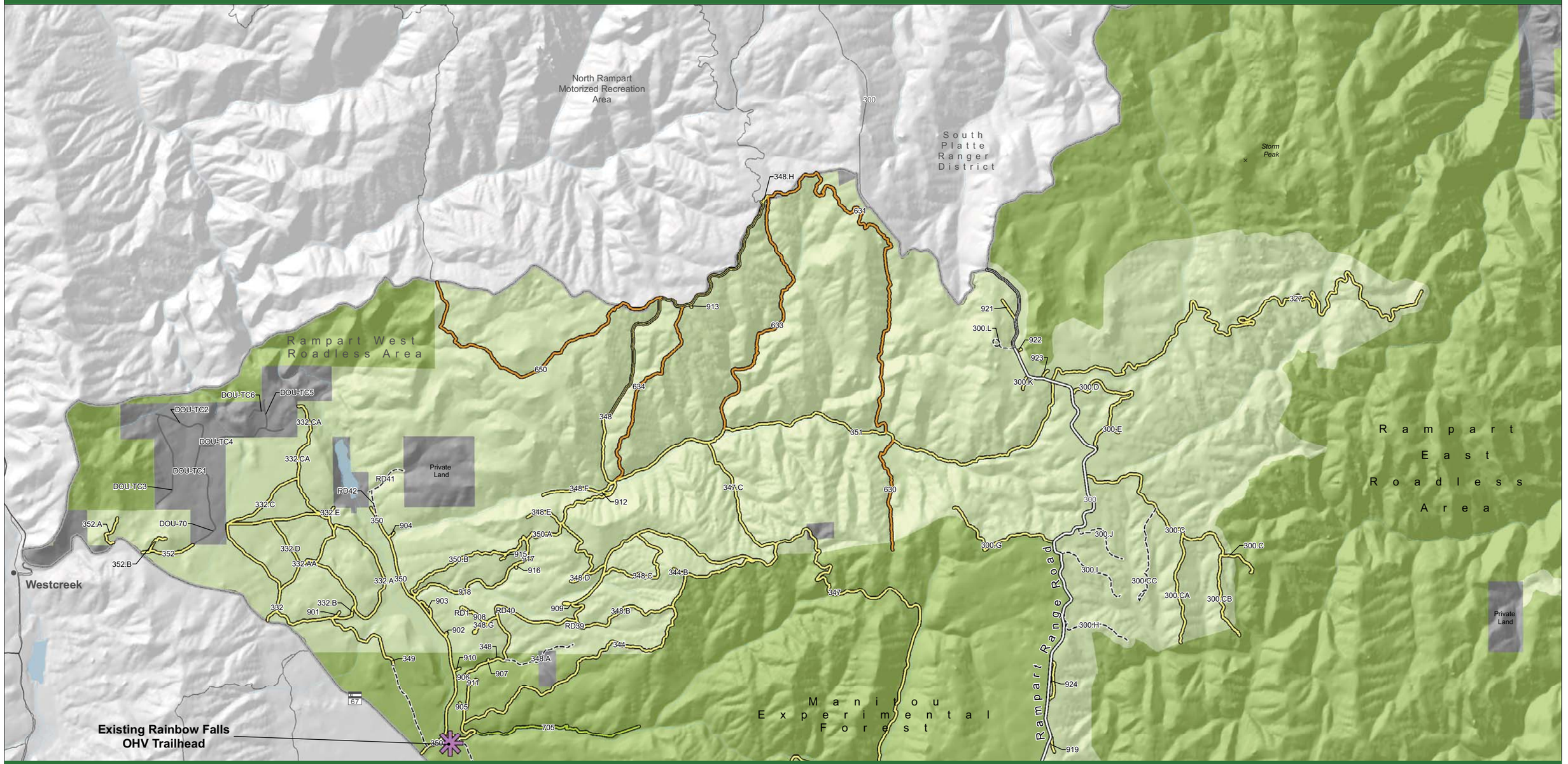
A detailed description of specific actions proposed for each route under each alternative is included as Appendix B. Under Alternative B, routes open to licensed vehicles would increase from 61 miles to 115 miles, as a result of converting short dead-end routes and camping spur roads from "open to all vehicles" to "licensed vehicles only." Routes that would be open to all vehicles would decrease from 130 miles to 52 miles (Table 2-1). This change is proposed to discourage the proliferation of user-created non-system OHV routes from the end of dead-end and spur roads.

Trails open only to ATV's and motorcycles would be increased from 10 to 20 miles, and would include a connection to the North Divide Management Area. New ATV trails would provide more miles of riding opportunity and create more trail loops. Approximately 16 miles of single-track trail available only to motorcycles would also be constructed, providing a connection to the North Rampart Range Motorized Recreation Area single-track system (Map 2-3). Connections to the long distance single-track motorcycle trail being constructed just north of the project area in the South Platte Ranger District would provide approximately 70 miles of continuous riding opportunity between the Pikes Peak and South Platte Ranger Districts.

Non-motorized trails would be increased to approximately 60 miles through the addition of several trails, improving connections for horseback riding, hikers, and mountain bikers. Several roads accessing the East Rampart Roadless Area would be closed and rehabilitated, including a portion of NFSRs 327 and 324.B. Except for the Rainbow Falls trailhead and designated routes, unlicensed vehicles would not be permitted on the MEF. Hotel Gulch Road (NFSR 346) in the MEF would be limited to license vehicles only from April 1 to November 30. John's Gulch Road (NFSR 345) in the MEF would be limited to license vehicles only from October 1 to November 30. These changes are proposed to minimize conflicts with the management objectives of the MEF. Existing dispersed camping areas along Long Hollow Road (NFSR 348) and Rainbow Falls Road (NFSR 350) would be changed to designated camping and campfires sites only to minimize crowding and resource damage.


SOUTH RAMPART
SEE RAINBOW FALLS ENLARGEMENT
Rampart West Roadless Area
Rampart East Roadless Area
North Rampart Motorized Recreation Area
Planned Motorcycle Trail
South Platte Ranger District
Storm Peak
Chimney Peak
Private Land
Existing Rainbow Falls Trailhead
Westcreek
Larkspur
Douglas County
El Paso County
Palmer Lake
Sundance Mountain
Chautauqua Mountain
Rasberry Mountain
Mount Herman
ELP-REDROCK
ELP-NURSERY
Monument
Monument Open Space
Manitou Experimental Forest
Mount Deception
Saylor Park
North Divide Area Trail Network
Sky High Girl Scout Camp
Soldier Mountain
Bald Mountain
TEL-22
ELP-22
ELP-997
South Rampart Road
Schuburth Road
Parish Memorial Recreation Area (USAFA)
US Air Force Academy
North Peak
Rampart Reservoir
Blodgett Peak
Blodgett Peak Open Space
Ormes Peak
Woodland Park
Crystola
Green Mountain Falls
Chipita Park
Divide
Cascade
Manitou Springs
Garden of the Gods
Colorado Springs
Teller County
El Paso County
Legend
Admininistrative/Special Use Road (Closed To Public Vehicles)
Road open to licensed vehicles
Seasonal Designation - Roads Open to licensed vehicles
Roads Open to All Vehicles
Seasonal Designation - Roads Open to All Vehicles
Administrative/special use road and non-motorized system trail
Non-motorized trail
50" or less OHV trail
Close Road
Other Non-USFS Roads
Other Non-USFS Trails
Existing Trailhead
South Rampart Study Area
Special Management Areas
Private
National Forest Service
Travel Management Plan/ Environmental Assessment
ALTERNATIVE A
Pikes Peak Ranger District PSICC
Miles
0
1
2
Map 2 - 1
DRAFT - July 27, 2011

S O U T H R A M P A R T - R A I N B O W F A L L S



- Admininistrative/Special Use Road (Closed To Public Vehicles)
- Road open to licensed vehicles
- Seasonal Designation - Roads Open to licensed vehicles
- Roads Open to All Vehicles
- Seasonal Designation - Roads Open to All Vehicles
- Administrative/special use road and non-motorized system trail
- Non-motorized trail
- 50" or less OHV trail
- Close Road
- Other Non-USFS Roads
- Other Non-USFS Trails

- Existing Trailhead

- South Rampart Study Area
- Special Management Areas
- Private
- National Forest Service

Travel Management Plan/ Environmental Assessment

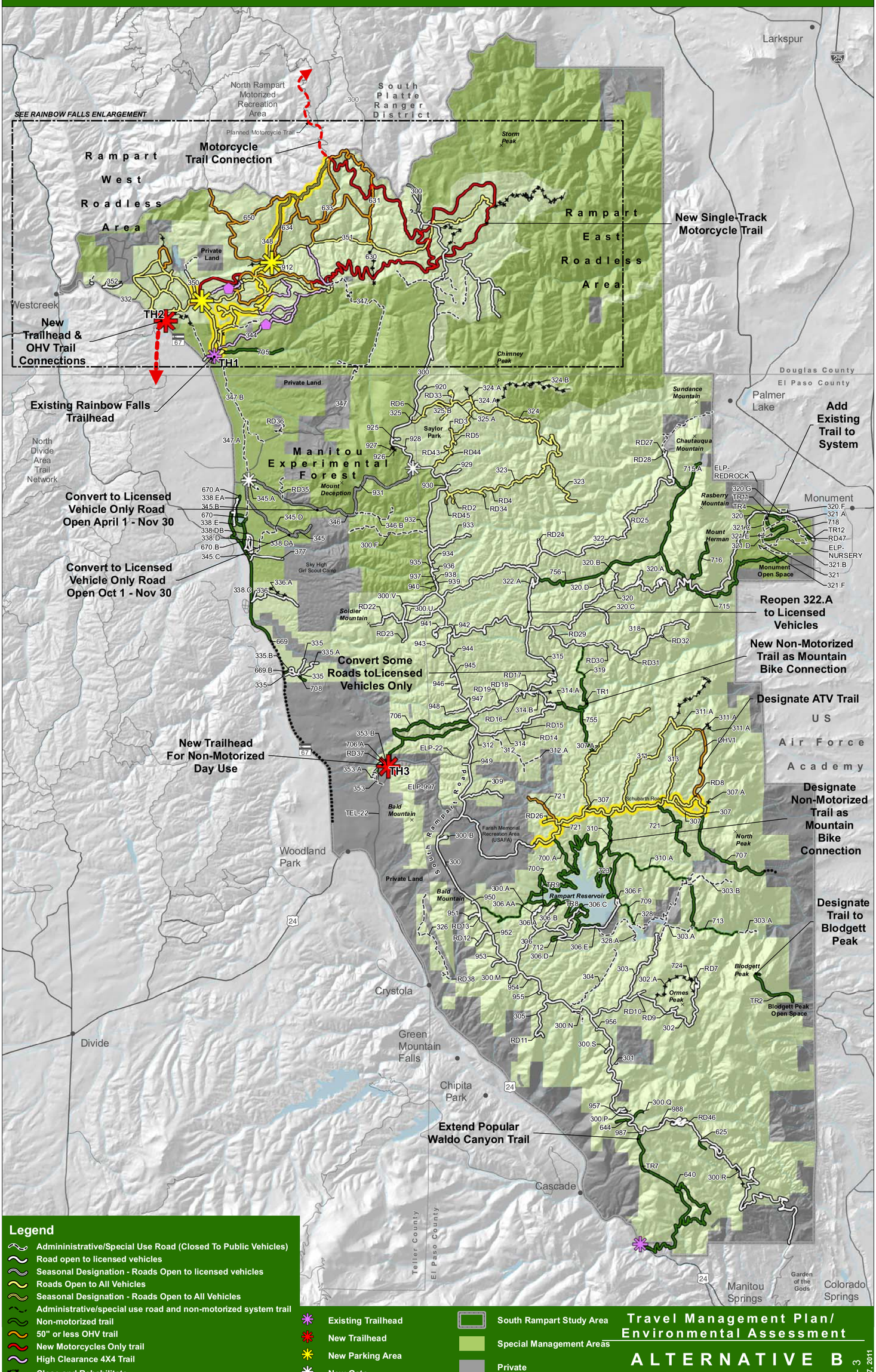
A L T E R N A T I V E A

Pikes Peak Ranger District PSICC

0 0.5 1 Miles

Map 2 - 2
DRAFT - March 2, 2011

S O U T H R A M P A R T



Legend

- Admininistrative/Special Use Road (Closed To Public Vehicles)
- Road open to licensed vehicles
- Seasonal Designation - Roads Open to licensed vehicles
- Roads Open to All Vehicles
- Seasonal Designation - Roads Open to All Vehicles
- Administrative/special use road and non-motorized system trail
- Non-motorized trail
- 50" or less OHV trail
- New Motorcycles Only trail
- High Clearance 4X4 Trail
- Close and Rehabilitate
- Other Non-USFS Roads
- Other Non-USFS Trails
- Camping and Campfires Allowed in Designated Sites Only

- Existing Trailhead
- New Trailhead
- New Parking Area
- New Gate
- Open OHV Riding Areas

- South Rampart Study Area
- Special Management Areas
- Private
- National Forest Service

Travel Management Plan/ Environmental Assessment

ALTERNATIVE B - PREFERRED -

Pikes Peak Ranger District PSICC

Miles 0 1 2

Map 2 - 3

DRAFT - July 27, 2011

2.4.2.2 Designated Open Riding Areas and 4x4 Challenge Roads

In order to provide opportunities for "creative OHV riding," two new open off- road travel areas are proposed. These areas would also provide an opportunity for OHV challenges such as rock crawling. These open riding areas seek to reduce the potential for user-created "play areas" elsewhere in the project area, by providing these opportunities at designated locations. Each open riding area would be delineated with a barrier such as post and cable to contain use within the designated area. Some small spaces within the open areas would also be delineated with barriers to provide a location for gathering/observation and to conserve resources such as trees and water/sediment collection features. Information kiosks would be provided to describe use etiquette and rules.

The open riding areas would be connected to designated routes. The smaller three-acre Little Moab Open Riding Area would be located on Flake Road (NFSR 344) providing opportunities for rock crawling on a naturally existing rock ledge that is currently used for this activity. Flake Road is proposed to become a more challenging full-size 4x4 trail. The other 5-acre Quarry Open Riding Area would be located adjacent to Quarry Road (NFSR 350.B) and would provide opportunities for rock crawling, hill climbing, and cross-country travel. The Quarry Road site is located on an abandoned rock quarry that has already been impacted from mining and provides exposed rock outcrops. A new short 50-inch trail connection would be provided from the Quarry Open Riding Area to Illinois Gulch Road (NFSR 350.A). Quarry Road is also proposed to become a more challenging full-size 4x4 trail. The location of the two open riding areas can be seen on Figure 2-4. Other existing roads that would be designated as 4x4 challenge trails include NFSRs 344.B 348.B 348.C, 347.C and a new short section of road labeled as OHV14 on Map 2-4.

2.4.2.3 Trailheads and Parking Areas

Highway 67 Trailhead

The existing Rainbow Falls trailhead on Rainbow Falls Road (NFSR 350/348) remains open for use and may be reduced in size over time to protect sensitive wildlife habitat along Trout Creek after the construction of the Highway 67 trailhead. Due to the sensitive habitat along Trout Creek and the steep topography east of the existing trailhead, no new sites close to the existing trailhead were identified as suitable. A site for an additional day use trailhead was selected east of Highway 67 and Turkey Track Road (NFSR 343). This 13.2-acre site provides good access from the highway and can easily be connected to Jake Road (NFSR 332.B).. The trailhead could have a paved road from Highway 67 and a gravel parking area for 44 vehicles with trailers and 25 vehicles without trailers (Figure 2-5). A double vault toilet and information kiosks would be provided. Potentially a 50-inch companion trail could be constructed adjacent to the new access road to provide OHV access across the highway and connect to NFSR 343 and ultimately to the North Divide 717 motorized trail network.

A picnic and observation area could be provided adjacent to a fenced-in youth OHV practice track. A fenced-in 1-acre training/warm up open riding area would be provided adjacent to the parking area. As many trees as possible would be conserved on site to preserve a natural setting

and provide shade. The entire new trailhead would be fenced to exclude cattle and prevent their access to the highway. A cattle grate and width restrictor would be used on the 50-inch trail connection to Jake Road (NFSR 332.B). The Forest Service would finalize design and engineering of the highway trail crossing with the Colorado Department of Transportation prior to trailhead construction.

Lovell Gulch Trailhead

Alternative B proposes to develop a new 0.5-acre trailhead at Lovell Gulch (Map 2-3) to provide improved parking to access the existing non-motorized trail 706, which is located close to the U.S. Forest Service Woodland Park Work Center off Teller County Road 22. A parking area for 15 passenger vehicles would be delineated with fencing, graded, and surfaced with gravel. A culvert would be installed to provide access to the site from NFSR 353.B. An information kiosk would be installed at the trailhead.

Illinois Gulch Parking Area

The intersection of Rainbow Falls Road, Quarry Road and Illinois Gulch Road is currently used by the public as a parking and camping area. A small day use parking area is proposed at this site to provide parking to access the proposed new single-track motorcycle trails and open riding areas. The site would accommodate 4 parking spaces for vehicles with trailers and 10 parking spaces for vehicles without trailers (Figure 2-6). The proposed single-track trail would be connected to the new parking area or Quarry Road. A 50-inch OHV trail would be constructed and connect this area to NFSR 332A.

Camping would not be allowed at the site to reserve space for day use. This site is located in a dry gulch that rarely carriers water. Drainage improvements would be incorporated into the design to direct surface water toward the perimeter of the parking area and then across Rainbow Falls Road via a culvert.

Fern Creek Parking Area

Alternative B proposes to develop a new 0.3-acre parking area for up to 15 vehicles and a large campsite at the intersection Fern Creek Road (NFSR 351) and Long Hollow Road (NFSR 348). The site would be delineated with post and cable. The site is currently used for camping and would require some grading to improve the surface for additional parking and to control surface water.

S O U T H R A M P A R T - R A I N B O W F A L L S

- Admininistrative/Special Use Road (Closed To Public Vehicles)
- Road open to licensed vehicles
- Seasonal Designation - Roads Open to licensed vehicles
- Roads Open to All Vehicles
- Seasonal Designation - Roads Open to All Vehicles
- Administrative/special use road and non-motorized system trail
- Non-motorized trail
- 50" or less OHV trail
- New Motorcycles Only trail
- High Clearance 4X4 Trail
- Close and Rehabilitate
- Other Non-USFS Roads
- Other Non-USFS Trails
- Camping and Campfires Allowed in Designated Sites Only
- Existing Trailhead
- New Trailhead
- New Parking Area
- Open OHV Riding Areas
- South Rampart Study Area
- Special Management Areas
- Private
- National Forest Service

Travel Management Plan/ Environmental Assessment

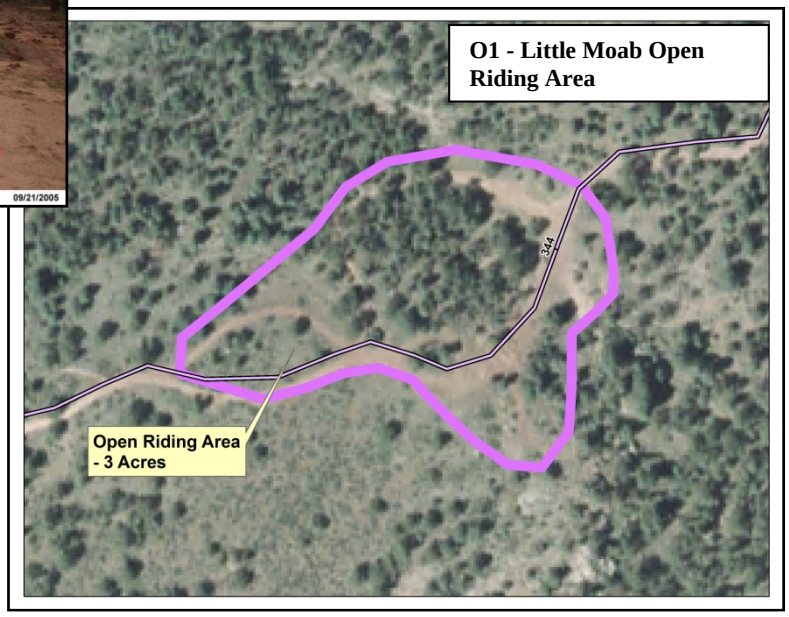
ALTERNATIVE B - PREFERRED -

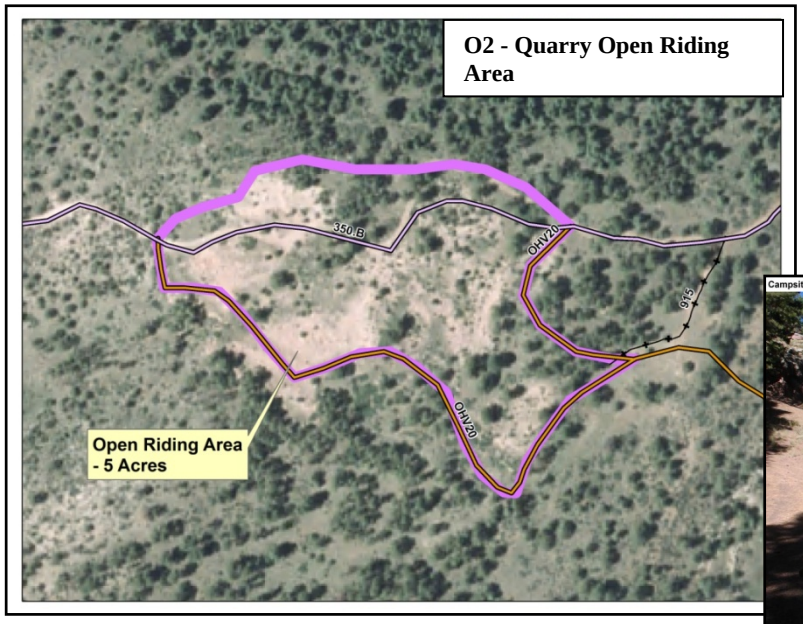
Pikes Peak Ranger District PSICC

0 0.5 1 Miles

Map 2 - 4
DRAFT - March 2, 2011

Figure 2-4: Open Riding Area Maps and Site Photos





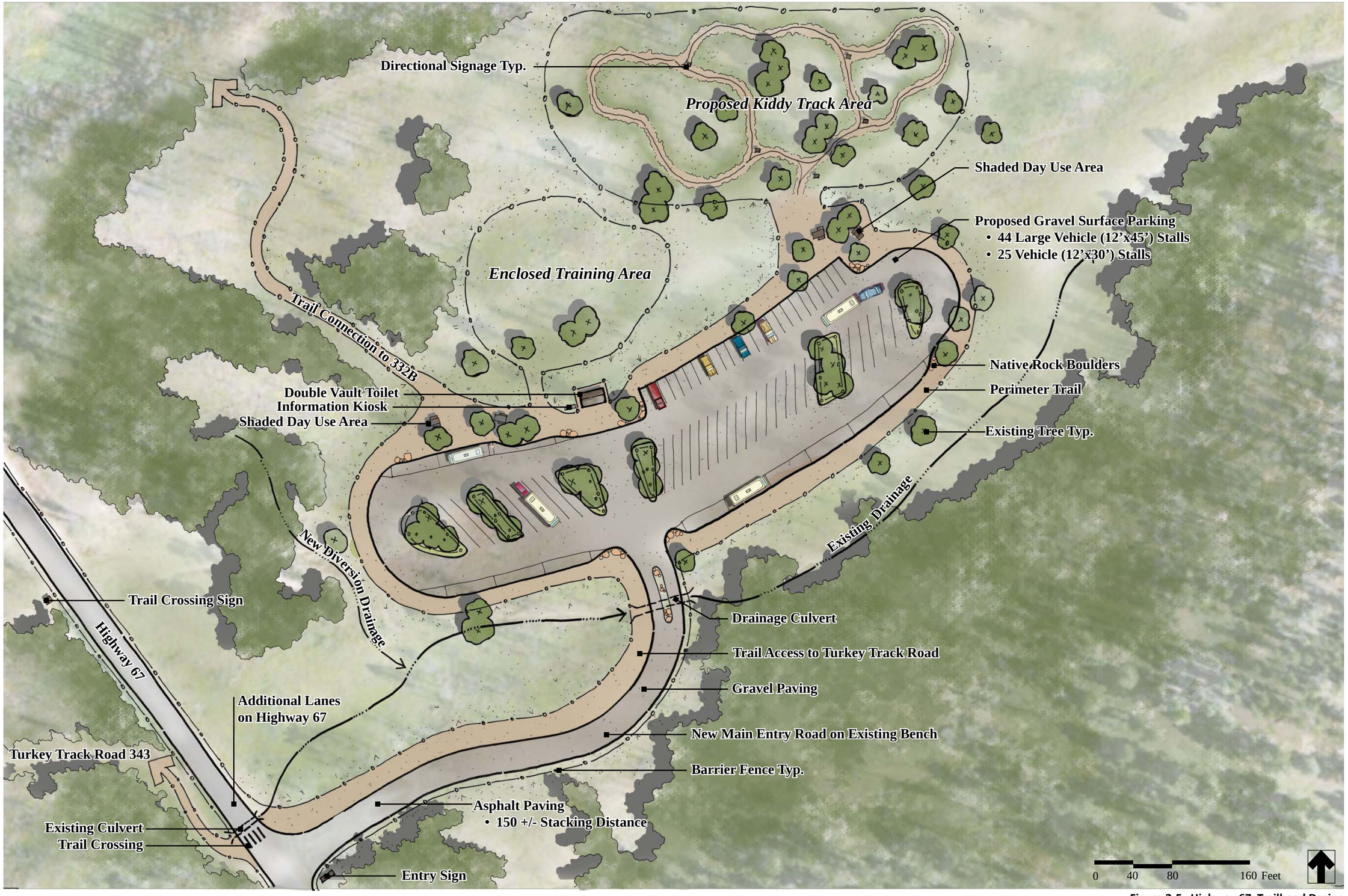
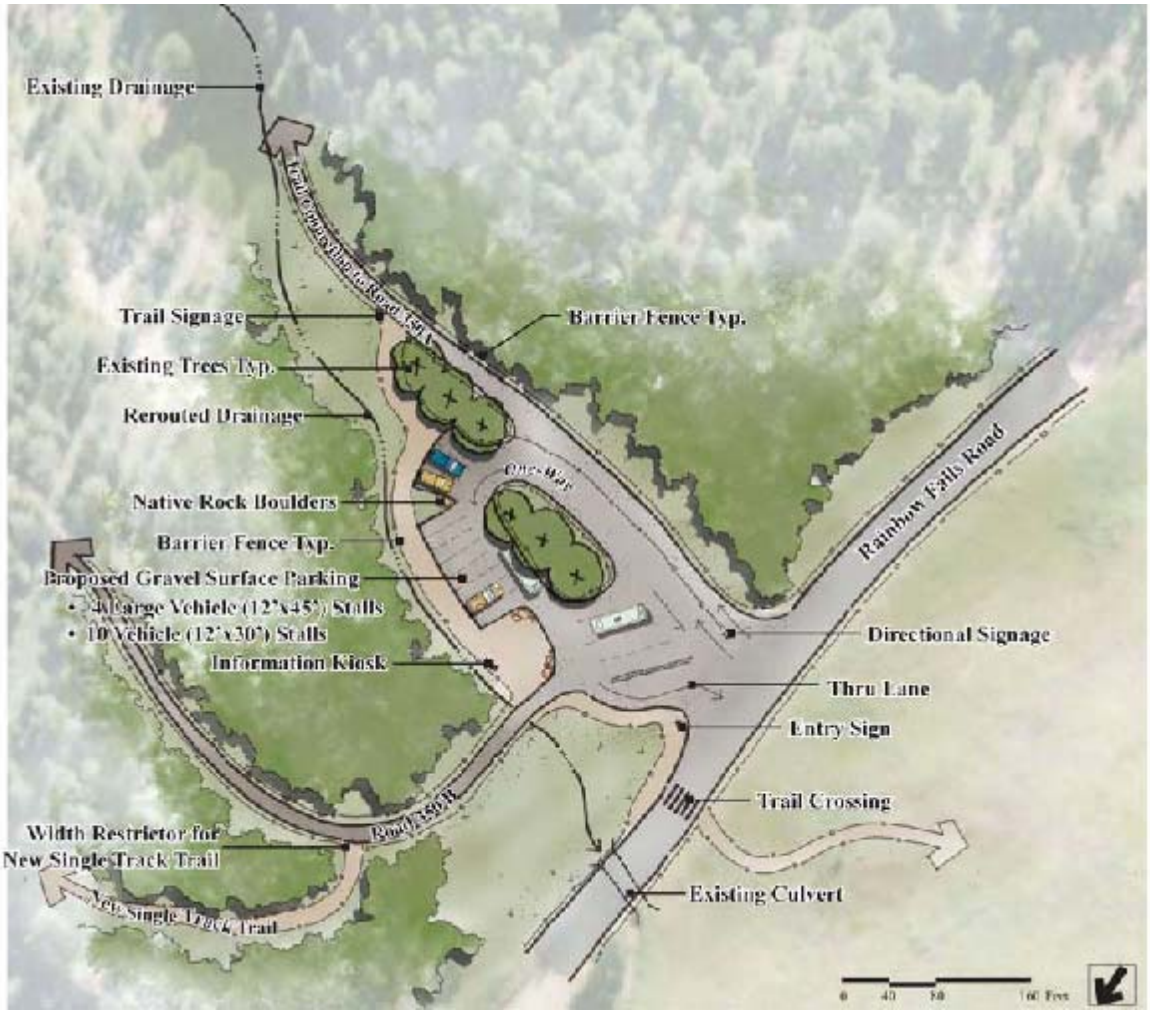


Figure 2-5 Highway 67 Trailhead Design

Figure 2-6: Illinois Gulch Parking Area Design



2.4.3 Alternative C

Under Alternative C, an approximately 310-mile system (Map 2-5 and Map 2-6) would be managed to provide motorized and non-motorized trail opportunities while also enhancing resource protection, operational efficiency, and safety. The functionality of the system and experience of trail users would be improved by providing (1) designated areas for both motorized and non-motorized users, (2) additional miles of non-motorized, ATV/motorcycle, and motorcycle only trails in popular recreation areas, (3) new motorized trails designed for different user types and skill levels, (4) new trail connections and looped trails, and (5) new or improved parking and trailhead facilities.

Actions to further resource protection, and remove road and trail redundancy, include (1) decommissioning of non-system and unclassified roads, (2) closure and restoration of non-system motorized trails, (3) restriction of motorized recreation opportunities, and decommissioning of motorized routes, in the MEF, (4) closure and rehabilitation of roads that dead-end in roadless areas, and (5) designation of camping sites in heavily used areas.

Key differences between Alternative B and Alternative C are in the miles of roads and trails designated for different uses (Section 2.4.3.1) and the scope of facilities improvements (Section 2.4.3.2 and Section 2.4.3.3).

2.4.3.1 Motorized and Non-motorized Routes

A detailed description of specific actions proposed for each route under each alternative is included as Appendix B. Under Alternative C, routes open to licensed vehicles only would increase from 61 miles to 103 miles, as a result of converting short dead-end routes and spur roads from "open to all vehicles" to "licensed vehicles only." Routes that would be open to all vehicles would decrease from 130 miles to 65 miles (Table 2-1). The Schubarth Road system would be closed to unlicensed vehicles to reduce conflicts with adjacent land owners and provide a quieter recreation area.

Trails open only to ATV's and motorcycles would be increased from approximately 10 to 12 miles. New ATV trails would provide more miles of riding opportunity and create more trail loops. Approximately 8 miles of single-track trail available only to motorcycles would also be constructed. Non-motorized trails would be increased from approximately 54 to 67 miles through the addition of several trails. Except for the Rainbow Falls trailhead and designated routes, unlicensed vehicles would not be permitted on the MEF. Hotel Gulch Road (NFSR 346) and John's Gulch Road (NFSR 345) in the MEF would be limited to license vehicles only from June 1 to November 30.

2.4.3.2 Designated Open Riding Areas and 4x4 Challenge Roads

Designated open riding areas proposed under Alternative B are not proposed under Alternative C. The 4x4 challenge roads described in Section 2.4.2.2 are proposed for Alternative C. However 6.0 miles of 4x4 challenge trail is proposed in Alternative C, compared to 7.4 miles in Alternative B.

2.4.3.3 Trailheads and Parking Areas

The new Fern Creek parking area described in Section 2.4.2.3 for Alternative B, is also proposed under Alternative C. Alternative C also proposes to redevelop the existing trailhead at Rainbow Falls to improve its quality and functionality, with an emphasis on OHV recreational use.

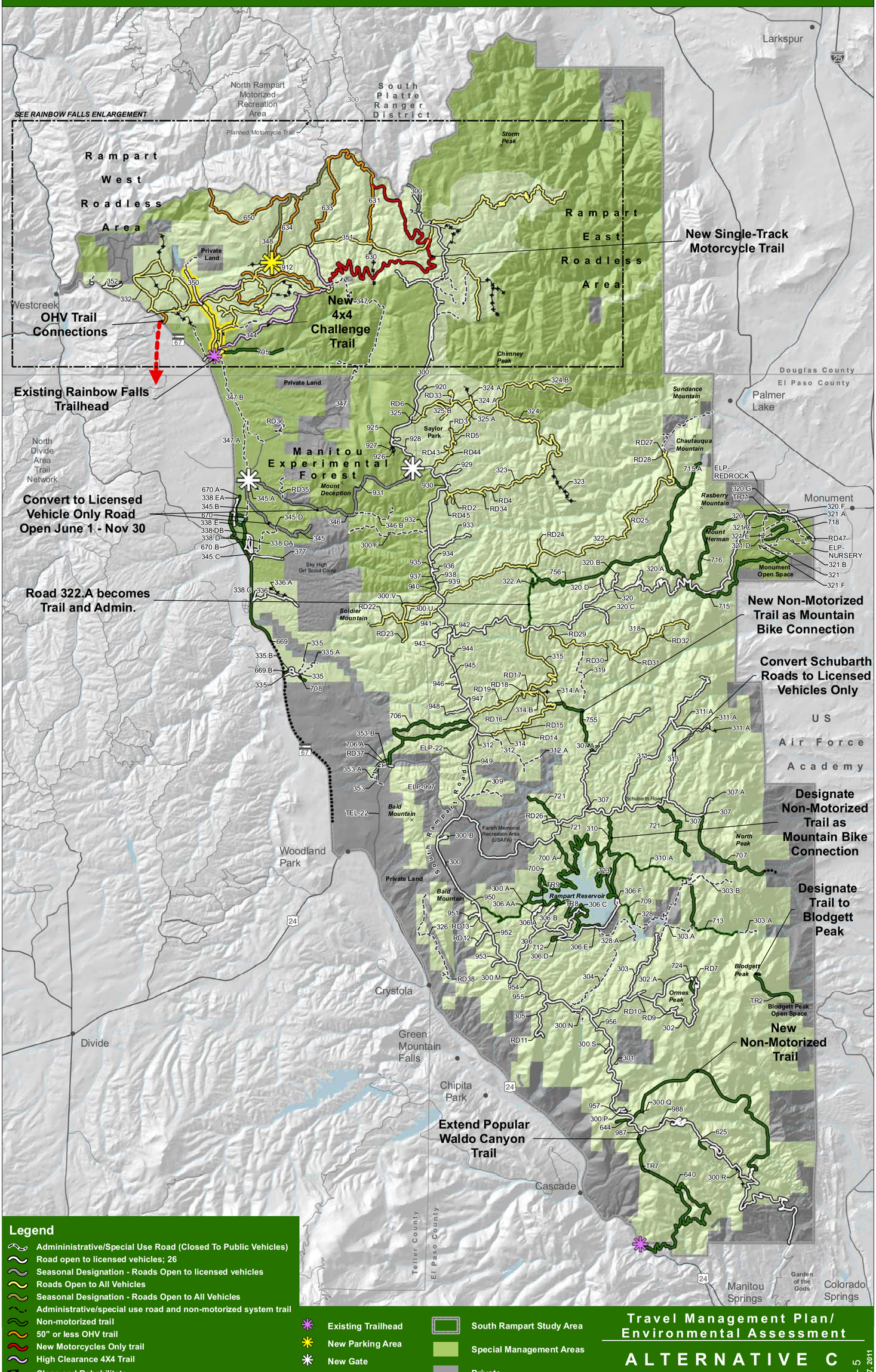
2.4.4 Implementation Priorities, Schedule, and Funding

Implementation priorities and the proposed schedule for implementation of alternative actions are summarized in Table 2-3 below.

Table 2-3: Implementation Priorities and Schedule

Implementation Priority	Alternative Action
Priority 1 (< 1 year)	Development of the Implementation Plan Identify volunteer support resources and funding opportunities Decommission non-system routes Reclassify roads open to all vehicles to licensed vehicles only Reopen and reclassify NFSR 322.A Construct new 50-inch OHV trail from NFSR 350 to NFSR 332A. Reclassify specific roads to extreme 4x4 trails Create Little Moab open riding area Closure and Rehabilitation of NFSR 348F and riparian area Construct new Fern Gulch parking area Install gates on Hotel and John's Gulch Roads
Priority 2 (2 to 5 years)	Decommission system routes Continue decommission of non-system routes Construct new non-motorized trails Begin construction of new 50-inch ATV trails Phase 1 construction for new single-track motorcycle trails Create Quarry open riding area Delineate designated camping and campfire sites along NFSR 350 and NFSR 348 areas Construct new Illinois Gulch parking area Construct new Lovell Gulch trailhead
Priority 3 (> 5+ years)	Construct new 50-inch ATV trails and connection across Highway 67 Construct new Highway 67 trailhead

S O U T H R A M P A R T



Legend

- Admininistrative/Special Use Road (Closed To Public Vehicles)
- Road open to licensed vehicles; 26
- Seasonal Designation - Roads Open to licensed vehicles
- Roads Open to All Vehicles
- Seasonal Designation - Roads Open to All Vehicles
- Administrative/special use road and non-motorized system trail
- Non-motorized trail
- 50" or less OHV trail
- New Motorcycles Only trail
- High Clearance 4X4 Trail
- Close and Rehabilitate
- Other Non-USFS Roads
- Other Non-USFS Trails
- Camping and Campfires Allowed in Designated Sites

- Existing Trailhead
- New Parking Area
- New Gate

- South Rampart Study Area
- Special Management Areas
- Private
- National Forest Service

Travel Management Plan/ Environmental Assessment

ALTERNATIVE C

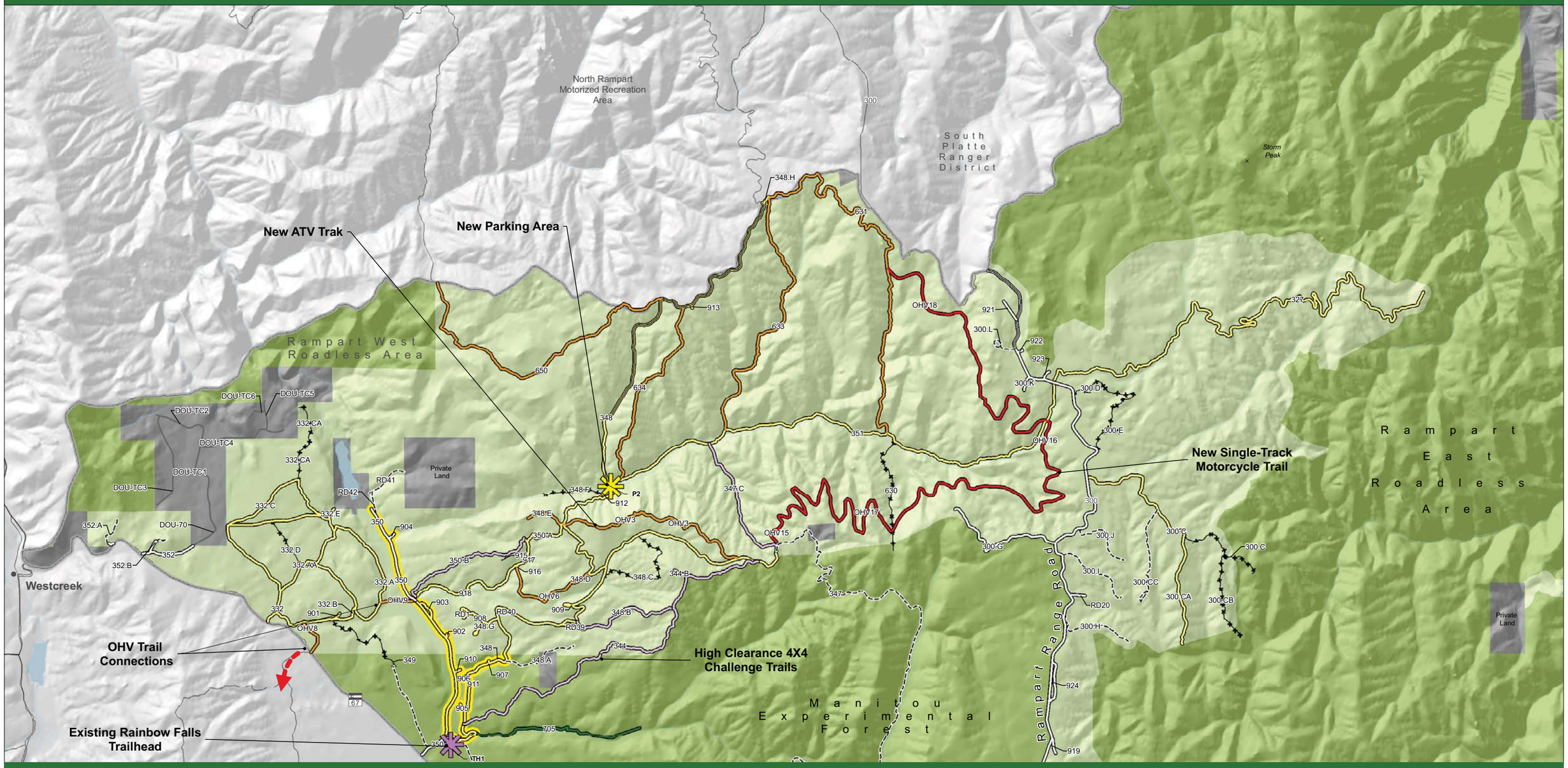
Pikes Peak Ranger District PSICC

0 1 2 Miles

Map 2 - 5

DRAFT - July 27, 2011

S O U T H R A M P A R T - R A I N B O W F A L L S



- Admininistrative/Special Use Road (Closed To Public Vehicles)
- Road open to licensed vehicles
- Road open to licensed vehicles - Seasonal Designation
- Roads open to all vehicles
- Roads open to all vehicles - Seasonal Designation
- Administrative/special use road and non-motorized system trail
- Non-motorized trail
- 50" or less OHV trail
- New Motorcycles Only trail
- High Clearance 4X4 Trail
- Close and Rehabilitate
- Other Non-USFS Roads
- Other Non-USFS Trails
- Camping and Campfires Allowed in Designated Sites
- Existing Trailhead
- New Parking Area
- South Rampart Study Area
- Special Management Areas
- Private
- National Forest Service

Travel Management Plan/ Environmental Assessment

A L T E R N A T I V E C

Pikes Peak Ranger District PSICC

0 0.5 1 Miles

Map 2 - 6
DRAFT - March 2, 2011

2.4.4.1 Implementation Strategies and Funding

Implementation of this TMP will depend upon availability of NFS resources, as well as funding and support from private groups and individuals. While the implementation of this plan would likely be staged over many years, the NFS is dedicated to implement priority actions with the aid of volunteer sources. It would be this successful partnership that would speed up the implementation of the plan. NFS will actively seek grants and other funding to implement the plan. An important source of potential implementation funding would be the Colorado OHV registration grant program administered by Colorado State Parks. Pikes Peak Ranger District acknowledges the important contributions of many private groups to help manage the Forest and improve recreational opportunities. Collaboration with these groups would be important to successfully implement this plan.

An Implementation Plan will be developed outlining specific priorities and additional National Environmental Policy Act requirements. This Plan will attempt to balance the resources available with immediate implementation needs and stage logical accomplishments on an annual basis. This balance would include both enhancing motorized opportunities and non-motorized action items. Rehabilitation of damaged natural resources, closure and rehabilitation of illegal motorized routes, enforcement of regulations, and enhancement of wildlife habitat would be balanced with the improvements to motorized recreational opportunities.

Potential private groups to collaborate with on implementation and funding of the plan include the following:

- Colorado State Parks
- Great Outdoors Colorado
- Big Horn 4x4 Club
- Colorado Mountain Club
- Colorado Motorcycle Trail Riders Association
- Colorado 4 Wheelers
- Medicine Wheel Trail Advocates
- Colorado OHV Coalition
- Colorado Quad Runners ATV Club
- Friends of Monument Preserve
- Pikes Peak Enduro Club
- Quad Dusters
- Sierra Club
- Colorado Wild
- Wild Connections
- The Quiet Use Coalition
- Trails Preservation Alliance

- US Air Force Academy
- Coalition for the Upper South Platte
- Colorado Springs Christian 4-Wheelers
- Trout Unlimited
- El Paso County Parks, Trails and Open Space Department
- Teller County Division of Parks

Construction of new OHV trails that create improved recreational opportunities is a high priority in order to reduce the creation of user-created routes. The future construction of two short segments of 50-inch OHV trail to tie Rainbow Falls Road to Turkey Track Road and the west side of Highway 67 could significantly improve the distance riding opportunities in and adjacent to the project area. A trail crossing on Highway 67 would require coordination with Colorado Department of Transportation and additional planning connected with the North Divide and Trail 717 network. . A high priority would be the decommissioning of non-system user-created routes especially in areas where OHV use would be permitted. These non-system routes often cause the greatest resource impact and confuse visitors as to their open/closed status. Establishment of designated open riding areas would provide an authorized place for visitors to participate in "creative riding", which would help reduce the creation of visitor-created "play areas." All roads in the MEF south of the Rainbow Falls trailhead would be reclassified as open to licensed vehicles only to reduce OHV impacts on sensitive owl habitat and ongoing forest research activities.

2.5 Design Criteria and Environmental Protection Measures

2.5.1 Design Criteria

New trail design, survey, and construction would be undertaken in accordance with Forest Service direction specified in EM 7720.102, Standard Specifications for Construction of Trails and FSH 2309.18, Trails Management Handbook. All new construction of motorized trails would be designed by a qualified engineer or trail planner (and constructed accordingly) to meet Forest Service Trail Class 3 specifications. A summary of key design specifications and construction methods for motorized and non-motorized trail types are summarized in Table 2-4 below.

Table 2-4: Trail Types, Design Criteria, and Construction Methods

Trail Type	Trail Width	Vegetation Clearance	Max. Trail Slope	Construction Methods
Non-motorized	24-inch	48-inch	15%	Hand tools, chain saws, native materials. Construction duration approximately 4 weeks per mile.
Single-track motorcycle	24-inch	48-inch	20%	Hand tools, chain saws, native materials. Construction duration approximately 4 weeks per mile.
ATV	50-inch	8-foot	25%	SWECO? dozer, hand tools, chainsaws, native materials. Construction duration approximately 1 week per mile.
4x4, side-by-side, UTV	12-foot	16-foot	25%	SWECO dozer, tractor, jack hammer, chainsaws, native materials. Construction duration approximately 4 weeks per mile.

In the event that a route proposed for new construction cannot be designed and/or constructed to its prescribed Trail Class specifications within the corridor that was surveyed as part of this analysis, the appropriate level of environmental analysis of the new route location would be completed prior to construction.

All system trails proposed for changes in their managed use that require repairs or reconstruction to meet Forest Service standards for the managed use prescribed for the trail would receive the needed improvements prior to the route being reclassified and opened to the new use(s).

2.5.2 Environmental Protection Measures

Environmental protection measures (EPMs) incorporated into the project design are summarized in Table 2-5 below.

Table 2-5: Environmental Protection Measures

Water Quality and Aquatic Resources	
EPM-1	Best management practices as specified in the Forest Service Handbook (FSH 2509.25, Watershed Conservation Practices) would be incorporated into all proposed activities. Watershed Conservation Practices applicable for this project include: 11.1-11.2 (hydrologic function), 12.1-12.4 (riparian area and wetland protection), 13.1-13.4 (sediment control), 14.1-14.2 (long-term soil productivity), and 15.2 (control pollutants).
EPM -2	The effectiveness of the Watershed Conservation Practices would be monitored by the construction site supervisor, Forest hydrologist and/or Forest biologists to ensure compliance with the Clean Water Act.

Wildlife	
EPM-3	Facilities and routes would be designed to minimize adverse impacts to suitable riparian, upland, and critical habitat for the Preble's meadow jumping mouse (as defined by the draft Recovery Plan for the Preble's meadow jumping mouse [USFWS 2003a] and critical habitat description [USFWS 2010a]). Prior to any construction or decommissioning projects (including re-routes) in potential Preble's habitat, a site visit would be conducted to determine habitat suitability. Suitable habitat would be assumed occupied and avoided to the extent practicable. *Where avoidance is not possible, site-specific Tier 2 consultation with FWS would be completed as appropriate under the Tier 1 consultation agreement.* In these areas, project activities would primarily occur during the hibernation period (Nov. 1 – Apr. 30), but consultation may approve summertime activities depending on the situation. Closed routes may be reclaimed using native vegetation.
EPM-4	Facilities and routes would be designed to minimize adverse impacts to suitable restricted, protected, and critical habitat for the Mexican spotted owl (as defined by the Recovery Plan for the Mexican Spotted Owl [USFWS 1995] and critical habitat description [USFWS 2004]). Prior to any construction or decommissioning projects (including re-routes) in potential owl habitat, a site visit would be conducted to determine habitat suitability within 0.5 mile of the proposed action site. Should suitable habitat be present, project work would avoid these areas to the extent practicable. *Where avoidance is not possible, occupancy surveys would be conducted and site-specific Tier 2 consultation with USFWS completed as appropriate under the Tier 1 consultation agreement.* In these areas, project activities would primarily occur during the non-breeding season (Oct. 1 – Mar. 1), but consultation may approve summertime activities depending on the situation. If an owl is detected, a PAC would be established.
EPM-5	Appropriate surveys would be conducted in suitable habitat for selected Forest Service Sensitive plant and animal species prior to any ground disturbing activity. Steps would be taken to avoid and minimize impacts to these species. Protective measures may include, but are not limited to, route alterations, timing restrictions, and/or altering the implementation methods.
EPM-6	In bighorn sheep production areas, construction activities would primarily occur between June 11 and April 30 to avoid the lambing season (May – Jun. 10). Site-specific project activities would be coordinated with preconstruction input from the CDOW.
EPM-7	Facilities and routes would be designed to minimize adverse impacts to riparian habitats (i.e., vegetation damage, soil erosion, sedimentation, and human disturbance).
Heritage Resources	
EPM -8	The Forest Service will consult with the State Historic Preservation Office prior to ground disturbing activities in order to identify historic properties within the Area of Potential Effect.
EPM -9	If historic properties (including archaeological sites) are discovered during ground disturbing activities, all operations will cease within a 100-foot radius of the work site, and the forest archaeologist will be notified immediately. Treatments for inadvertent discoveries would be determined in consultation with the State Historic Preservation Office.
EPM -10	The construction site supervisor will be provided with maps and GPS coordinates of all significant or potentially significant cultural properties in the vicinity of the work site. Historic properties located in close proximity to work areas will be protected with barriers during construction.

Noxious Weeds	
EPM -11	Incorporate weed prevention into road and trail maintenance and decommission projects. Consider treating weeds in roads to be decommissioned before roads and trails are made undrivable. Monitor and re-treat if needed.
EPM -12	Inventory roads and trails for noxious weeds and maintain records of weed species and their locations so that planning for road and trails maintenance can include weed prevention measures.
EPM -13	Clean all heavy equipment before entering and exiting NFS lands to minimize transporting weed seed. Remove all mud, dirt, and plant parts from the undersides of equipment.
EPM -14	Reseed after construction, heavy maintenance, and other soil disturbing activities. Only use weed free seed and appropriate native species.
EPM -15	Minimize sources of weed seed. Use only clean fill material from a weed-free source rather than borrowing fill from stockpile, road shoulder, or ditch line. If straw is used for road stabilization and erosion control, it must be certified weed-free or weed-seed free.
Hydrology and Soils	
EPM -16	Stream crossings would be improved (hardened or culvert or bridge – depending on need).
EPM -17	All designated system routes in wetlands would be rerouted out of the wetlands.
EPM -18	Closed routes and unauthorized routes would be rehabilitated.
EPM -19	Sediment control and pollution control for chemicals from vehicles would be designed and built where determined necessary (i.e. downslope from the rock crawl areas).
EPM -20	Road maintenance including crowns, ditches, rolling dips and outsloping to promote frequent drainage.
EPM -21	Watershed Conservation Practices (FSH 2509.25) applicable this project include: 11.1-11.2 (hydrologic function), 12.1-12.4 (riparian area and wetland protection), 13.1-13.4 (sediment control), and 14.1-14.2 (long-term soil productivity), and 15.2 (control pollutants).

2.6 Alternatives Considered But Not Carried Forward

During the scoping process, suggestions for elements to include within alternatives were made. In most cases, suggestions were incorporated into an alternative for analysis. Suggested elements inconsistent or conflicting with Forest policies, or management objectives of the MEF and roadless areas, were dismissed. Other alternative actions considered but not carried forward for analysis are summarized below:

Parallel Motorized Trail Adjacent to Rampart Range Road. The option to create a trail adjacent to Rampart Range Road open to unlicensed OHV vehicles connecting key motorized use areas was considered and dismissed. The new route would disperse motorized use, making it difficult for the Forest Service to efficiently manage users. Therefore, an alternative with this option was not considered.

New Trail Loops on the Edge of Project Area. Regional motorized and non-motorized trails loops that were located on the edge of the project area were eliminated due to resource, land owners and management concerns. These trails were located in the MEF or close to private properties, which could lead to resource impacts in the MEF and trespassing on private

property. Long distance non-motorized trails in the project area are not warranted as the area is primarily used as a day use destination for hiking, bicycling and horse riding.

3 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

3.1 Air Quality

3.1.1 Approach to Analysis

3.1.1.1 Methodology

Construction and use of motorized roads and trails may result in impacts to air quality within the project area as a result of vehicle and fugitive dust emissions. Construction of non-motorized trails would not require use of heavy equipment (Table 2-4) and are not associated with motorized use. Therefore, air quality impacts from the construction and use of non-motorized trails are expected to be negligible and are not discussed further in this impact assessment.

Three types of motorized trails are proposed under the South Rampart Travel Management Plan: high clearance 4x4 challenge trails, single-track trails designed for motorcycle use, and 50-inch or less motorized OHV trails that are designed primarily for ATV use, but may also be used by motorcycles. Due to the width of single-track trails (up to 24 inches), these trails would primarily be constructed by crews using hand tools which could include picks, shovels, and chain saws. Emissions generated during the construction of single-track trails are anticipated to be negligible.

In contrast, ATV trails and the high clearance 4x4 challenge trails may be constructed using a combination of hand tools and diesel construction equipment such as small trail dozers, skid steer loaders, and backhoes. Emissions during construction of ATV and 4x4 trails would include both fugitive dust emissions and exhaust emissions from construction equipment.

Based on the design tread width of the ATV trails (up to 50 inches) and the size of compatible diesel construction equipment expected to be used for trail construction, the equipment used would likely be in the range of 50 to 100 hp. Since the proposed 4x4 challenge trails would be converted from existing roads or non-system routes, equipment used during construction is expected to be comparable to equipment that would be used for ATV trail construction. EPA's emission standards for selected small diesel construction equipment and hand-held gasoline powered equipment are presented in Table 3-1.

Table 3-1: EPA Emission Standards for Small Construction Equipment

Engine Size and Type	NMHC & NOx	CO	PM/PM_{10}	Source
50 to 100 hp – Diesel equip. 2004 model year Tier II standard (trail dozers and backhoes)	5.6 g/hp-hr	3.7 g/hp-hr	0.3 g/hp-hr	EPA 1998b, Table 1-1
20 to <50 cc displacement hand-held (chain saws)	50 g/kW-hr	50 g/kW-hr	--	Sicking and Zavala 2002, Table 1

Using the emission standards (emission factors) presented in Table 3-1, hourly emission estimates for potential construction equipment were calculated. A sampling of construction equipment and hourly emission estimates that could potentially be used during the construction of ATV and 4x4 challenge trails is presented in Table 3-2.

Table 3-2: ATV and 4x4 Trail Construction Equipment and Emission Estimates

Equipment	Estimated Engine Size	NMHC & NOx (lbs/hour)	CO (lbs/hour)	PM/PM_{10} (lbs/hour)
Trail Dozer	80 hp	1.0	0.7	0.05
Skid Steer Loader	89 hp	1.1	0.7	0.06
Backhoe	98 hp	1.2	0.8	0.06
Chain Saw	1.68 kW	0.2	0.2	--

As can be seen from Table 3-2, hourly exhaust emissions from trail construction equipment would be quite small and would range from 0.05 pounds per hour for particulate matter (PM_{10}) to 1.2 pounds per hour for non-methane hydrocarbons (NMHC) and oxides of nitrogen (NOx) for the 98 horsepower (hp) backhoe. These levels of emissions are not expected to result in high concentrations of any air pollutants even in the immediate vicinity of construction activities.

3.1.1.2 Significance Criteria

Impacts on air quality were assessed using the following thresholds:

- A negligible impact on air quality would occur if emissions generated during construction of the project or resulting from the use of trails by OHVs would be barely, or infrequently noticeable outside of the immediate area of construction or use.
- A minor impact would occur if emissions generated during construction or resulting from the use of trails by OHVs would be periodically noticeable by users of the travel management area.
- A moderate impact would occur if emissions generated during construction or resulting from the use of trails by OHVs would frequently be noticeable by users of the travel

management area or adjacent areas in the form of visible dust or exhaust plumes or would have a measurable impact on regional air quality.

- A significant impact would occur if emissions generated during construction or resulting from the use of trails by OHVs would cause or contribute to a violation of the NAAQS or other regulatory guideline.

3.1.2 Existing Conditions

3.1.2.1 Regulatory Environment and Regional Attainment Status

The Clean Air Act (42 U.S.C. 7401 et seq. as amended in 1977 and 1990) is the principal federal statute governing air pollution. The Clean Air Act empowered the U.S. Environmental Protection Agency (EPA) to set National Ambient Air Quality Standards (NAAQS) for pollutants considered harmful to public health and the environment. These pollutants are called "criteria" air pollutants and include carbon monoxide (CO), ozone, nitrogen dioxide (NO_2), sulfur dioxide (SO_2), lead, particulate matter equal to or less than 10 microns in diameter (PM_{10}), and fine particulate matter equal to or less than 2.5 microns in diameter ($PM_{2.5}$). The NAAQS include primary standards designed to protect human health and secondary standards to protect public welfare, including visibility and damage to crops and vegetation.

Regions of the country that meet the NAAQS are considered "attainment" areas, and regions that do not meet the NAAQS are designated as "nonattainment" areas. Regions that were formerly designated as nonattainment areas, and have since attained the NAAQS are considered "attainment/maintenance" areas. Attainment/maintenance areas are required to adopt plans and to maintain various types of control measures to ensure that industrial growth, urban development, and other types of activities do not threaten the attainment/maintenance status of the area. Certain rural parts of the country do not have extensive air quality monitoring networks; these areas are considered "unclassifiable" and are presumed to be in attainment with the NAAQS.

The project area is located within portions of El Paso, Teller, and Douglas counties. Portions of El Paso County including the cities of Colorado Springs and Manitou Springs and portions of Teller County including the city of Woodland Park and areas on either side of U.S. Highway 24 are designated attainment/maintenance for the carbon monoxide NAAQS. A portion of the project area, in particular the area south and west of South Rampart Road, falls within the designated carbon monoxide attainment/maintenance area.

The Douglas County portion of the project area is located within the nonattainment area for the 8-hour ozone NAAQS and the attainment/maintenance area for the 24-hour PM_{10} NAAQS, but is located outside of the Denver Metropolitan carbon monoxide attainment/maintenance area. The Forest Service needs to ensure that activities proposed as part of the South Rampart TMP are consistent with the air quality attainment and maintenance plans for the affected regions.

3.1.3 Environmental Consequences

3.1.3.1 Effects Common to All Alternatives

Direct Effects

Air quality impacts could occur during both the construction phase of the project and as a result of motorized vehicles using roads and trails designated for motorized use. Emissions during construction would include both fugitive dust emissions and exhaust emissions from construction equipment. Emissions during road and trail use would include both fugitive dust emissions and exhaust emissions from the motorcycles, ATVs, and full-size vehicles that would use the roads and trails.

Fugitive dust emissions from the construction of ATV and 4x4 challenge trails would be generated primarily during earth moving activities. Emission estimates were developed using standard emission factors for bulldozing obtained from the EPA publication AP-42 (EPA 1998a). Using the recommended emission factor equation for bulldozing overburden (EPA 1998a, Table 11.9-1) emissions of PM_{10} were calculated to be approximately 0.75 pounds per hour. It is estimated that the construction of 1 mile of ATV or 4x4 challenge trail using a trail dozer and hand crew would require approximately 40 hours of construction activity depending on topography and vegetation (pers. comm. Dollus, 2011) and would result in emissions of approximately 30 pounds of PM_{10} per mile of trail. As with any earthmoving activities, the heaviest particles would quickly settle out of the air near the dust source and the finer particles could become entrained in the air and travel some distance from the activity.

The total emissions from equipment exhaust and fugitive dust would be dependent upon the length of the trail constructed as well as the duration of construction activities. Emissions generated by new ATV and 4x4 challenge trail construction were estimated for each alternative based on the above assumptions, and are presented in Table 3-3 below.

Table 3-3: Estimated Emissions for ATV and 4x4 Challenge Trail Construction by Alternative

Alternative	New ATV Trail (miles)	New 4x4 Challenge Trail (miles)	Total New ATV & 4x4 Trails (miles)	Equipment Operation (hours)	NMHC & NOx pounds (tons)	CO pounds (tons)	PM/PM_{10} pounds (tons)
A	0.0	0.0	0.0	0	0	0	0
B	9.4	7.4	16.8	672	1,949 (1.0)	1,344 (0.7)	598 (0.3)
C	2.7	6.0	8.7	348	1,009 (0.5)	696 (0.3)	310 (0.2)

Indirect Effects

No indirect effects are anticipated.

3.1.3.2 Alternative A

Direct Effects

The No Action Alternative would have no additional effect on air quality when compared with current conditions. There would be no trail construction associated with this alternative. Trail usage would be comparable to current usage and both motorized and non-motorized trail usage would be expected to increase slightly over time in proportion to the expected growth in population and visitation.

Indirect Effects

No indirect effects are anticipated.

3.1.3.3 Alternative B

Direct Effects

Alternative B would construct 5.8 miles of non-motorized trail, 9.4 miles of ATV trail, 7.4 miles of 4x4 challenge trail, and 16.5 miles of single-track motorcycle trail. Under Alternative B, the total miles of motorized road and trail open to licensed or unlicensed vehicles would increase from 237.4 miles to 256.4 miles (representing a net increase of 19 miles). As discussed above, construction of new non-motorized and single-track trail would not require heavy equipment, and would therefore have negligible impacts to air quality.

Construction of 9.4 miles of new ATV trail and conversion of 7.4 miles of existing road to 4x4 challenge trail would have minor short-term air quality impacts. These impacts would result from exhaust emissions from the use of diesel-powered trail dozers, skid steer loaders, and backhoes; gasoline powered chain saws; and fugitive dust emissions from earth moving activities. Based on construction of 16.8 miles of trail and an estimated 40 hours of construction activity per mile (Dollus 2011), construction equipment could be operated as much as 672 hours to construct these new trails.

As shown in Table 3-3, emissions of criteria pollutants from trail construction under Alternative B would be small to moderate and are conservatively estimated to range from 0.3 tons of PM_{10} to 1.0 tons of NMHC and NO_x. These emissions are well below any regulatory standard, represent a very small percentage of regional emissions, and would be spread out along the 9.4 miles of ATV trail and the 7.4 miles of 4x4 challenge trail which would limit pollutant concentrations in any one area. Pollutant and dust concentrations would be elevated for short periods in the immediate vicinity of construction, but these concentrations would disperse rapidly and are not expected to result in or contribute measurably to an exceedance of any air quality standard. The overall air quality impact from ATV and 4x4 challenge trail construction would be minor.

Minor localized air quality impacts would result from the expansion of the motorized road and trail network due to increased use by motorcycles and ATVs. Alternative B would result in an increase of approximately 19 miles of motorized roads and trails compared to the No Action Alternative (Table 2-1). Emissions would result from vehicle exhaust emissions and fugitive dust would be generated by the use of vehicles on unpaved roads and trails.

Due to the limited overall expansion of the motorized road and trail network under Alternative B, the air quality impacts from this alternative would be minor. Impacts would generally be localized in the immediate vicinity of the roads and trails when vehicles would pass a given point. Since vehicles would pass any given point quickly and the total emissions would be spread out along the entire length of the road or trail, perceptible concentrations of pollutants would not remain at any point for more than a few minutes following vehicle passage. In addition, concentrations of pollutants would drop off rapidly with increasing distance from the motorized routes.

Creation of the two new OHV open riding areas would have minor to moderate, localized air quality impacts resulting from exhaust emissions from the OHVs and fugitive dust emissions from the unpaved surfaces. Overall use of OHVs in the project area is not expected to increase significantly as a result of creating the open riding areas; however, OHV activity may shift from other portions of the project area to the Rainbow Falls area. While this is an intended result of the travel management plan, it would also tend to result in minor to moderate increases in local pollutant concentrations near the open riding areas, particularly on weekends or other heavy use periods. These increased concentrations are not expected to result in or contribute measurably to an exceedance of any air quality standard. Overall, Alternative B would result in minor to moderate local air quality impacts near the OHV open riding areas, and negligible to minor impacts on regional air quality.

Indirect Effects

No indirect effects are anticipated.

3.1.3.4 Alternative C

Direct Effects

Alternative C would construct 11.2 miles of non-motorized trail, 2.7 miles of ATV trail, 6.0 miles of 4x4 challenge trail, and 7.5 miles of single-track motorcycle trail. Under Alternative C, the total miles of motorized road and trail open to licensed or unlicensed vehicles would increase from 237.4 miles to 242.7 miles (representing a net increase of 5.3 miles). Construction of new non-motorized and single-track trail would not require heavy equipment, and would therefore have negligible impacts to air quality.

Similar to Alternative B, the construction of 2.7 miles of new ATV trail and conversion of 6.0 miles of existing road to 4x4 challenge trail would have minor short-term air quality impacts. Trail construction equipment would be the same as described in Alternative B. Based on construction of 8.7 miles of trail and an estimated 40 hours of construction per mile (Dollus 2011), construction equipment could be operated for as much as 348 hours to construct these new trails.

As shown in Table 3-3, emissions of all criteria pollutants from trail construction under Alternative C would be approximately one-half of the emissions under Alternative B and would range from 0.2 tons of PM_{10} to 0.5 tons of NMHC and NO_x. These emissions are well below any regulatory standard and would be spread out along the 8.7 miles of trail, which would limit

pollutant concentrations in any one area. Pollutant and dust concentrations would be elevated for short periods in the immediate vicinity of construction, but these concentrations would disperse rapidly and are not expected to result in or contribute measurably to an exceedance of any air quality standard. The overall air quality impact from ATV and 4x4 challenge trail construction would be minor.

Alternative C would result in an increase of approximately 5.3 miles of motorized roads and trails compared to the No Action Alternative (Table 2-1). Emissions would result from vehicle exhaust emissions and fugitive dust would be generated by the use of these vehicles on unpaved roads and trails. Due to the limited overall expansion of the motorized road and trail network under Alternative C, the air quality impacts from this alternative would be negligible to minor. Impacts would generally be localized in the immediate vicinity of the roads and trails when vehicles would pass a given point. Since vehicles would pass any given point quickly and the total emissions would be spread out along the entire length of the road or trail, perceptible concentrations of pollutants would not remain at any point for more than a few minutes following vehicle passage. In addition, concentrations of pollutants would drop off rapidly with increasing distance from the motorized routes. Overall, Alternative C would result in minor local air quality impacts, and negligible to minor impacts on regional air quality.

Indirect Effects

No indirect effects are anticipated.

3.2 Fisheries

3.2.1 Approach to Analysis

In general, roads and trails that are in close proximity to riparian zones and streams will have a higher risk of indirectly influencing the biotic integrity of aquatic systems due to their influences on soils, riparian vegetation and the overall hydrologic function of individual drainages. Increased sediment delivery is a primary concern for aquatic systems, and the soils within riparian zones are particularly sensitive to damage and displacement by motorized vehicles (Meyer 2002). As a result, this analysis will focus on differences between the alternatives in the number of stream crossings and the miles of roads and trails within riparian vegetation.

3.2.1.1 Methodology

A GIS analysis using the Forest Service R2VEG and stream layers was conducted to determine the metrics needed for this analysis.

3.2.1.2 Significance Criteria

Forest Plan standards and guidelines direct the Forest Service to maintain habitat at least at 40% or more of potential. A significant impact would occur if this standard and guideline is exceeded.

3.2.2 Existing Conditions

In the project area, there are approximately 690 miles of intermittent streams and 108 miles of perennial streams that support or influence fish and other aquatic species in the Upper South Platte and Arkansas drainages. Both the perennial and intermittent streams also support various amounts of riparian habitat. Riparian vegetation is important to fish and other aquatic organisms because it helps maintain stream channel profiles by protecting banks with soil-binding roots and shielding banks from erosion. It also provides cover, controls temperature, and provides nutrients for aquatic and terrestrial fish food organisms. There are approximately 5,380 acres of riparian habitat in the project area. Intermittent stream systems also serve a key function due to their influence on downstream channels through the supply of sediment, water, and organic materials.

Historically, white suckers (*Catostomus commersoni*), longnose suckers (*Catostomus catostomus*), longnose dace (*Rhinichthys cataractae*), and greenback cutthroat trout (*Oncorhynchus clarki stomias*) were thought to inhabit project area streams and lakes.

Greenback cutthroat trout is federally listed as a threatened species and also serves as a Management Indicator Species (MIS) for the Pike and San Isabel National Forests. Many years of surveys have concluded that greenback cutthroat trout are no longer present in the project area. Habitat loss, habitat modification and hybridization with or displacement by non-native trout species has eliminated greenbacks from most of its native range.

Brook trout (*Salvelinus fontinalus*), an introduced nonnative species, is the primary aquatic MIS present in the project area. Many of the streams in the project area are small headwater or tributary streams with average flows of 1 cubic foot per second. Low flow and various habitat conditions limit the trout fishery potential of many of these streams. Brook trout maintain self-sustaining populations in the perennial streams in the project area, including Trout Creek, Fern Creek, Monument Creek, West and North Monument creeks, North and South Beaver Creeks, Ice Cave Creek, and Camp Creek. Optimal stream habitat for brook trout and other trout species is characterized by clear, cold water; silt-free rocky substrate in riffle-run areas; well vegetated stream banks; abundant instream cover; deep pools; relatively stable flow regime and stream banks; and productive aquatic insect populations. Naturally reproducing populations of brown trout and rainbow trout occur in the downstream reaches of the South Platte and Arkansas Rivers below the project area but brown trout are absent from the project area, and rainbow trout occur in very few of the streams (CDOW 2011). Native sucker species are self-sustaining and are dominant in Trout Creek and native longnose dace have been recorded in a few of the project area streams.

3.2.3 Environmental Consequences

Roads and OHV trails can have numerous negative influences on aquatic systems depending upon their location, design and amount and type of use (Trombulak and Frissell 2000, Meyer 2002, Welsh 2008). Increased sediment loads are a primary concern for aquatic environments, and highly roaded environments can lead to chronic erosion that reduces the integrity of aquatic systems (Switalski et al. 2004).

Potential project impacts on fisheries are primarily associated with the road and trail locations and crossings in each alternative and the changes these might have on the habitat attributes that are important to cold-water aquatic systems. Road and trail reductions or increases that occur within riparian zones are expected to reduce or increase potential influences on aquatic systems more so than those that occur in upland areas.

The three alternatives are similar in their effects on the aquatic resources in the project area. Each alternative retains a high number of stream crossings and a high number of road or trail miles within riparian habitat, particularly in the Horse Creek/Trout Creek watershed. There are currently 67 road and 406 trail crossings of perennial and intermittent streams within the project area. The number of crossings increases slightly in Alternatives B and C. The two action alternatives decommission some routes and eliminate some crossings of perennial and intermittent streams. Maintaining effective closures and restoration can be difficult in the project area. Miles of roads and trails in riparian habitat increases approximately 8% and 5%, respectively, in Alternatives B and C (Table 3-4). Subtle differences between the alternatives provide site-specific beneficial or adverse effects on project area fisheries.

Table 3-4: Number of Stream Crossings and Miles of Roads and Trails in Riparian Habitat

Alternative	Perennial Stream Crossings			Intermittent Stream Crossings			Miles of Roads and Trails in Riparian Habitat		
	Open		To Be Closed	Open		To Be Closed	Open		To Be Closed
	Motorized	Non-motorized		Motorized	Non-motorized		Motorized	Non-motorized	
A	47	20	1	307	99	5	24.0	3.1	0.5
B	50	21	2	331	101	17	25.9	3.1	0.9
C	49	29	2	315	110	12	25.2	3.1	0.9

3.2.3.1 Effects Common to All Alternatives

Direct Effects

Roads and trails primarily have direct effects on soils and vegetative attributes which indirectly influence the aquatic biota. Roads and trails that exist adjacent to streams can have varying levels of adverse effects on stream and habitat condition, ranging from direct input of sediment to permanent removal of riparian vegetation that otherwise would provide for shade, streambank stability, large woody debris recruitment, overhanging cover for fish, and terrestrial insects that fish and other aquatic organisms eat (Furniss et al. 1991). Substantially wider trails and trail tread may affect streams similarly to roads (Meyer 2002).

Road and trail stream crossings can result in increased erosion, leading to high levels of deposited sediment. Road and trail approaches to stream crossings may provide a direct conduit to the stream for eroded soils if located on steep grades (Taylor 1999). Inadequate drainage structures exacerbate sedimentation, and often present barriers to passage for fish and other aquatic organisms (Furniss et. al. 1991).

Indirect Effects

Roads and trails have several indirect effects on aquatic systems, with increased sedimentation often being particularly influential. Increased traffic on OHV routes contributes to a greater amount of unconsolidated material on the trail surface and increased sediment production (Welsh 2008). Increased fine-sediment composition in stream gravel—a common consequence of road-derived sediments entering streams--has been linked to decreased fry emergence, decreased juvenile densities, loss of winter carrying capacity, and increased predation of fishes, and can reduce benthic organism populations and algal production (USDA Forest Service 2000).

Sediment generated from roads and trails can be deposited downstream, changing the channel morphology and watershed response to flood waters. Channels can become wide and shallow, providing conditions that promote increases in water temperature and resulting in less suitable habitat for aquatic life.

OHV roads and trails also create disturbed edge habitats, which can generate conditions that promote the encroachment of non-native and invasive plant species that can out-compete native riparian vegetation.

Other indirect effects include increased amounts of airborne pollutants and dust raised by OHV traffic. A blanket of fugitive dust on plant foliage can inhibit plant growth rate, size, and survivorship. Water quality can also be adversely affected when fugitive dust and contaminants enter aquatic systems.

3.2.3.2 Alternative A – No Action

Direct Effects

In Alternative A, there are 67 perennial stream crossing and 406 intermittent crossings. There are 27 miles of roads and trails in riparian habitat. No new routes would be constructed in riparian habitat. The existing roads and trails that are within riparian vegetation and contributing to the degradation of riparian areas and water quality would remain. The existing road and trail crossings over perennial and intermittent streams would remain in their current location, with the inherent risk of sediment delivery that may negatively influence the growth and productivity of aquatic biota, as well as the risk of presenting barriers to aquatic organism passage. In Alternative A, motorized use of non-system routes would continue to be prohibited, in accordance with existing policy, and would be discouraged through such methods as informational signage, barrier installation, and/or tread obliteration, as site-specific conditions warrant. In Alternative A, the assumptions are that management of the current

mixed-use system will continue to be difficult and that less money would be available to restore non-system routes as there may not be financial support from partners.

Alternative A would provide a moderate level of risk of sediment delivery into aquatic systems within the project-wide area since it does not reduce known problem areas, and users would have continued access to sensitive environments. The extensive road and trail network in riparian habitat, the high number of stream crossings, and limited resources for management in the Horse Creek/Trout Creek watershed would create a high level of risk of adverse impacts to the aquatic resources in that area. . Fern Creek is a perennial stream within this Horse Creek/Trout Creek watershed. Stream sampling data from 1988, 2003, 2005, 2007 and 2008 indicate high sediment loads but good stream stability and low, but stable brook and rainbow trout populations (USFS 2005, 2007, 2008; CDOW2011). The significance criteria is not exceeded in Alternative A; no fisheries habitat improvement is anticipated.

Site Specific

- NFSR 322.A: This route across Monument Creek would remain closed. The road would not be restored as riparian habitat. Work has been completed along this route in the past to prevent off-road use into riparian and wetland areas but the closure has not been effective. Monument Creek is a brook trout fishery. If an effective closure can be maintained, the risk of adverse effects of sediment delivery from the road prism into the Monument Creek fishery is low. Without an effective closure, the risk remains high.

Indirect Effects

The indirect effects of Alternative A are expected to be similar to those described under "Effects Common to All Alternatives". Sediment delivery into stream channels indirectly influence the health and productivity of aquatic biota in the project area.

Site Specific

- NFSR 322.A: If an effective closure can be sustained, riparian vegetation will continue to expand into previously disturbed sites and provide benefits to the Monument Creek fishery from increased food production and soil stability.

3.2.3.3 Alternative B – Proposed Action

Direct Effects

Alternative B proposes 71 perennial stream crossing and 432 intermittent crossings. There would be 29 miles of roads and trails in riparian habitat. Alternative B proposes 1.9 more miles of roads and trails in riparian habitat than Alternative A and 0.7 more miles than Alternative C. Alternative B would have a slightly higher number of perennial and intermittent stream crossings than Alternative A and the same number as Alternative C. Most of the existing roads and trails that are within riparian vegetation and contributing to the degradation of riparian areas and water quality would remain. The existing road and trail crossings over perennial and intermittent streams would remain in their current location, with the inherent risk of sediment delivery that may negatively influence the growth and productivity of aquatic biota, as well as the risk of presenting barriers to aquatic organism passage. In Alternative B, increased

developments such as new trails and open-riding areas would likely attract additional use to the area, increasing the risk of additional sediment delivery into aquatic habitats.

Alternative B would close 13 more perennial and intermittent stream crossings than Alternative A, and restore 0.4 miles more of riparian habitat than Alternative A. Newly constructed routes and crossings would be designed and implemented to reduce sediment delivery into adjacent streams and provide aquatic organism passage, but some risk remains of on-going sediment delivery. In Alternative B, nonsystem and unclassified roads would be decommissioned and non-system motorized trails would be closed and restored. Some of these non-system routes occur in riparian habitat. Effective closures and restoration would provide benefits to the project area fisheries. Alternative B would designate camping sites along heavily used routes, which may benefit riparian vegetation if campsite locations avoid riparian habitat. The designation of campsites could also benefit riparian vegetation by limiting the number of campers and available camping spots. In Alternative B, the assumptions are that segregation of use may allow for more effective management and that more funds would be available to maintain system routes and close and restore non-system routes as there might be financial support from partners.

Alternative B would provide a moderate level of risk of sediment delivery into aquatic systems within the project area since it reduces a few known problem areas, but overall creates the most additional impacts of the three alternatives from added stream crossings and miles of roads and trails in riparian vegetation. Fiscal resources needed for management are uncertain.

Although there would be site-specific benefits with this alternative, there would also be a high level risk of impacts to the aquatic resources because of the extensive road and trail network in riparian habitat, and a high number of stream crossings in the Horse Creek/Trout Creek watershed . If Environmental Protection Measures addressing steam crossings and road maintenance are implemented on existing routes and crossings, the risks of sediment delivery and barriers would be reduced. Fern Creek is a perennial stream within the Horse Creek/Trout Creek watershed. Stream sampling data from 1988, 2003, 2005, 2007 and 2008 indicate high sediment loads but good stream stability and low, but stable brook trout and rainbow trout populations (USFS 2005, 2007, 2008; CDOW 2011). The significance criteria is not exceeded in Alternative B and fisheries habitat improvements are anticipated.

Site Specific

- NFSR 322.A: This route across Monument Creek would be opened to licensed vehicles. Monument Creek is a brook trout fishery. By opening this road to motorized use, the risk of adverse effects of sediment delivery from the road prism into the Monument Creek fishery is high based on use levels, as is the possibility of off-road use and damage to riparian vegetation.
- NFSR 347.C: This road would be converted from a road open to all vehicles to a 4x4 Challenge Trail. This existing route follows a steep, narrow drainage that flows into Fern Creek and riparian vegetation is impacted along most of the length of this route. The risk of sediment delivery from this road into the Fern Creek system is high.

- New Motorcycle Only Trail: Approximately 1.2 miles of new trail would overlap with small patches of riparian habitat located in the headwaters of tributary streams. These routes are conceptual, and final trail locations would be placed to avoid riparian vegetation where possible, or select crossing sites that are narrow to reduce the adverse effects on riparian habitat. The risk of adverse effects on the aquatic resources from these new routes is low.
- Campsite Designation: Site designation on approximately 6 miles of NFSRs 350 and 348 has the potential to reduce impacts to riparian vegetation and adjacent streams, if campsites are placed outside of riparian habitat. Portions of these routes are located in approximately 1.2 miles of riparian habitat.

Riparian Habitat Closures

- NFSR 348F: This road immediately adjacent to Fern Creek would be closed and restored. Vehicle traffic would be excluded. This would allow riparian vegetation to expand in this area, helping to stabilize the stream bank, increase food resources for aquatic species, and reduce the risk of sediment production and delivery into Fern Creek. In Alternative B, a parking/camping area would be defined at a presently disturbed site near NFSR 348F. Visitors to this area will likely be attracted to the stream, and non-motorized use of this closed area would likely continue. Depending on the level of use and effectiveness of the closure, recovery of the site may be slow but would remain beneficial to the aquatic resources.
- OHV Trail 630: This motorized trail would be closed and restored and a perennial stream crossing would be removed, benefitting the riparian vegetation on this tributary to Fern Creek and reducing the risk of sediment delivery into Fern Creek.
- Various: Other roads that cross small sections of riparian habitat would be closed and restored. This includes NFSRs 349, 912 and 327 which would benefit the aquatic resources of Trout Creek, Fern Creek and Gove Creek.

Indirect Effects

The indirect effects of Alternative B are expected to be similar to those described under "Effects Common to All Alternatives." Sediment delivery into stream channels is a primary indirect influence on the health and productivity of aquatic biota in the project area.

3.2.3.4 Alternative C

Direct Effects

Alternative C proposes 78 perennial stream crossing and 425 intermittent crossings. There would be 25.2 miles of roads and trails in riparian habitat. Alternative C proposes 1.2 more miles of roads and trails in riparian habitat than Alternatives A and 0.7 fewer miles than Alternative B. Alternative C has eleven more perennial and intermittent stream crossings than Alternative A, with most of these occurring on non-motorized trails.

Most of the existing roads and trails that are within riparian vegetation and contributing to the degradation of riparian areas and water quality would remain. Most of the existing road and

trail crossings over perennial and intermittent streams would remain in their current location, with the inherent risk of sediment delivery that may negatively influence the growth and productivity of aquatic biota, as well as the risk of presenting barriers to aquatic organism passage. In Alternative C, limited new trail development would likely attract additional use to the area, although possibly not as much as Alternative B. Increased use of OHV routes increases the risk of additional sediment delivery into aquatic habitats.

Alternative C would close 8 more perennial and intermittent stream crossings than Alternative A, and restore 0.4 miles more of riparian habitat than Alternative A. Newly constructed routes and crossings would be designed and implemented to reduce sediment delivery into adjacent streams and provide aquatic organism passage, but some risk remains of on-going sediment delivery.

In Alternative C, nonsystem and unclassified roads would be decommissioned and non-system motorized trails would be closed and restored. Some of these non-system routes occur in riparian habitat. Effective closures and restoration would provide benefits to the project area fisheries. In Alternative C, the assumptions are that segregation of use may allow for more effective management and that more funds would be available to maintain system routes and close and restore non-system routes as there might be financial support from partners.

Alternative C would provide a moderate level of risk of sediment delivery into aquatic systems within the project area since it reduces a few known problem areas, but creates slightly more additional impacts than Alternative A from added stream crossings and miles of roads and trails in riparian vegetation. Fiscal resources needed for management are uncertain.

Although there would be site-specific benefits with this alternative, the Horse Creek/Trout Creek watershed would provide a high level of risk of adverse impacts to the aquatic resources because of the extensive road and trail network in riparian habitat, and a high number of stream crossings. If Environmental Protection Measures addressing steam crossings and road maintenance are implemented on existing routes and crossings, the risks of sediment delivery and barriers would be reduced. Fern Creek is a perennial stream within this Horse Creek/Trout Creek watershed. Stream sampling data from 1988, 2003, 2005, 2007 and 2008 indicate high sediment loads but good stream stability and low, but stable brook trout and rainbow trout populations (USFS 2005, 2007, 2008; CDOW 2011). The significance criteria are not exceeded in Alternative C and fisheries habitat improvements are anticipated.

Site Specific

- NFSR 322.A: This route across Monument Creek would be opened for administrative and non-motorized trail use. Work has been completed along this route in the past to prevent off-road use into riparian and wetland areas but the closure has not been effective. Administrative road designation would allow for more effective law enforcement, if staffing is available. As an administrative road and non-motorized trail, the risk of adverse effects of sediment delivery from the road prism into the Monument Creek fishery is low, but only if an effective motorized use restriction can be maintained.

- NFSR 347.C: This road would be converted from a road open to all vehicles to a 4x4 Challenge Trail. This existing route follows a steep, narrow drainage that flows into Fern Creek and riparian vegetation is impacted along most of the length of this route. The risk of sediment delivery from this road into the Fern Creek system is high.
- Queen's Canyon: A non-motorized, conceptual route would follow Camp Creek. Due to the narrow width of the canyon bottom, the final trail location would likely be close to the stream. Decomposed granite soils in this area, the trail location most likely next to the stream, and potential high level of use would provide a high risk of sediment delivery into Camp Creek, a brook trout fishery.
- New Motorcycle Only Trail: Approximately 0.7 miles of new trail would overlap with small patches of riparian habitat located in the headwaters of tributary streams. These routes are conceptual, and final trail locations would be placed to avoid riparian vegetation where possible, or select crossing sites that are narrow to reduce the adverse effects on riparian habitat. The risk of adverse effects on the aquatic resources from these new routes is low.
- Campsite Designation: Site designation on approximately 2.5 miles of NFSRs 350 and 348 has the potential to reduce impacts to riparian vegetation and adjacent streams, if campsites are placed outside of riparian habitat. Portions of these routes are located in approximately 0.8 miles of riparian habitat.

Riparian Habitat Closures

- NFSR 348F: This road immediately adjacent to Fern Creek would be closed and restored. Vehicle traffic would be excluded. This would allow riparian vegetation to expand in this area, helping to stabilize the stream bank, increase food resources for aquatic species, and reduce the risk of sediment production and delivery into Fern Creek. In Alternative C, a parking/camping area would be developed at a presently disturbed site near NFSR 348F. Visitors to this area will likely be attracted to the stream, and non-motorized use of this closed area would likely continue. Depending on the level of use, recovery of the site may be slow but would remain beneficial to the aquatic resources.
- OHV Trail 630: This motorized trail would be closed and restored and a perennial stream crossing would be removed, benefitting the riparian vegetation on this tributary to Fern Creek and reducing the risk of sediment delivery into Fern Creek.
- Various: Other roads that cross small sections of riparian habitat would be closed and restored. This includes NFSRs 349, 912, 348C and 332D, which would benefit the aquatic resources of Trout Creek, and Fern Creek.

Indirect Effects

The indirect effects of Alternative C are expected to be similar to those described under "Effects Common to All Alternatives." Sediment delivery into stream channels is a primary indirect influence on the health and productivity of aquatic biota in the project area.

3.3 Heritage Resources

3.3.1 Approach to Analysis

3.3.1.1 Methodology

The 101,368-acre project area and a one-mile radius around the project area was researched for previous heritage resource inventories and recorded cultural phenomena by reviewing the PSICC Heritage Resource database and the Office of Archaeology and Historic Preservation (OAHP) Compass database.

3.3.1.2 Significance Criteria

Effects to heritage resources would be considered significant if they reached the level of having an adverse effect on any eligible or NRHP-listed site.

3.3.2 Existing Conditions

By the end of the 2004 calendar year, the Forest Service and the private sector had conducted 208 cultural resource inventories in the project area and within a 1-mile radius. As a result of these cultural investigations about 73,000 acres have been inventoried for cultural properties. These inventories are dispersed over the landscape and are associated with other proposed or implemented projects. These surveys identified 885 cultural properties, 220 isolated finds, 112 sites not eligible for nomination to the NRHP, and 590 sites eligible for nomination/listing on the NRHP. The cultural phenomenon represents both prehistoric and historic manifestations.

3.3.3 Environmental Consequences

3.3.3.1 Effects Common to All Alternatives

Direct Effects

The use of existing trails and roads results in rutting, braiding, erosion and has the potential to affect heritage resources. In addition, existing roads and trails may also be historic sites. The roads and trails, and associated dispersed sites, within the project area will need heritage resource documentation. Roads, trails, and associated dispersed sites being established as system or designated need heritage resource input prior to designation.

Indirect Effects

Trail and road use may affect heritage resources through erosion within and adjacent to the trail or road corridor. Public recreation has the potential to affect unknown sites through use, destruction, vandalism, and collection.

3.3.3.2 Alternative A

Direct Effects

The use of existing trails and roads results in rutting, braiding, erosion and has the potential to affect heritage resources. In addition, existing roads and trails may also be historic sites and

need to be recorded as such. The rehabilitation and redesignation of transportation routes will need heritage resource concerns taken into account.

Indirect Effects

Trail and road use may affect heritage resources through erosion within and adjacent to trail and road corridors. Public dispersed recreation has the potential to affect unknown sites through use, destruction, vandalism, and collection.

3.3.3.3 Alternative B

Direct Effects

As proposed project activities are determined, heritage resource processes would be followed prior to implementation. Mitigation of eligible sites would take place through avoidance by project alteration. However, if an eligible site cannot be avoided, mitigation would be developed with the OAHP / State Historic Preservation Officer (SHPO).

Indirect Effects

The development of the projects, being sensitive to resource damage, will follow the heritage resource process and therefore would diminish impacts to heritage resources.

3.3.3.4 Alternative C

Direct Effects

As proposed project activities are determined, heritage resource processes would be followed prior to implementation. Mitigation of eligible sites would take place through avoidance by project alteration. However, if an eligible site cannot be avoided, mitigation would be developed with the OAHP/SHPO.

Indirect Effects

The development of the projects, being sensitive to resource damage, will follow the heritage resource process and therefore would diminish impacts to heritage resources.

3.4 Hydrology and Soils

3.4.1 Approach to Analysis

3.4.1.1 Methodology

This is a hydrologic assessment of activities proposed in the South Rampart Travel Management Plan, Pikes Peak Ranger District, Pike National Forest, and its effects on the existing conditions of the soil resources, watershed condition and water quality of the area. Existing watershed condition classes, research reports, GIS analysis, scoping report issues and field reconnaissance serve as the basis for this analysis.

3.4.1.2 Significance Criteria

The following criteria were used to determine if there is a significant impact with respect to soil and water resources:

- Increased disturbance in Watershed Condition Class 3 Watersheds
- Increased disturbance to Water Quality Impaired - 303(d) listed streams
- Increased disturbance in Municipal Watersheds
- Non-Attainment of Forest Plan standards and Guidelines

Although there will be some increase in the number of miles of authorized roads and trails and stream crossings, there will be design criteria and mitigations in place that will result in this project being a benefit to the watersheds. The closure of unauthorized routes, and the increased sustainable opportunities provided in the alternatives should result in compliance with the Forest Plan standards and guidelines. The Pikes Peak Ranger District should achieve the guidance to: "maintain or improve wetland and floodplain function." The Pikes Peak Ranger District should achieve Colorado's antidegradation policy.

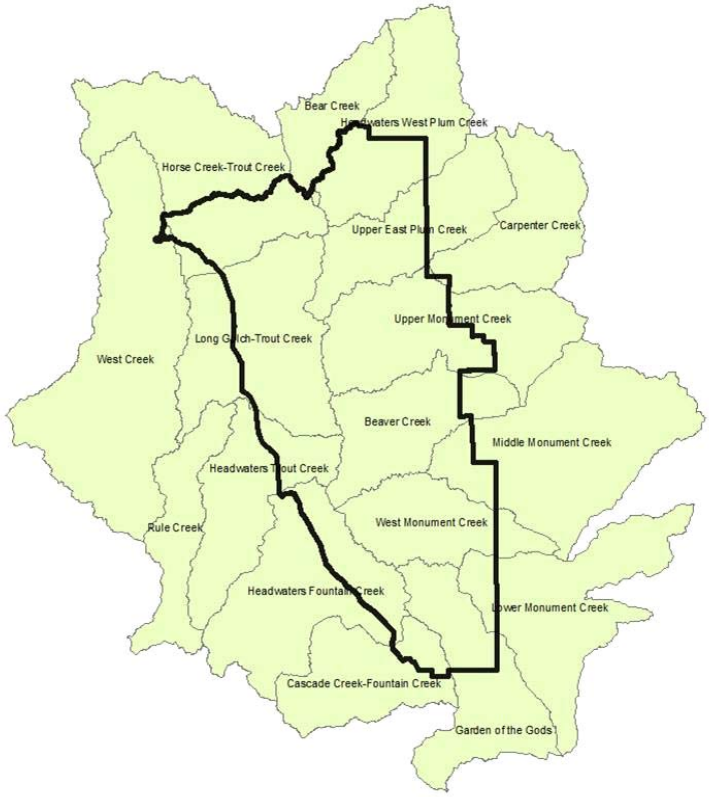
3.4.2 Existing Conditions

The existing condition of watershed resources results from natural and anthropogenic impacts. This project area is most influenced by an The extensive road and trails network and heavy OHV use are the main influences in this project area. . Past impacts from mining, grazing, logging, wildfire, and watershed restoration activities also exist on the landscape.

3.4.2.1 Watershed

The project area is located in two 4th-level, five 5th-level, and 16 6th-level (HUC 12) watersheds. Figure 3-1 identifies the project area in relation to the 6th-level watersheds.

Figure 3-1: Project Area 6th-Level Watersheds



In 2011, the Pike National Forest completed watershed condition class ratings utilizing the 2010 *Forest Service Watershed Condition Classification Technical Guide* (Potyondy and Geier 2010). The following indicators were given values by an interdisciplinary team of Forest resource specialists (Table 3-5). The indicator values were weighted to develop the watershed condition class ratings (Table 3-6).

Table 3-5: Watershed Condition Indicators

Aquatic Physical Indicators	
1. Water Quality	This indicator addresses the expressed alteration of physical, chemical, and biological components of water quality.
2. Water Quantity	This indicator addresses changes to the natural flow regime with respect to the magnitude, duration, or timing of the natural stream flow hydrograph.
3. Aquatic Habitat	This indicator addresses aquatic habitat condition with respect to habitat fragmentation, large woody debris, and channel shape and function.
Aquatic Biological Indicators	
4. Aquatic Biota	This indicator addresses the distribution, structure, and density of native and introduced aquatic fauna.
5. Riparian/Wetland Vegetation	This indicator addresses the function and condition of riparian vegetation along streams, water bodies, and wetlands.
Terrestrial Physical Indicators	
6. Roads and Trails	This indicator addresses changes to the hydrologic and sediment regimes due to the density, location, distribution, and maintenance of the road and trail network.
7. Soils	This indicator addresses alteration to the natural soil condition, including productivity, erosion, and chemical contamination.
Terrestrial Biological Indicators	
8. Fire Regime or Wildfire	This indicator addresses the potential for altered hydrologic and sediment regimes due to departures from historical ranges of variability in vegetation, fuel composition, fire frequency, fire severity, and fire pattern.
9. Forest Cover	This indicator addresses the potential for altered hydrologic and sediment regimes due to the loss of forest cover on forest land.
10. Rangeland Vegetation	This indicator addresses impacts to soil and water relative to the vegetative health of rangelands.
11. Terrestrial Invasive Species	This indicator addresses potential impacts to soil, vegetation, and water resources due to terrestrial invasive species (including vertebrates, invertebrates, and plants).
12. Forest Health	This indicator addresses forest mortality impacts to hydrologic and soil function due to major invasive and native forest pest insect and disease outbreaks and air pollution.

Watershed condition classification is the process of describing watershed condition in terms of discrete classes that reflect the level of watershed health or integrity. The Forest Service Manual uses three classes to describe watershed condition:

- Class 1 – watersheds exhibit high geomorphic, hydrologic, and biotic integrity relative to their natural potential condition.
- Class 2 – watersheds exhibit moderate geomorphic, hydrologic, and biotic integrity relative to their natural potential condition.

- Class 3 – watersheds exhibit low geomorphic, hydrologic, and biotic integrity relative to their natural potential condition.

Within this context, the three watershed condition classes are directly related to the degree or level of watershed functionality or integrity:

- Class 1 – Functioning Properly
- Class 2 – Functioning at Risk
- Class 3 – Impaired Function

Table 3-6: Project Area Watershed Condition Classes

HUC12 Code	HUC12 Name	Class	Total Acres	FS Acres	FS Percent
101900020601	Bear Creek	2	10,327	6,834	66
110200030101	Beaver Creek	1	17,060	12,532	73
101900020602	Carpenter Creek (Headwaters West Plum Creek)	1	22,113	8,522	39
110200030203	Cascade Creek-Fountain Creek	2	16,729	12,743	76
110200030204	Garden of the Gods	2	19,903	7,314	37
110200030201	Headwaters Fountain Creek	2	27,941	13,659	49
101900020102	Headwaters Trout Creek	2	18,710	5,526	30
101900020602	Headwaters West Plum Creek	2	22,113	8,522	39
101900020105	Horse Creek-Trout Creek	3	32,001	30,700	96
101900020103	Long Gulch-Trout Creek	2	28,086	22,105	79
110200030107	Lower Monument Creek	1	26,510	1,832	7
110200030105	Middle Monument Creek	1	36,144	2,780	8
101900020502	Upper East Plum Creek	1	18,943	10,055	53
110200030102	Upper Monument Creek	1	27,574	16,039	58
101900020104	West Creek	3	44,275	38,933	88
110200030103	West Monument Creek	2	15,065	11,136	74

3.4.2.2 Water Quality

All waters in Colorado have been designated by the State according to their beneficial uses. According to the Forest Plan (USDA Forest Service 1984), lands administered by the PSICC must try to protect the beneficial uses so that there is no measurable degradation of water quality.

Streams are given a 303(d) designation if they do not meet water quality standards for all beneficial uses. 303(d) listed streams require a Total Maximum Daily Load (TMDL). The

TMDL process requires that pollutant sources be identified and allocated, and control measures be implemented and monitored. Within the project area, Trout Creek and its tributaries are on the 2010 303(d) list for Colorado for sediment (CDPHE 2010). These segments are given a Moderate priority by the Colorado Department of Public Health and Environment (CDPHE). As a result of this listing, a TMDL will be prepared. Any activities that may be contributing sediment to these streams, including the actions proposed in this EA, will be reviewed and may require additional mitigation measures.

Sources of sediment include roads, trails, mining, logging practices, grazing, OHV use, other recreation use, natural hill slope erosion, accelerated bank erosion, accelerated stream bed erosion and other natural sediment sources. Sedimentation occurs during precipitation and runoff events and from bank erosion. The CDPHE beneficial use designation for Trout Creek is aquatic life cold 1, recreation 1a, water supply and agriculture (CDPHE 2008). The narrative sediment standards state that "surface waters shall be free from substances attributable to human caused point source or nonpoint source discharge in amounts, concentrations or combinations which: can settle to form bottom deposits detrimental to the beneficial uses. Depositions are stream bottom build up of materials which include but are not limited to anaerobic sludges, mine slurry or tailings, silt, or mud" and "are harmful to the beneficial uses" (CDPHE 2001).

3.4.2.3 Soil Resources

In general, the South Rampart Analysis Area is characterized by rocky shallow, coarse textured soils with thin organic layers. These soils are particularly vulnerable to rill and gully erosion if protective ground cover is removed. Erosion potential is higher on steep slopes and adjacent to less permeable surfaces such as rock outcrops or compacted areas, such as roads. The South Rampart Analysis Area soils are also sensitive to loss of productivity through reduction of plant available nutrients when the organic rich surface layer is disturbed or removed.

Precambrian Pikes Peak Granite dominates the geology of the area and this geology is the parent material for the predominant soils in the project area. Pikes Peak granite is a coarse-grained biotite and hornblend-biotite granite which is very susceptible to weathering. The lower reaches and much of the upland portions of the project area are composed of the Sphinx and Legault soils series. Both are gravelly, coarse, sandy loams, with moderate to rapid runoff, and moderate to severe water erosion hazards. Soils found along the upper mainstem of Trout Creek include the Boyette, Frenchcreek and Pendant series. These are fairly coarse soils, but the predominant soil type in this portion of the Trout Creek drainage, the Boyette series, is rated as a slight to moderate erosion hazard. The Frenchcreek and Pendant series are rated moderate and severe, respectively (CDPHE 2008).

The primary function of the soils in the project area is to support plant growth and hydrologic functions such as storing, filtering, transporting and releasing water. Soil function is influenced by the condition of soil resources. The condition of soil resources is determined by the degree and extent of impacts such as erosion, compaction, and nutrient cycling capability.

Soil loss reduces the productivity of a site by reducing soil depth and therefore water storage capacity, nutrient rich surface soils and rooting depth. Eroded soil becomes sediment which is transported into streams, reducing water quality and modifying channel morphology and aquatic habitat.

Generally rocky, coarse textured soils are not highly susceptible to deep compaction. However, surficial compaction is common where OHVs traveled extensively and/or where OHVs were operated while soil conditions were wet.

Field reviews were conducted to determine existing condition of soil resources in the South Rampart Travel Analysis Area. Existing disturbed areas, road conditions, effectiveness of road drainage, road proximity to stream channels, road crossings and riparian vegetation condition were reviewed. Ground cover, residual compaction and displacement, surface texture, depth of surface layer, and evidence of past (stabilized) and active erosion was observed.

In summary, soil properties indicate that project area soils are highly susceptible to damage from disturbance, and these soils are difficult to rehabilitate.

3.4.2.4 Roads and Trails

The project area is approximately 121,000 acres in size and has approximately 307 miles of classified roads and trails and 120 miles of motorized non-system roads and trails. Accounting for differences in widths, this translates into 527 acres of bare ground. There are 120 miles of motorized non-system roads and trails, which account for about 28% of total bare ground.

Direct contact from OHVs is the key disturbance process contributing to soil erosion in the project area. Wind and water moving across the soil surface and other direct disturbances such as grazing, mining, home development, tornado blow down, wildfire and fuels reduction projects also contribute to erosion. Fuels projects authorized under the Trout West and Trout West II Environmental Impact Statement include machine slash piling, hand felling, hydroaxing, landing construction, skid trails, temporary roads and other land based operations (see EIS on file at the Pikes Peak Ranger District). Grazing effects are described in detail in the Pikes Peak Range Allotment Management Plan Environmental Assessment on file at the Pikes Peak Ranger District.

Roads within the analysis area provide the benefit of access for management and recreational activities, but also may have adverse impacts on the watershed. The adverse impacts increase with road and trail proximity to stream, number of stream crossings, slope, surfacing material, frequency of use, frequency of maintenance, and road density. All of these indicators can be quantified in GIS. Unauthorized roads, trails and hillclimbs have been inventoried for this project but since they are being created all the time the data is temporal. . Hydrologically connected roads can also alter habitat, stream bank stability, geomorphology and flow regimes in perennial streams. In intermittent and ephemeral drainages, the concentration of flow off of roads can lead to increase energy and increased sediment transport.

Many project area roads are poorly located, have non-functioning or poorly functioning road drainage, and have not been repaired or maintained over time. The field review determined that

ditch relief culverts are present but, in many places, not adequately maintained and are full of sediment. Many need to be cleaned to protect the culvert investment and keep them properly functioning. Road grading breaks up the surface, levels the road, improves drainage, but creates a fresh source of sediment. In other areas, the concentrated flow in ditches and at culvert outflows has caused gully erosion. Gully erosion can transport sediment through ephemeral drainages resulting in sediment delivery to perennial streams, contributing to water quality degradation. In other places, there is no way to move the concentrated flow off of the road, since the road and drainage coincide in a 1st order stream and often downcutting and incision occurs. The South Rampart Travel Analysis Process report contains a description of road and trail risk indicators and a table of risk indicator data for project area roads and trails. This data describes the existing condition of roads and trails in the project area and played a large role in determining and supporting the environmental effects analysis for soil and water resources (see Project File). Therefore, descriptions of risks for all roads considered is not repeated in this report.

Proper placement and alignment of trails and roads is critical to protection of the soil resource. Roads and trails that are constructed on steep grades have a greater tendency to erode and contribute sediment to aquatic ecosystems.

The sediment transported from high up in the watershed will eventually make its way to Trout Creek and the Upper South Platte to the west and Monument Creek and the Arkansas River to the east.

3.4.2.5 Disturbed Areas

Unauthorized expansion of the road and trail network commonly occurs in the form of user created routes. These user created roads are a severe threat to soil and water resources, particularly where entrenchment, hill climbs, spurs, damage to stream channels and mud bogs occur.

There are currently many hill climbs and play areas in the project area. The increased barren surface area and lack of vegetation in these areas leads to more exposed surface area for sediment transport. Other activities that disturb soil and lead to increased sediment transport are grazing, mining, home development, fuels reduction projects, blow downs, wildfire and other natural events.

Existing disturbed areas within the project area:

- The Hayman Fire of June 2002 overlaps within the analysis area. The Hayman burned area continues to be more sensitive to ground disturbing activities than adjacent unburned areas.
- The Long Hollow, Illinois Gulch, Limbaugh Canyon and Fern Creek are roads that are located in the valley bottom or adjacent to intermittent stream channels.
- Rainbow Falls OHV area has expanded in size due to heavy OHV use and dispersed camping.

- Roads that are already deeply entrenched present the greatest threat to soil and water resources. Entrenched sections of road are difficult to stabilize and tend to keep widening and deepening.
- Elevated erosion from user created road widening, camping areas and hill climbs cause direct sediment delivery to the stream system.

3.4.2.6 Existing Restoration Areas

Recent restoration efforts have benefited soil, water, and aquatic resources at highly disturbed sites near Long Hollow, Limbaugh Canyon, Fern Creek and the Rainbow Falls OHV area. Extensive OHV use and associated soil resource damage was concentrated in these areas. A combination of many different rehabilitation techniques were implemented for these restoration projects. A Forest Service tractor was utilized to recontour gullies, unauthorized roads and hill climbs. There was also volunteer and OHV grant sponsored hand labor utilized to build small drainage ditches, log rollers, install erosion matting, hand spread mulch and hand spread seed. It is expected that a myriad of similar techniques and equipment would be used for any future rehabilitation projects. Treatment effectiveness monitoring has revealed that restoration strategies, such as post and cable, road drainage improvement, re-contouring, de-compaction, gully and slope stabilization, and re-seeding have been highly successful overall. Additional monitoring will be implemented to provide for an adaptive management approach.

3.4.2.7 Desired Conditions

Soil Resources

The desired condition for soils is to manage the soil resource such that the physical, chemical, and biological processes of the soil is maintained or enhanced. To the extent practicable and keeping essential infrastructure, hydrologic function and sediment transport into perennial streams will be at natural levels. This is partially achieved by application of watershed conservation practices from the Watershed Conservation Practices Handbook (FSH 2509.25). Watershed conservation practices either prevent or mitigate detrimental soil impacts. Closing or relocating of roads and trails and improving maintenance are also critical to desired condition achievement.

Hydrologic and Aquatic Habitat Resources

The desired condition for all watersheds is the lowest watershed condition class rating possible. The desired condition is a condition in which water quality meets or exceeds State and Federal Water Quality standards, stream channels are stable and riparian areas are in proper functioning condition. Water temperatures in the streams throughout the analysis area would be within tolerances of all life stages of aquatic organisms. Abundant pool space would be distributed throughout the streams. Cover would be available to provide refuge from predation as well as climatic and seasonal stresses. Wood debris of sufficient size and distribution to provide diverse habitats, sediment storage and organic material necessary for healthy populations of aquatic organisms would be present. Clean spawning and rearing substrates would be in sufficient quantities to maintain or increase fish and macro-invertebrate populations. Channels

would be properly functioning, ensuring bank stability and low levels of erosion. In watersheds where the Forest Service is the primary land owner watershed conditions classes would be improved. . The project area contains areas of Forest Plan designated Riparian Management Areas (2A) and Municipal Watershed Management Areas (10E). Standards from the Plan will be achieved for these and all management areas.

3.4.3 Environmental Consequences

The South Rampart Travel Analysis Area is managed for multiple uses and ground disturbing activities and associated impacts to soil resources are generally unavoidable. Although roads and trails are used for forest management, fire suppression, recreation, and many other functions, they have direct and indirect effects on soil productivity, soil function, watershed hydrology, water quality, stream channel health, and aquatic habitat. Activities such as operation of OHVs can create soil impacts such as erosion, compaction or loss of litter and duff. Long-term degradation of site productivity is not expected to result from project implementation if vehicular traffic remains on the proposed properly located, properly designed (for drainage) and properly maintained (for sustainability) designated routes.

Risk indicators were developed to determine the potential impacts roads (or segments of roads) may have on soil, watershed, and aquatic resources. In general, the risk indicators were based on field reviews, road location, existing impairments, stream crossings, slopes, soils, design, and maintenance. The Travel Analysis Process Report contains a description of the risk indicators and a table of risk indicator data for project area roads and trails. This data was used to describe the existing condition of project area roads and trails and played a role in determining and supporting the environmental effects analysis for soil, water, and aquatic resources.

The South Rampart Travel Management Area is patrolled nearly every day during seasons of high use. Patrollers will be advised of management goals and areas of concern to watershed resources will be reported. An annual interdisciplinary review of the area will be conducted to prioritize future facility, infrastructure and soil and water improvements.

3.4.3.1 Effects Common to All Alternatives

From a watershed perspective, sustainability depends on preventing unauthorized expansion of the designated road/trail system and improving watershed stability over time by reducing excessive degradation (erosion) of the existing road/trail system.

Impacts to soil resources are analyzed by considering how proposed activities affect the soils' ability to support plant growth (diversity and biomass production) and soil hydrologic function (water infiltration, storage and runoff).

The analysis considers potential for erosion and sedimentation into streams and how the proposed alternative activities affect surface and subsurface flow. The analysis will compare how the different alternatives impact these hydrologic, soil and aquatic resources.

The coarsest scale for determining risk to watershed condition classification is from the total miles of authorized roads and trails and the translated acres from these disturbances. Table 3-7 describes these risks. Alternative A has the least number of miles and the least number of total

acres of authorized bare ground. Alternative B has the most number of miles of routes and the most acres of bare ground. Alternative C has the second most number of miles of routes and the second most acres of bare ground.

Table 3-7: Total Miles of Authorized Routes and Bare Ground

	Total Miles	Total Acres of Bare Ground
Alternative A	307.3	527
Alternative B	350.9	548.8
Alternative C	328.6	542.4

Potential New Routes Impacts on Soil Resources

- The direct effect of new routes is removal of land from the growing base, displacement, compaction, and removal of surface layer
- Indirect effects may include landslides, gullies, and side cast materials
- Roads can also disrupt and intercept subsurface flow of water, altering soil moisture regimes up-slope and down-slope from the road

Alternative A has no new disturbance proposed. Alternative B and Alternative C propose 38.5 miles and 25.3 miles of new disturbance for road and trail, respectively.

Potential sedimentation into streams or hydrologic connectivity increases as roads and trails get closer to the water influence zone (WIZ), and as the number of miles within 100 feet of ephemeral gullies and the number of stream crossings increases. All alternatives have a similar number of acres of bare ground in the WIZ. As summarized in Table 3-8, Alternative A, the no action, has the least number of miles of *authorized* roads/trails within 100 feet of intermittent drainages and gullies. Alternative B has the greatest number of miles of *authorized* roads/trails with Alternative C having the second most. Similarly, Alternative B has the greatest number of crossings, of all types, and Alternative A has the least number of stream crossings.

The intent of this analysis is to have an *authorized* roads/trails system that is desirable to the user and eliminates the very large number of highly erosive *unauthorized* routes in WIZ and within 100 feet of gullies, and unauthorized and unengineered crossings that are currently on the ground. Although the proposed action will have more potential for hydrologic connectivity, proper design criteria will be utilized. Users will also like the new system and the proliferation of the highly erosive unauthorized routes may therefore be reduced.

Potential Road Impacts on Watershed Hydrology

The water influence zone and stream crossings are of particular concern when considering road impacts because this is generally where roads have direct connectivity with the stream channel. The WIZ includes the geomorphic floodplain (valley bottom), riparian ecosystem, and inner gorge. Its minimum horizontal width (from top of each bank) is the greater of 100 feet or the mean height of mature dominant late-seral vegetation. The WIZ protects interacting aquatic, riparian, and upland functions by maintaining natural processes and resilience of soil, water, and

vegetation systems (Forest Service Handbook, 2509.25, the Region 2 Watershed Conservation Practices Handbook). The total miles used in this report are only estimates as new, unauthorized routes are created and rehabilitated frequently. There is also error associated in the GPS equipment used, mapping and reporting techniques.

Table 3-8: Total Number of Authorized and Unauthorized Road/Trail Crossings by Type

	Total Miles in WIZ	Total Acres in the WIZ	Miles within 100ft of Gullies	Total Crossings	Ephemeral Crossings	Intermittent Crossings	Perennial Crossings
Alternative A	17.4	35.6	71.9	847	374	406	67
Alternative B	18.4	34.9	82	993	473	440	80
Alternative C	17.1	34.3	76.3	896	410	417	69

Less than 20% of the roads occur on slopes over 30%. Potential losses to erosion are greater on slopes over 30%. As summarized in Table 3-9, alternative A has the least number of miles of routes on >30% slopes. Alternative B has the greatest number of routes on >30% slopes and Alternative C has the second most. Design criteria, increased maintenance, annual inspections and best management practices (BMPs) will help reduce erosion even on these steeper slopes.

Table 3-9: Number of Miles in Each Slope Class

	0-10% Slope	10-20% Slope	20-30% Slope	30% + Slope
Alternative A	113	91	53	51
Alternative B	120	101	62	68
Alternative C	117	95	58	59

Road Closure and Road Obliteration

Road closure, which involves barricading the road to inhibit vehicular use, helps reduce road impacts on watershed. However, erosion, compaction, and flow diversion caused by the road may persist after road closure. All closed routes need to be obliterated if watershed condition class improvement is to be achieved, especially in Trout Creek.

Road obliteration means restoring the roadbed cut-slope and fill-slope to pre-road construction condition as best as possible. This generally involves tilling with a winged sub-soiler to break up compacted soil, restoring the natural contour of the slope (commonly done with an excavator and/or bull dozer), and erosion control/re-vegetation. Road obliteration, although difficult and expensive to accomplish, effectively improves soil productivity, soil hydrologic function and sets the stage for natural re-vegetation (Kolka and Smidt, 2004). If, however, the cut and fill slope is very stable and vegetated, then recontouring and exposing a large surface

area of disturbed soil may be reconsidered following a site specific evaluation by the Forest Soil Scientist or Hydrologist.

The existing system can be improved with increased patrolling and maintenance, but roads and trails need to be closed in order to achieve the desired conditions and improve the watershed condition class. As summarized in Table 3-10, alternative B provides for the greatest number of closures. Alternative C the second most and Alternative A has no route closures. Table 3-11 summarizes the proposed actions by each alternative for each of the High Risk Roads as determined during the TAP process. Alternative A would allow for these roads to remain open while Alternatives B and C would close many of these roads.

Table 3-10: Closures by Alternative

	Alt. A (miles)	Alt. B (miles)	Alt. C (miles)
Close and rehabilitate road open to all vehicles	1.8	13.4	9.1
Close and rehabilitate 50-inches or less OHV trail	0.0	0.9	0.9
Close and rehabilitate administrative/ special use / level 1 road	0.0	1.1	1.1
Total Miles	1.8	15.5	11.1

Table 3-11: High Risk Roads – Closures by Alternative

NFSR	Name	Value Description	Alt. A	Alt. B	Alt. C
319	Powerline South	Access to admin site	Leave As Is	Convert to Admin Rd/non-motorized trail	Convert to Admin Rd/non-motorized trail
325	Saylor Park		Leave As Is	Close and Rehab	Close and Rehab
348.F	Steve's Pet Peeve		Leave As Is	Close and Rehab	Close and Rehab
349	Drury		Leave As Is	Close and Rehab	Close and Rehab
350	Rainbow Ralls Road	Access multiple pvt prop, Sched A agreement with Douglas County	Leave As Is	Licensed vehicle only for a portion/camping and campfires only in designated sites	Licensed vehicle only for a portion/camping and campfires only in designated sites
351	Fern Creek	Main access to Rainbow Falls OHV area	Leave As Is	Leave As Is	Leave As Is

Parking Areas, Open Riding Areas and Trailheads – Comparison by Alternative

As described in Section 3.4.2, bare ground has a higher potential for surface erosion. New facilities will be designed with proper engineering and drainage design. Alternative A has 1.3 acres of authorized bare ground for trail heads (Table 3-12). There is currently creep of

unauthorized parking areas beyond this trail head. All of the current unauthorized trail heads could be closed. This will not meet the purpose and need of this travel management plan and the capacity issues that we are currently experiencing. Alternative B will endorse several of the unauthorized trail heads with design criteria incorporated into the redevelopment. Although we will be adding 14.1 new acres of bare ground, it has been conveyed that user groups and additional grant money will cover the increased maintenance. If the hydrologist or soil scientist determines that the new parking areas and trailheads allow elevated sediment to migrate off site then these areas should be re-engineered or closed and rehabilitated.

Table 3-12: Facilities by Alternative

Facility	Status	Acres	Alt. A	Alt. B	Alt. C
Rainbow Falls TH	Existing	1.3	No Change	No Change	Redevelop
Rainbow Falls TH	New	5	No Development	Develop	No Development
Fern Creek PA	New	0.3	No Development	Develop	Develop
Lovell Gulch TH	New	0.5	No Development	Develop	No Development
Illinois Gulch PA	New	0.6	No Development	Develop	No Development
Little Moab Riding Area	New	3	No Development	Develop	No Development
Quarry Riding Area	New	5	No Development	Develop	No Development

TH = trailhead; PA = parking area

3.4.3.2 Alternative A

Direct and Indirect Effects

Under Alternative A, the No Action Alternative, the current management of the South Rampart Travel Management Area would remain unchanged, which would leave the project area in its present condition. Present conditions and trends identified in the TAP would persist and/or increase. The following are examples of some current conditions and trends: soil compaction, diversion and concentration of overland flow, accelerated rates of soil erosion, damage to stream channels, "flashier" watershed response, and sediment delivery to stream channels would continue to occur. The area would experience similar impacts created by future unmanaged recreation use in the OHV area, particularly expansion of the road/trail network with new user created routes. It is expected that currently impacted areas would continue to degrade with use or if areas are unused, natural re-vegetation and stabilization would occur over time. .

If the current recreation activities were to continue the above listed impacts to the soil, water, and aquatic resources would continue and would increase the impacts to soil productivity, soil displacement and compaction, alteration of flow response, water quality, and aquatic habitat. In general under this alternative, the sedimentation impacts to Trout Creek would continue to get worse and impacts to macroinvertebrate and fisheries habitat would continue. The riparian areas near Fern Creek and Trout Creek as well as other riparian areas, would continue to degrade.

3.4.3.3 Alternative B

Direct and Indirect Effects

The direct and indirect effects of road and trail system actions include the following:

- Creating an authorized formal trail to the top of Blodgett Peak from the Blodgett open space will reduce the erosion coming off of the multiple unauthorized and unengineered routes in the area.
- Rainbow Falls Parking Area is over utilized. Efforts to relocate the trailhead and rehabilitate the existing trailhead will result in the most beneficial water quality improvements related to parking and trail head areas.
- The Fern Creek and Illinois Gulch Parking Areas will incorporate an engineered design and BMPs to formalize existing erosive, user created pull offs.
- Constructing two rock-crawling and OHV open riding areas would require authorizing up to 8 acres of bare ground. In some areas, there is already extensive disturbance from old mining activities. It is expected that scouring and erosion would occur. Routine maintenance would be required. Sediment delivery from the OHV areas would be limited by topography, buffers and design criteria.
- Providing motorized single-track access to the South Platte Ranger District would require construction of a new single-track connector route. Construction of the new route would directly affect soil resources and indirectly affect water and aquatic resources. On the single-track trail, removal of protective ground cover and soil compaction is expected to occur. Potential indirect effects include diversion of overland flow and soil erosion. Increased potential for creation of new user created routes is also expected. Indirectly, this may lead to sedimentation of Trout Creek and some of its tributaries and impact water quality and aquatic habitat of Trout Creek to some degree.
- Closing System and Non-System routes in the Rainbow Falls area would benefit soil, water, and aquatic resources by reducing the potential for adverse direct and indirect road effects. Several sections of road in the Rainbow Falls area have severe gully erosion. Due to highly erosive soils, steep slopes and rapid runoff from rock outcrops and burned areas, maintaining a stable/sustainable road system is expected to be difficult in this area. While closure of roads would benefit soil, water, and aquatic resources by allowing some natural re-vegetation and stabilization to occur over time, active restoration would be required to provide immediate stabilization and reduction of watershed impacts such as diversion and concentration of overland flow, erosion, and sediment delivery to stream channels.
- Re-routing or closing damaging roads according to the TAP would benefit soil, water, and aquatic resources by reducing the potential for adverse direct and indirect road effects.
- New construction roads and trails will meet Forest Plan Standards and Forest Service Handbook engineering design specifications.

- Closures of high risk roads identified in the TAP including those listed in Table 3-11.
- Closure and rehabilitation will involve moving the disturbed areas towards a natural condition with recontouring and planting that will attempt to make the closures indistinguishable from untouched areas.
- More loops and more single track loops will mean less two way traffic and user created off trail travel.
- There will be more miles of properly designed and maintained trails that users want, resulting in less illegal unsustainable user created routes.
- Concentrated use will make the system easier to patrol resulting in less illegal off road damage.
- Non-system routes will be closed and rehabilitated for watershed improvement.
- Many spur roads that have illegal extensions will be closed and limit proliferation of new extensions.
- Site specific mitigations will be developed where necessary and from annual monitoring.
- Annual BMP monitoring of roads and trails to prioritize maintenance and implement proper design criteria and adaptive mitigations.
- Stream crossing mitigations near 303(d) listed Trout Creek include a new bridge crossing.

Implementation of project design criteria, watershed conservation practices, and environmental protection measures (Table 2-5) would ensure consistency with the Forest Plan standards and guidelines for the protection of soil resources. Monitoring would be conducted during and immediately following project implementation to determine if project design criteria, watershed conservation practices, and environmental protection measures were implemented. Effectiveness monitoring would also be conducted twice a year to determine whether project design criteria, watershed conservation practices, and environmental protection measures were effective in protecting soil, water, and aquatic resources.

3.4.3.4 Alternative C

Direct and Indirect Effects

The direct and indirect effects of road and trail system actions include the following:

- Creating an authorized formal trail to the top of Blodgett Peak from the Blodgett open space will reduce the erosion coming off of the multiple unauthorized and unengineered routes in the area
- Rainbow Falls Parking Area is over utilized. Efforts to re-engineer the trailhead and will result in some beneficial water quality improvements related to parking and trail head areas.
- Providing motorized single-track access to the South Platte Ranger District would require construction of a new single-track connector route. Construction of the new route would directly affect soil resources and indirectly affect water and aquatic

resources. On the single-track trail, removal of protective ground cover and soil compaction is expected to occur. Potential indirect effects include diversion of overland flow and soil erosion. Increased potential for creation of new user created routes is also expected. Indirectly, this may lead to sedimentation of Trout Creek and some of its tributaries and impact water quality and aquatic habitat of Trout Creek to some degree.

- Closing System and Non-System routes in the Rainbow Falls area would benefit soil, water, and aquatic resources by reducing the potential for adverse direct and indirect road effects. Several sections of road in the Rainbow Falls area have severe gully erosion. Due to highly erosive soils, steep slopes and rapid runoff from rock outcrops and burned areas, maintaining a stable/sustainable road system is expected to be difficult in this area. While closure of roads would benefit soil, water, and aquatic resources by allowing some natural re-vegetation and stabilization to occur over time, active restoration would be required to provide immediate stabilization and reduction of watershed impacts such as diversion and concentration of overland flow, erosion, and sediment delivery to stream channels.
- Re-routing or closing damaging roads according to the TAP would benefit soil, water, and aquatic resources by reducing the potential for adverse direct and indirect road effects.
- New construction roads and trails will meet Forest Plan Standards and Forest Service Handbook engineering design specifications.
- Closures of high risk roads identified in the TAP including those listed in Table 3-11.
- Closure and rehabilitation will involve moving the disturbed areas towards a natural condition with recontouring and planting that will attempt to make the closures indistinguishable from untouched areas.
- More loops and more single track loops will mean less two\-way traffic and user created off trail travel.
- There will be more miles of properly designed and maintained trails that users want, resulting in less illegal unsustainable user created routes.
- Concentrated use will make the system easier to patrol resulting in less illegal off road damage.
- Non-system routes will be closed and rehabilitated for watershed improvement.
- Many spur roads that have illegal extensions will be closed and limit proliferation of new extensions.
- Site specific mitigations will be developed where necessary and from annual monitoring.
- Annual BMP monitoring of roads and trails to prioritize maintenance and implement proper design criteria and adaptive mitigations.
- Stream crossing mitigations near 303(d) listed Trout Creek include a new bridge crossing.

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3.5 Noise

Noise, often defined as unwanted sound, is one of the common environmental issues associated with vehicle operation, including operation of OHVs.

Sound is a physical phenomenon consisting of minute vibrations that travel through a medium, such as air, and are sensed by the human ear. Whether that sound is interpreted as pleasant or unpleasant depends largely on the listener's current activity, experience, and attitude toward the source of that sound.

The loudest sounds the human ear can hear comfortably have one trillion (1,000,000,000,000) times the acoustic energy of sounds the ear can barely detect. Because of this vast range, any attempt to represent the intensity of sound using a linear scale becomes unwieldy. As a result, a logarithmic unit called the decibel (dB) is used to represent the intensity of sound. This representation is called a sound level. Because of the logarithmic nature of the decibel unit, it cannot be added or subtracted directly and is somewhat cumbersome to handle mathematically. Thus, for example, in the addition of noise levels from two comparable noise sources, the resulting noise level increases by 3 dB, regardless of the initial level (60 dB + 60 dB = 63 dB, not 120 dB; 80 dB + 80 dB = 83 dB, not 160 dB).

A sound level of less than 10 dB is approximately the threshold of human hearing and is barely audible under extremely quiet listening conditions. Normal conversational speech has a sound level of approximately 60 dB. Sound levels above 120 dB begin to be felt inside the human ear as discomfort and eventually pain at still higher levels.

The minimum change in sound level that an average human ear can detect is about 3 dB. The average person perceives a 10 dB change in sound level as a doubling (or halving) of the sound's loudness, and this relationship holds true for both louder and quieter sounds. The inherent variability in the responses of different individuals to noise makes it impossible to predict accurately how any one individual will react to a noise event. Nevertheless, when a community is considered as a whole, its overall reaction to noise can be represented with a high degree of confidence.

A number of factors affect sound as it is perceived by the human ear. These include the actual level of noise, the frequencies involved, the period of exposure to the noise, and changes or fluctuations in noise levels during exposure. Since the human ear cannot perceive all pitches or frequencies equally well, these measures are adjusted or weighted to compensate for the human

lack of sensitivity to low-pitched and high-pitched sounds. This adjusted unit is known as the A-weighted decibel, or dBA. The A-weighted network de-emphasizes both very low- and very high-pitched sounds and is used for sources related to transportation, such as traffic and aircraft.

Because the dBA noise metric describes steady noise levels, and very few noises are in fact constant, a method to describe noise varying over a period of time is needed. One such method is to describe fluctuating noise as if it were steady and unchanging. For this purpose, a descriptor called the equivalent sound level (L_{eq}) can be computed.

3.5.1 Approach to Analysis

3.5.1.1 Methodology

As discussed above, the L_{eq} descriptor measures the constant sound level that, in a given time period (e.g., one-hour L_{eq} [$L_{eq}(1)$] or 24-hour L_{eq} [$L_{eq}(24)$]), would convey the same sound energy as the actual fluctuating sound. Federal Highway Administration (FHWA) and each state's department of transportation use the $L_{eq}(1)$ descriptor to estimate the degree of nuisance or annoyance arising from changes in traffic noise. Because the principal noise-related concern raised by the proposed action is that of vehicular traffic-induced noise along OHV routes, the $L_{eq}(1)$ descriptor is used in this analysis.

Both action alternatives considered in this EA would focus motorized recreational use in the Rainbow Falls area. Noise effects from motorized recreation on NFS land has the potential to adversely affect land uses on adjacent private property. In order to model worst-case noise effects to private property, a noise impact model was run for the two proposed motorized trails in the Rainbow Falls area that come nearest to private in-holdings. The motorized trails selected for analysis include the 322.CA/OHV 7 ATV loop, north of Trout Creek Ranch Road (Area 1), and the proposed motorcycle-only trail OHV 17, east of NFSR 347.C (Area 2) (Figure 3-2). The 322.CA/OHV 7 ATV loop is located between a privately-held parcel to the east, and a residential subdivision to the west, and has the greatest potential to affect private property under Alternative B. OHV 17 is proposed under both Alternatives B and C, and comes in close proximity to a private in-holding to the south.

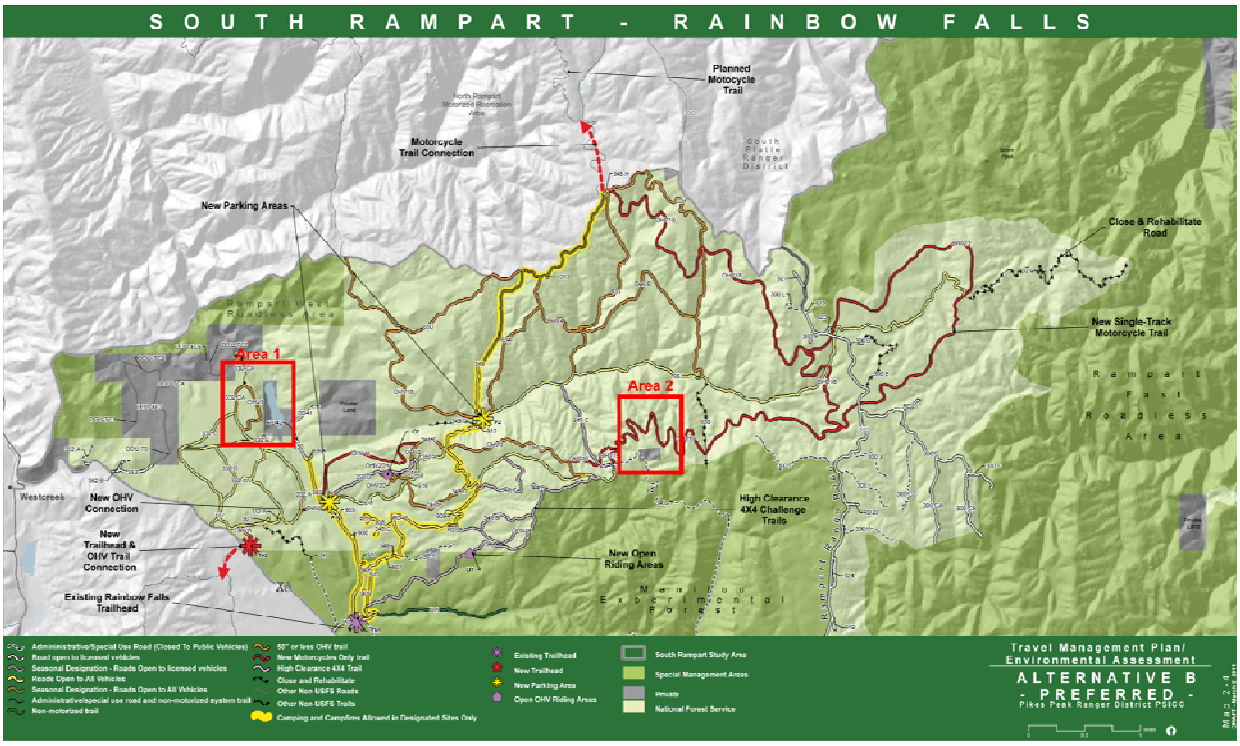
The noise impact modeling analysis was conducted using SoundPLAN, an advanced environmental and design noise prediction software program capable of predicting noise levels from both stationary and mobile souces. Multiple variables such as source noise levels, terrain effects, tree zones, building reflections, surface absorption and ground propagation effects were considered in SoundPLAN to predict the noise levels at the boundary of private land.

Effective July 1, 2010, to operate an OHV in Colorado, the following sound limits measured at the source must be met*:*

- 99 dBA if manufactured before 1/1/1998
- 96 dBA if manufactured after 1/1/1998

Each OHV modeled using SoundPLAN was assumed to have a maximum sound level of 99 dBA generated at the source location, consistent with the above sound limit.

Figure 3-2: Representative Noise Analysis Areas



3.5.1.2 Significance Criteria

The Colorado Noise Statute (25-12-103) establishes maximum permissible noise levels applicable to various types of land uses. Residential land use has the most stringent limit with 55 dBA between 7 a.m. to 7 p.m. and 50 dBA during nighttime (7 p.m. to 7 a.m. next day). Furthermore, the Noise Statute allows the daytime (7 a.m. to 7 p.m.) limit for residential land use to be increased by 10 dBA if the noise does not exceed 15 minutes within a 1-hour period. These noise limits were used as the noise significance criteria in the analysis.

3.5.2 Existing Conditions

The project area consists primarily of NFS land managed as National Forest and Experimental Forest. Smaller communities such as Monument, Westcreek, and Woodland Park are located on the perimeter of the project area, and isolated private in-holdings are scattered throughout. Private in-holdings typically support low-density residential uses, private recreation facilities (e.g, the Sky High Girl Scout Camp), or small outfitter/guide operations, but may also be undeveloped.

Existing noise conditions in the project area, reflecting the local community activities occurring in the area, can be characterized as a typical rural area. Average background noise levels around typical rural environments are expected to be in the range of 40 to 50 dBA during the day and 30 to 40 dBA during the night. Table 3-13 summarizes typical noise levels from common sources in rural and urban areas.

Table 3-13: Typical Noise Levels from Common Sources

Sound Source	Sound Pressure Level (dBA)
Air Raid Siren at 50 feet	120
Maximum Levels at Rock Concerts (Rear Seats)	110
On Sidewalk by Passing Heavy Truck or Bus	90
On Sidewalk by Typical Highway	80
On Sidewalk by Passing Automobiles with Mufflers	70
Typical Urban Area	60-70
Typical Suburban Area	50-60
Quiet Suburban Area at Night	40-50
Typical Rural Area at Night	30-40
Isolated Broadcast Studio	20
Audiometric (Hearing Testing) Booth	10
Threshold of Hearing	0

Sources: Cowan, James P. Handbook of Environmental Acoustics; Egan, M. David, Architectural Acoustics. McGraw-Hill Book Company, 1988.

3.5.3 Environmental Consequences

3.5.3.1 Effects Common to All Alternatives

Direct Effects

The operation of OHVs along new motorized trails proposed under each alternative would add noise sources and affect the ambient noise environment in the immediate vicinity of motorized trails. The volume of OHV traffic along a trail, topographic conditions around a trail, and the distance between a noise receptor and a trail would all affect the level of noise experienced by a noise receptor.

Indirect Effects

No indirect effects are anticipated under any alternative.

3.5.3.2 Alternative A

Direct Effects

Under Alternative A, there would be no change to the existing transportation system in the project area, and current levels of noise generation from motorized vehicles would continue.

Indirect Effects

No indirect effects are anticipated under any alternative.

3.5.3.3 Alternative B

Direct Effects

Two motorized trails where private lands are in close proximity were selected for SoundPLAN noise modeling: the 322.CA/OHV 7 ATV loop, north of Trout Creek Ranch Road (Area 1 on Figure 3-2), and the proposed motorcycle-only trail OHV 17, east of NFSR 347.C (Area 2 on Figure 3-2). These trails were selected to model the "worst-case" with regard to noise effects, due to their proximity to private property, and expected level of use. The noise model assumed a total of 20 hourly OHV trips, with OHVs emitting the maximum permissible noise (99 dBA at the source position), and traveling at an average speed of 30 miles per hour along unpaved trails. The OHV hourly trips used is considered to be conservative along the busiest road/trail during the peak hour condition. The topographic condition including terrain and forest tree zones was considered in the modeling. Predicted $L_{eq}(1)$ noise contours are shown in Figure 3-3 and Figure 3-4 for the areas adjacent to selected motorized trails.

As shown in Figure 3-3 for the 322.CA/OHV7 ATV loop, $L_{eq}(1)$ levels were predicted to range between 35 to 40 dBA at the property boundary for two nearby private parcels of land. $L_{eq}(1)$ levels for the motorcycle-only trail OHV 17, are predicted to range between 40 to 45 dBA at the private property boundary to the south (Figure 3-4).

These predicted noise levels are all below either daytime or nighttime maximum permissible noise levels established in the Colorado Noise Statute for residential land uses (55 dBA and 50 dBA, respectively). Moreover, it is anticipated that during the daytime period, within individual one-hour durations, the noise levels generated from OHVs utilizing the trail would be unlikely to last more than 15 minutes. In this case, the Noise Statute allows the daytime limit for residential land use to be increased by 10 dBA, meaning that the daytime levels predicted could be an additional 10 dBA below the applicable threshold. Therefore, impacts to the ambient noise environment on adjacent private property would not be significant. Because the worst-case scenarios were modeled for noise effects, this conclusion regarding significance of effects can be generalized to the larger project area.

Indirect Effects

No indirect effects are anticipated under any alternative.

3.5.3.4 Alternative C

Direct Effects

Under Alternative C, the distances between motorized trails and private property would either be comparable to, or greater than, the distances modeled in Alternative B. Therefore the overall noise impacts would generally be less under Alternative C than were modeled under Alternative B, and it is anticipated that no significant noise impacts would occur under Alternative C.

Indirect Effects

No indirect effects are anticipated under any alternative.

Figure 3-3: Noise Contour Areas Map – Area 1

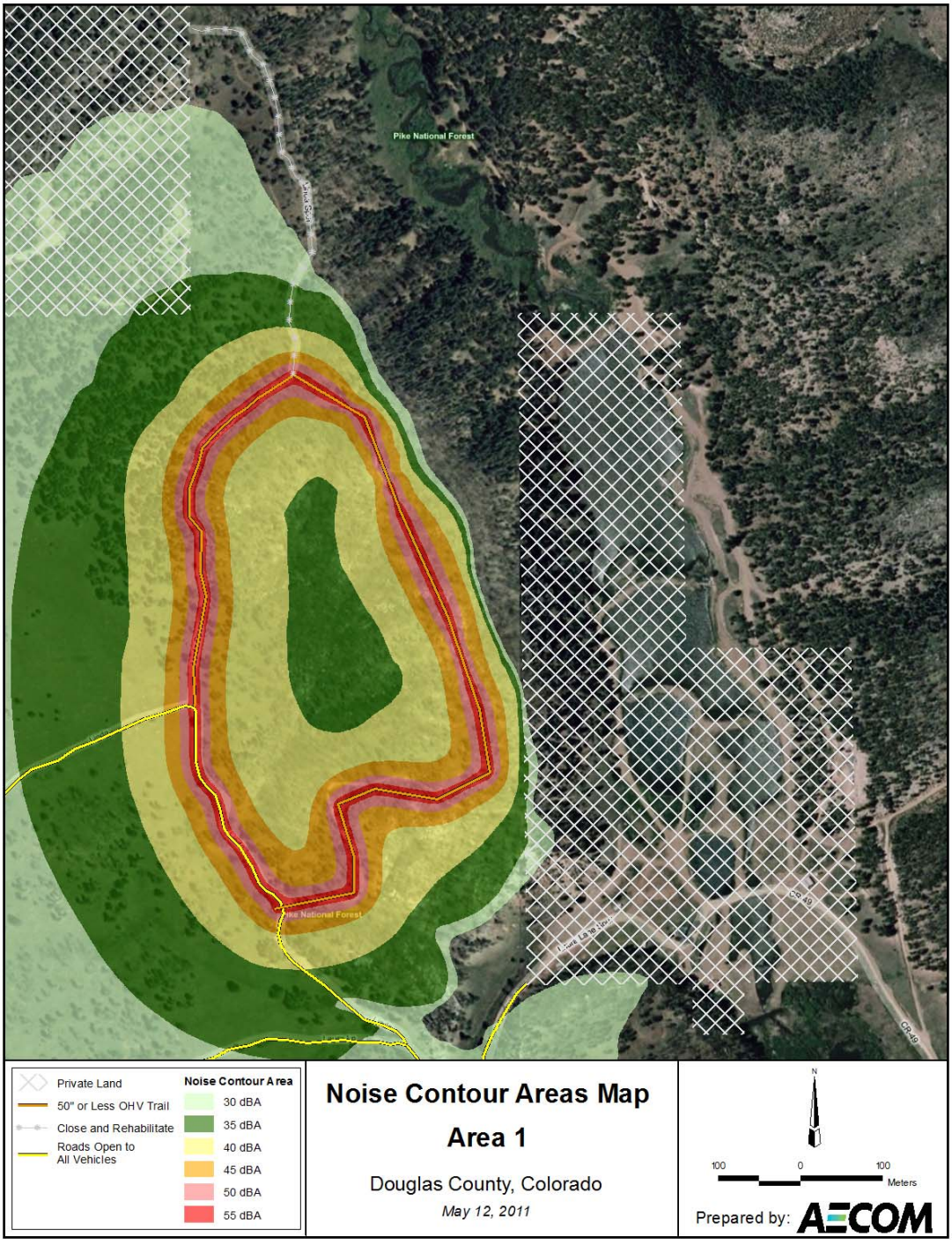
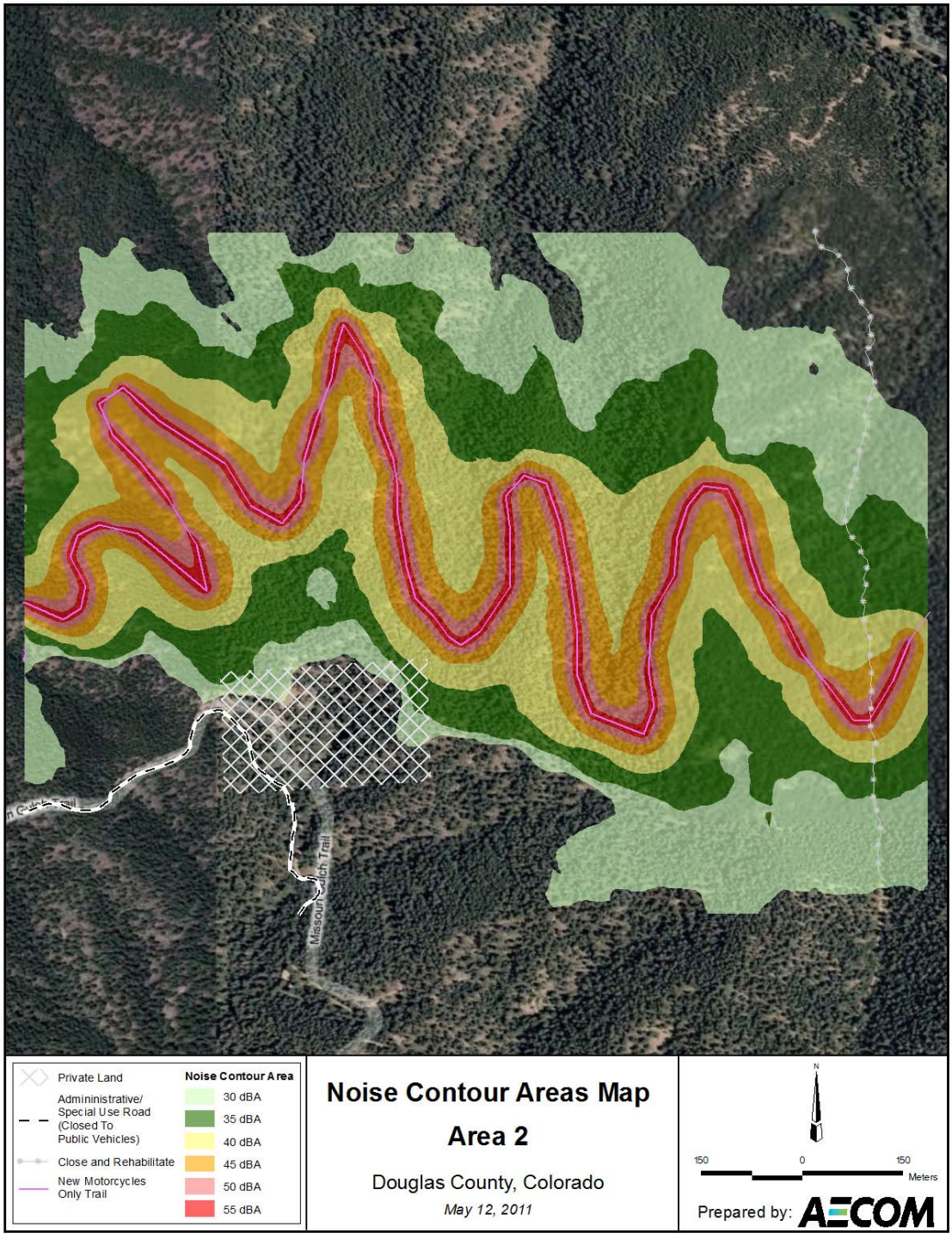


Figure 3-4: Noise Contour Areas Map – Area 2



3.6 Recreational Resources

3.6.1 Approach to Analysis

3.6.1.1 Methodology

The impact analysis for recreational resources evaluates effects of the alternatives with regard to:

- Recreation opportunities and experiences
- Public access, visitation, and potential for user-group conflicts
- Consistency with Recreation Opportunity Spectrum (ROS) classifications and Forest Plan management direction.

The Recreation Opportunity Spectrum

The ROS is a planning system utilized by land managers to classify areas according to the types of recreation opportunities available therein. ROS classifications may range from *Primitive* inside a designated wilderness to *Urban* in forests adjacent to metropolitan areas, thereby enabling managers to provide a variety of settings in which to recreate, each with their own characteristics and opportunities.

The ROS classifications found within the project area include: Urban, Rural, Roaded Natural, Semi-primitive Motorized, and Semi-primitive Non-motorized (Map 3-1). Most roads and trails in the project area are located in Rural, Roaded Natural, and Semi-primitive Motorized ROS areas that accommodate these types of recreation.

Forest Plan Direction

Forest Plan management area prescriptions provide management direction by emphasizing a particular resource and identifying associated guidelines (prescriptions) for management activities. The prescription for each management area consists of a prescription summary and a set of management guidelines. The prescription summary identifies the primary emphasis of the prescription. However, all prescriptions are multiple use prescriptions, and permitted uses and activities extend beyond the primary emphasis.

Map 3-2 displays management area boundaries in the project area. Applicable management area prescriptions for dispersed recreation and trail system management are summarized below by management area.

2A – Emphasis on semi-primitive motorized recreation opportunities

- Emphasize semi-primitive motorized recreation opportunities. Increase opportunities for primitive road motorized trail use.
- Facilities provided include campgrounds, trails suitable for motorized trailbike use, local roads with primitive surface and parking lots at trailheads.
- Maintain existing motorized routes or construct new routes needed. Provide loop routes of one-half to one day's travel time with at least one-half of the total route located

within the semi-primitive motorized ROS class and utilizing primitive local roads and/or trails suitable for motorized trailbike travel.

2B – Emphasis on rural and roaded-natural recreation opportunities

- Provide roaded natural or rural recreation opportunities along Forest arterial, collector, and local roads, which are open to public motorized travel.
- Facilities provided include campgrounds, trails suitable for motorized trailbike use, local roads with primitive surface and parking lots at trailheads.
- Close roads and trails to motorized travel when the surface would be damaged to the degree that resulting runoff into adjacent water bodies would exceed sediment yield threshold limits.
- Maintain existing motorized routes or construct new routes needed. Develop loop routes and coordinate then to compliment semi-primitive motorized opportunities in adjacent semi-primitive motorized ROS class areas.

4B – Emphasis on habitat for management indicator species

- Manage recreational activities so they do not conflict with habitat needs of selected indicator species.
- Semi-primitive non-motorized, semi-primitive motorized, roaded natural and rural recreation opportunities can be provided.

5B – Emphasis on big game winter range

- Manage summer use-season for appropriate ROS opportunities.

7A – Emphasis on wood-fiber production and utilization

- Semi-primitive non-motorized, semi-primitive motorized, roaded natural and rural recreation opportunities can be provided.

7D – Emphasis on wood fiber production and utilization for products other than sawtimber

- Semi-primitive non-motorized, semi-primitive motorized, roaded natural and rural recreation opportunities can be provided.

10B – Provides for Experimental Forest

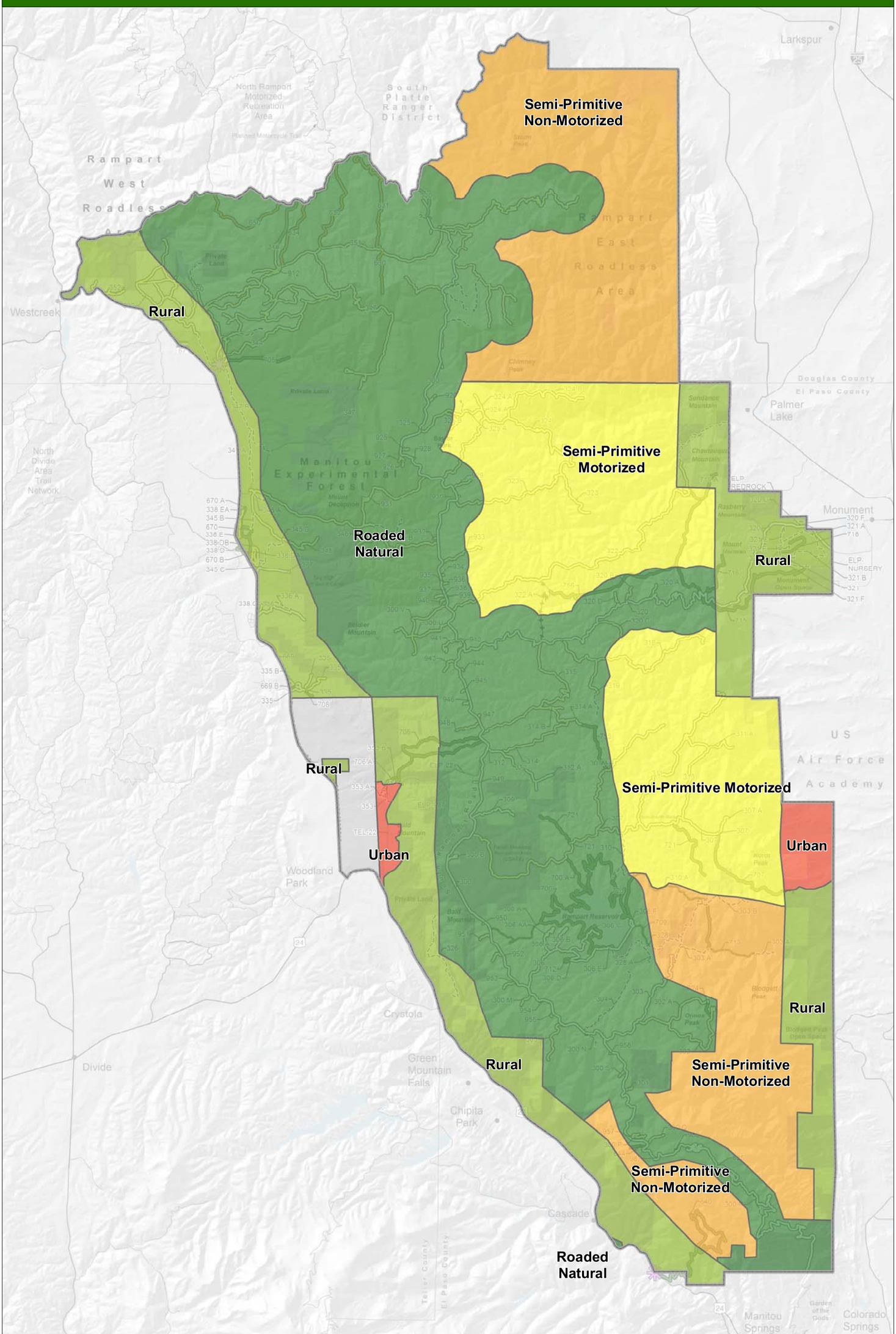
- There are no dispersed recreation and trail system management prescriptions for management area 10B.

10E – Provides for municipal watershed and municipal water supply watersheds

- Allow motorized travel only on established roads and trails. Close watershed to all travel when the road or trail surfaces could be damaged to the degree that water quality would be degraded.

Existing NFS roads and motorized trails are located in all management areas except big game winter range (5B). Non-motorized trails are primarily located in 2B management areas with others in: 10B, 2A, 4B, 5B, and 7D.

S O U T H R A M P A R T



Recreation Opportunity Spectrum
- Roaded Natural
- Rural
- Semi-Primitive Motorized
- Semi-Primitive Non-Motorized
- Urban

Travel Management Plan/ Environmental Assessment

Recreation Opportunity Spectrum

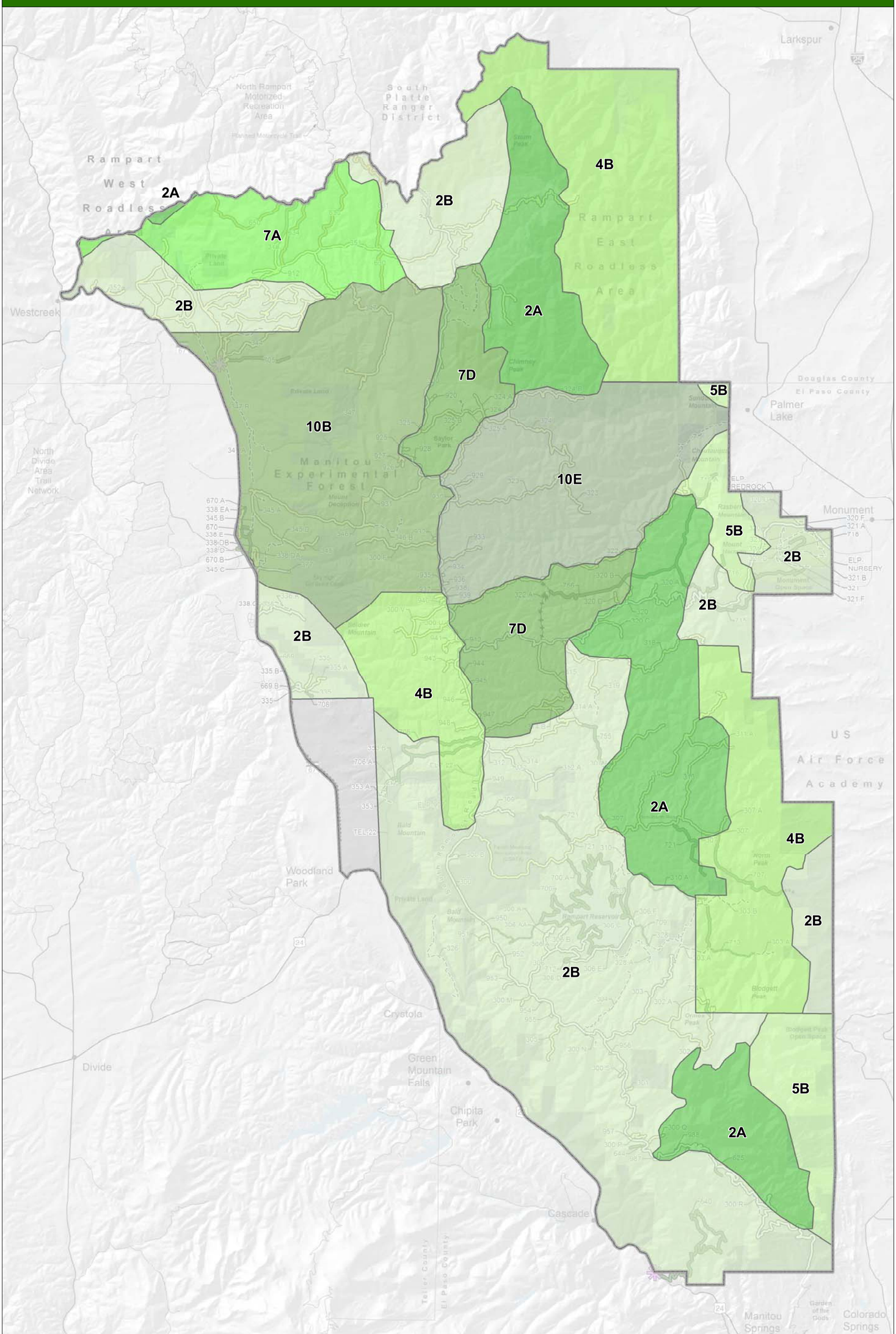
Alternative A (No Action)

Pikes Peak Ranger District PSICC

0 1 2 Miles

Map 3-1

S O U T H R A M P A R T



Management Areas

- 10B
- 10E
- 2A
- 2B
- 4B
- 5B
- 7A
- 7D

Travel Management Plan/ Environmental Assessment

Management Areas

Alternative A (No Action)

Pikes Peak Ranger District PSICC

0 1 2 Miles

Map 3-2

3.6.1.2 Significance Criteria

A significant adverse effect would result if a proposed alternative(s) was determined to be (1) inconsistent with ROS classifications for the project area, or (2) inconsistent with Forest Plan management area prescriptions for dispersed recreation or trail system management.

3.6.2 Existing Conditions

The Pikes Peak Ranger District receives a large volume of visitor use due to its proximity to the urban area and the Colorado front range. How the public accesses the area is the single most important factor in how they use the area and sets the framework for their recreational experience. The demands placed on the District are intense and diverse, with approximately 95% of all use occurring as dispersed activities. Many of these activities are considered day-use and less than twelve hours in duration. These activities include motorcycle and ATV trail riding, four-wheel drive riding, sightseeing, driving for pleasure, camping, picnicking, shooting, hunting and fishing, physical training, hiking and backpacking, horseback riding, mountain biking and rock climbing, gathering forest products, and others. Recreational use occurs throughout the year with spring and summer and being the most heavily used times. Local residents of El Paso and Teller County, Colorado Springs, and Woodland Park comprise the majority of recreational demands in the area.

3.6.2.1 Motorized Recreation

The existing road and trail network in the project area includes 129.3 miles of road open to all vehicles. A few of the more popular and longer road networks for four-wheel drive vehicles include Long Hollow (NFSR 348), Fern Creek (NFSR 351), Flake (NFSR 344), Ice Cave (NFSR 324), Balanced Rock (NFSR 322), and Schubarth (NFSR 307) roads. The Rainbow Falls Trailhead is located just east of State Highway 67 and serves as the primary access point for OHV recreation within the project area. Other similar popular four-wheel drive routes found in the Pikes Peak Ranger District include roads networks such as Turkey Track, Rule Ridge, Trail Creek, Phantom Creek, and Cedar Mountain roads.

The project area includes 10.2 miles of motorized trails open to OHVs 50-inches or less in width that offer a variety of routes ranging in difficulty from easy to difficult. Users are limited to the designated trail system and non-system trails are subject to immediate closure. Restrictions on types of use of key trails are marked, however, violations are common. The increasing popularity of OHV recreation is reflected in increased annual resident ATV and dirt bike registrations in Colorado (145 percent increase in the number of OHV registrations between the 2000-01 and 2007-08 seasons) (COHVCO 2009). The Pikes Peak Ranger District has historically been, and continues to be, a draw to visitors seeking OHV recreational opportunities. Motorcycle riding in particular, has long been a popular activity in the District.

Though motorized trails are presently available in the project area, the recreational experience on many trails is declining. Resource damage makes some trails impassible and can result in closure. Interviews with users have identified an unmet recreational demand for high-quality,

long-distance, looped, and single-track motorcycle only trails, as well as more challenging riding experiences in the project area.

3.6.2.2 Non-motorized Recreation

Horseback riding, hiking, and mountain bike opportunities are available on trails located in areas with relatively easy access from paved roads. The most popular non-motorized trails in the project area include Waldo Canyon, Rampart Reservoir, Monument Open Space, and the paved trail from Manitou Lake to the Town of Woodland Park. Although there is not a system trail to it, Blogett Peak is a popular hiking destination from Colorado Springs Parks and Recreation's Blogett Peak Open Space. Monument Creek is a popular trail from the U.S. Air Force Academy that connects to Rampart Reservoir trails. The Monument Open Space provides non-motorized trail opportunities for the TriLakes area and others. Mount Herman is another popular hiking destination from Monument Open Space. Rampart East and Rampart West designated roadless areas are located in the northern part of the project area and also provide areas for non-motorized recreation and solitude.

Although there is not a formal system trail to Blogett Peak, Colorado Springs Parks and Recreational Department manages the Blogett Peak Open Space. Due to the close proximity to the urban metropolitan population, the entire planning area is proliferated with user created travel routes. Many of these trails are heavily used year-around.

Vehicle access is important for those camping outside developed camping areas. Dispersed campers often seek remote areas as far as they can physically drive. Recreational shooting is also popular and certain closures and restrictions apply. It is important that recreational shooters have areas where they can target shoot safely and responsibly.

3.6.2.3 Manitou Experimental Forest

The MEF is open to public recreational uses that do not conflict with ongoing research and resource management. The MEF has two campgrounds, two picnic areas, and several system non-motorized trails. Visitors are currently allowed to travel cross-country or on administrative roads on foot, horse or bicycle. Most of the NFSRs within the MEF are currently open to unlicensed OHV use. As in other parts of the project area, visitors with OHVs have created non-system routes within the MEF. Some of these non-system routes are located in sensitive pygmy owl habitat. Outside the campgrounds and picnic areas, the most popular recreational activity is hunting, especially during the fall months.

3.6.2.4 Recreation Conflicts

Differing expectations and values of forest users can result in competing objectives with regard to how recreation should be conducted on NFS lands. Anecdotal evidence suggests the presence of some degree of user-group conflict in the project area. The following concerns related to recreation conflicts were considered in the development of alternatives and/or assessment of impacts:

- Need for equal opportunities for use by all forms of recreation
- Concern about conflicts between motorized and non-motorized recreational uses
- Concern about conflicts between equestrian, hiking and mountain bike use
- Desire to spatially separate motorized and non-motorized uses
- Concerns with recreational impacts to the research and the principles of the Manitou Experimental Forest.
- Concern that conflicting uses lead to conflicts among individuals
- Concerns regarding potential resource damage from non-system social trails
- Concerns about impacts of motorized recreation on camping, fishing and hunting access. Concerns about the potential impact to the Roadless Areas.

3.6.3 Environmental Consequences

3.6.3.1 Effects Common to All Alternatives

Direct Effects

Both action alternatives would add motorized and non-motorized trails to the project area, improve parking areas and trailheads, reduce the miles of road open to all vehicles, and focus motorized use in the Rainbow Falls and Saylor Park areas where a route network can be better managed.

Both action alternatives would redesignate short spur roads off South Rampart Road that are currently open to all vehicles to "roads open to licensed vehicles" to discourage the creation of non-system routes from the end of dead-end roads. Roads in the MEF that are currently open to all vehicles would be redesignated as "road open to licensed vehicles" or "administrative/special use road" to reduce conflicts with the management objectives of the MEF. Roads in the vicinity of Ormes Peak would also be redesignated as "roads open to licensed vehicles" to create a large contiguous area for non-motorized recreation in the southern part of the project area.

New non-motorized trails would primarily expand opportunities for hiking but would also improve connectivity for mountain biking especially in the Rampart Reservoir area and to the north. These changes would improve recreational opportunities and experiences for both motorized and non-motorized user groups. Creating separate motorized and non-motorized emphasis areas would also reduce user-group conflicts in the project area.

Approximately 120 miles of existing user-created, unclassified trails and roads would continue to be signed as closed. These trails and roads would be decommissioned based on their priority as funding and labor is available. Since most of these trails and roads are currently closed and not part of the travel system, no significant effect would occur to recreation.

Unmanaged dispersed camping can lead to vegetation loss and increase the risk of wildfire. Both action alternatives would limit camping and campfires to designated sites along NFSRs 350, 348, 348D, and spur roads in the Rainbow Falls area. Designated camping sites would be delineated with post and cable.

All other areas would be open to dispersed camping within the limits of the system road(s) for vehicle access. Campers may choose to walk in and camp away from their vehicle.

Indirect Effects

Both action alternatives would focus motorized recreation activities in the Rainbow Falls and Saylor Park areas. The indirect effect of this is expected to be a reduction in illegal motorized use of non-system routes elsewhere in the project area. This would result in improved recreational opportunities and experiences for non-motorized users in the southern portion of the project area. The creation of a large contiguous non-motorized emphasis area in the southern portion of the project area would benefit hunting, hiking, mountain biking, equestrian and camping visitors.

3.6.3.2 Alternative A

Direct Effects

Under the No Action Alternative (Alternative A), existing designations of roads and trails would be retained, without modification. Motorized recreation opportunities would remain dispersed across the planning area. Spur roads off of South Rampart Road and roads within the MEF would remain open to use by unlicensed vehicles. Use and creation of illegal non-system motorized routes would likely continue, with resulting resource damage. Under Alternative A there would be less segregation of motorized and non-motorized recreational opportunities (compared to the action alternatives), and therefore greater potential for user-group conflicts. Existing conflicts between OHV use and management objectives of the MEF would also continue. Roads and trails proposed for closure and rehabilitation under Alternatives B and C would remain open under Alternative A.

Indirect Effects

Alternative A would maintain trail-based recreational opportunities at current levels. Recreational demand is expected to increase over time, proportional to population growth, which would result in gradual overcrowding on existing trails over time. Overcrowding on trails can result in resource damage, increased trail maintenance, increased user-group conflicts (particularly on shared trails), proliferation of user-created routes, and diminished recreational experiences.

3.6.3.3 Alternative B

Direct Effects

Alternative B would add 34.1 miles of motorized trail and 6.4 miles of non-motorized trail to the project area; improve or develop new parking areas and trailheads; reduce the miles of road open to all vehicles by 77.7 miles; and focus motorized recreation in the Rainbow Falls, Saylor Park, and Schubarth Road areas where motorized route networks can be better managed. Dispersed camping would be restricted to designated sites along Rainbow Falls Road and Long Hollow Roads (NFSRs 350 and 348).

Short spur roads off South Rampart Road that are currently open to all vehicles would be redesignated to "roads open to licensed vehicles" to discourage the creation of non-system routes from the end of dead-end roads. These short dead-end routes are of limited recreational value, and their closure would not adversely affect recreational resources. Roads in the MEF that are currently open to all vehicles would be redesignated as "road open to licensed vehicles" or "administrative/special use road" to reduce conflicts with the management objectives of the MEF. Roads in the vicinity of Ormes Peak would also be redesignated as "roads open to licensed vehicles" to create a large contiguous area for non-motorized recreation in the southern part of the project area.

A reduction in the miles of road open to OHV use would be offset by an increase in the miles of OHV system trail. The addition of 10.2 miles of ATV trail, 16.5 miles of single-track motorcycle trail, 7.4 miles of 4x4 challenge trail, and two open riding areas in the Rainbow Falls area would improve the quality and diversity of motorized recreation opportunities provided in the project area. This alternative seeks to provide trails for different motorized recreational experiences, and includes the development of long distance trails, new single-track opportunities, trails for technical riders, and new looped systems for ATV riders. The increase in amount of trail, trail for key user types, longer trails, loop trails and trails designed to improve the recreational experience would have a direct positive effect on motorized recreation opportunities and experience.

New non-motorized trails in the vicinity of Waldo Canyon, Blodgett Peak and Monument would expand opportunities for hiking, while the addition of non-motorized system trails north of Rampart Reservoir would improve connectivity for mountain biking. These changes would improve recreational opportunities and experiences for both motorized and non-motorized user groups. Creating separate motorized and non-motorized emphasis areas would also reduce user-group conflicts in the project area.

Under Alternative B, OHV routes would be primarily located in management areas 2A, 2B, 7A, and 10E. Portions of some routes would also extend into management areas 7D and 10B. Management areas 2A and 2B emphasize semi-primitive motorized and rural and roaded-natural recreation opportunities, respectively. None of these management areas prohibit motorized recreation. Although the prescription for management area 4B states that motorized recreation opportunities can be provided, Alternative B proposes to close existing OHV routes that extend into 4B areas to reduce potential conflicts with the management emphasis on habitat for MIS. Non-motorized trails would be located in management areas 2A, 2B, 4B, 5B, and 10B. The prescription for management area 5B (emphasis on big game winter range) is to manage the summer use-season for appropriate ROS opportunities There are already many redundant user-created hiking trails to Blogett Peak and the new designation of one trail to the Peak would seek to reduce impacts to the 5B area. No changes to any management area prescriptions would be required to implement Alternative B.

OHV routes would be located in areas with ROS classifications of Rural, Roaded Natural, and Semi-primitive Motorized. Non-motorized trails would be located in areas with ROS

classifications of Rural, Roaded Natural, Semi-primitive Motorized, and Semi-primitive Non-motorized. No changes to ROS boundaries would be required to implement this alternative.

Indirect Effects

Development of open riding areas, parking areas, new loop trails, single-track trail, and 4x4 challenge routes would focus motorized recreation activities in the Rainbow Falls, Saylor Park, and Schubarth Road areas. The indirect effect of this is expected to be a reduction in illegal motorized use of non-system routes elsewhere in the project area. This would result in improved recreational opportunities and experiences for non-motorized users in the central and southern portions of the project area. The creation of large contiguous non-motorized emphasis areas in the central and southern portions of the project area would benefit hunting, hiking, mountain biking, equestrian and camping visitors.

3.6.3.4 Alternative C

Direct Effects

Direct effects of Alternative C would be similar to Alternative B except that the net increase in miles of motorized system trail would be less under Alternative C (15.7 miles) than is proposed under Alternative B (34.1 miles). The total road and trail miles open to unlicensed vehicles under Alternative C (91.3 miles) would be similar to the miles open under Alternative B (95.9 miles). Motorized roads and trails would be concentrated in the Rainbow Falls and Saylor Park areas, and along a few select routes in the central portion of the project area (i.e., along NFSRs 322, 318, and 315). No open riding areas are proposed under Alternative C. Restrictions on dispersed camping in the Rainbow Falls area would be less extensive than proposed under Alternative B, and would primarily occur along Rainbow Falls Road (NFSR 350). Parking area and trailhead improvements would also be less extensive, and would be limited to redevelopment of the existing trailhead at Rainbow Falls, and development of a new parking area at Fern Creek.

Alternative C would provide fewer miles of motorized trail, less distinction among motorized trail types, and fewer parking area and trailhead improvements compared to Alternative B. There would also be fewer loop trails, and shorter trails, thus eliminating some degree of variety in trails for motorized users. Effects on motorized recreation opportunities and experience would still be positive, but to a lesser degree than under Alternative B.

Under Alternative C, the reduction in miles of road open to unlicensed vehicles is offset with fewer miles of motorized trails compared to Alternative B. As a result, more crowding on motorized trails in the Rainbow Falls areas would be expected under Alternative C compared to Alternative B. As most trails would be open to all user types, there would be a greater potential for user-group conflict under this alternative.

Motorized routes would be located in management areas 2A, 2B, 4B, 7A, 7D, 10B, 10E. A small amount of road open to OHVs would remain available (no change from Alternative A) on the edge of management area 5B, near Monument. None of the management areas prohibit motorized recreation. Management areas 2A and 2B emphasize semi-primitive motorized and

rural and roaded-natural recreation opportunities, respectively. The prescription for management area 5B (emphasis on big game winter range) is to manage the summer use-season for appropriate ROS opportunities. Unlike Alternative B, Alternative C would retain motorized roads and trails in some 4B areas that have a management emphasis on habitat for MIS.

Non-motorized recreation opportunities under Alternative C would be similar to that described for Alternative B, except that Alternative C includes development of a 5-mile non-motorized trail in Queen's Canyon. Non-motorized trails would be located in management areas 2A, 2B, 4B, 5B, and 10B. The prescription for management area 5B (emphasis on big game winter range) is to manage the summer use-season for appropriate ROS opportunities. There are already many redundant user-created hiking trails to Blogett Peak and the new designation of one trail to the Peak would seek to reduce impacts to the 5B area. No changes to any management area prescriptions would be required to implement Alternative B.

Motorized routes would be located in areas with ROS classifications of Rural, Roaded Natural, and Semi-primitive Motorized. Non-motorized trails would be located in areas with ROS classifications of Rural, Roaded Natural, Semi-primitive Motorized, and Semi-primitive Non-motorized. No changes to ROS boundaries would be required to implement this alternative.

Indirect Effects

Development of new ATV trail connections, single-track trail, and 4x4 challenge routes would focus motorized recreation activities in the Rainbow Falls and Saylor Park areas, and along a few select routes in the central portion of the project area (i.e., along NFSRs 322, 318, and 315). The indirect effect of this is expected to be a reduction in illegal motorized use of non-system routes elsewhere in the project area. This would result in improved recreational opportunities and experiences for non-motorized users in the southern portion of the project area. The creation of a large contiguous non-motorized emphasis area in the southern portion of the project area would benefit hunting, hiking, mountain biking, equestrian, and camping visitors.

3.7 Social and Economic

3.7.1 Approach to Analysis

3.7.1.1 Methodology

The study area for the social and economic analysis includes Douglas, El Paso, and Teller counties. Data on population, demographic, and income characteristics were obtained from the U.S. Census Bureau. Data on recreational use of NFS lands in the project area and data on trip expenditures were obtained from the National Visitor Use Monitoring (NVUM) program. Potential effects of the proposed alternatives on other authorized non-recreation improvements and uses under term special use permits and/or easements were also reviewed (USDA Forest Service 2011x [lands and minerals report]). It is anticipated that the indirect quantifiable economic effects of the action alternatives from potential changes in visitation and recreational use of the project area would be negligible, and very small relative to overall PPRD visitor use

impacts to the local economy. Therefore, social and economic effects of the proposed alternatives are assessed qualitatively.

3.7.1.2 Significance Criteria

Significant economic effects are identified where proposed alternatives would result in substantial lost revenue for other special use permit holders, or substantial adverse economic effects for the local or regional economy. Significant social effects are identified where proposed alternatives would result in escalation of user-group conflicts, or substantial loss of high-value recreational opportunities. Any disproportionately high and adverse effects on minority or low-income populations would also be significant.

3.7.2 Existing Conditions

The project area encompasses 121,000 acres and makes up approximately 45% of the PPRD within the PSICC. The planning area is located just west of Interstate 25 and is bordered by the Colorado Springs Metro area on the south, and is within a 1 hour drive of the greater Denver Metro area to the north. The area includes the urban counties of Douglas and El Paso, and the less populated rural Teller County.

Outdoor recreation enthusiasts are drawn to the area because its close proximity to population centers and year-around access. Public use of the area is influenced by the urban proximity, and is considered to be one of the truly urbanized management areas within the NFS. The area can be accessed by over 600,000 residences within a 15- to 20-minute drive or by non-motorized activities directly from the adjacent public or private lands. Over two million people live within a one and half hour drive of the project area.

The area serves as a backdrop and backyard recreation opportunity for local residents, and it is estimated that over 93% of all the use originates from these three Colorado counties, with the vast majority from El Paso County. A complex system of public roads, highways, motorized and non-motorized trails provides access to many recreational opportunities and this access influences participation rates in a variety of recreational activities. Forest visitors then contribute to the local economy through the purchase of goods and services during their trip, and supporting specialized equipment matching their specific recreational venture.

The Colorado Division of Parks and Outdoor Recreation reported that the number of households that participate in motorized recreation has steadily increased since 2000. The most significant increase has occurred for dirt bikes and ATV's. Registrations for these vehicle types increased by 145% between the 2000-01 season and the 2007-08 season (COHVC 2009).

OHV enthusiasts contribute to the State and local economies by purchasing vehicles, making expenditures while on recreational activity trips (day and overnight), spending money to operate and maintain vehicles, purchasing accessories needed while riding (clothes, safety equipment), and making other expenditures for items that support their activities (food and fuel, etc.). The Colorado Off-Highway Vehicle Coalition (COHVCO 2009) completed a survey of the economic contribution of OHV use in Colorado. The survey shows that residents can spend

between $101 and $127 per person on a day trip and between $316 and $624 per person on an overnight trip. Day trips for non-residents are similar, and trip expenditures for overnight non-residents range between $851 and $1,525.

The Pikes Peak region has a high number of various special use events and activities on the National Forest. Activities such as cattle grazing, mining, hunting outfitters, bicycle tours, foot races, horseback riding and others require a permit and contribute to the local economies.

Other non-motorized recreation activities also contribute to State and local economies. Activities such as hiking, bicycling, horseback riding, physical training, camping, picnicking, watching wildlife, historical sites, fishing, target shooting, hunting, sightseeing, gathering forest products, skiing, and nature study/interpretation all have specific expenditures and financial contributions.

3.7.2.1 National Visitor Use Monitoring

According to Executive Order 12862 (1993) information about the quality and quantity of recreation on NFS lands is required for national forest planning. The NVUM program serves as the primary means of monitoring recreational activity at the national, regional and forest level. Data used in this section was generated from the 2006 PSICC NVUM report. In 2006, the Pike and San Isabel National Forest received 5.81 million national forest visits, which are defined as the entry of one person onto the forest to participate in recreation activities for an unspecified period of time. This total is the third highest among all national forests in the United States. This would not include all the incidental use originating directly from private lands without legal public access or use on travel routes that are not designated as part of the transportation system. According to the 2006 NVUM data, motorized activities are a substantial proportion of the recreational activities within this planning area. However, viewing natural features and wildlife, relaxing, and hiking are the most popular activities on the entire PSICC.

Within the planning area, it is estimated that 93% of all use is from local residents. On the entire PSICC, over 25% of all the NVUM origins of survey respondents came from zip codes within El Paso County. An additional 6.5% came from Teller and Douglas counties. The distance a person is likely to travel indicates an important trend towards how this planning area is utilized. A total of 52% of all survey respondents travelled less than 50 miles from their residence. These figures demonstrate the extent of use within this urban interface and along the front range of the PSICC.

Both motorized and non-motorized forest users contribute to the local economy as they access the Forest for day and overnight trips. NVUM survey results for the PSICC indicates that the average spending, per party, per trip is approximately $171.

3.7.2.2 Population and Demographics

This section highlights demographic trends in the study area. Current population levels influence the use of natural resources; and forecasts of future population levels may help to indicate whether there may be the potential for increased pressures on forest resources. Table 3-14 reports the aggregate population and overall growth from 2000 to 2010, and includes the

projected population growth in 2020. Douglas County is recognized as one of the fasting growing areas in the U.S., while El Paso County's growth over the past nine years mirrors the state average. Teller County is considered a rural community and growth has been minimal over this period of time. Population projections indicate that Douglas County will continue to grow at a faster rate than El Paso and Teller counties, which are expected to have growth rates closer to the statewide projected growth rate. The age distribution of the population is a significant factor in estimating demands for many recreation resources. The median age of the population in Douglas and El Paso counties are comparable to the state. Teller County is attractive to retirees, which has increased the median age of the county.

Table 3-14: Population Trends by County and for the State of Colorado

	Population		% Change (2000-2010)	2020 Population Projection	% Change (2010-2020)	Median Age 2010
	2000	2010				
State of Colorado	4,301,261	5,029,196	16.9%	6,171,730	22.7%	36
Douglas County	175,766	285,465	62.4%	390,598	36.8%	37
El Paso County	516,929	622,263	20.4%	732,734	17.8%	34
Teller County	20,555	23,350	13.6%	28,253	21.0%	47

Source: US Census Bureau

Table 3-15 reports demographic and income characteristics for the study area and state. According to census definitions, Hispanic or Latino may be of any race. As defined by the U.S. Census Bureau, race and Hispanic origin are two different concepts; thus, people of Hispanic origin may identify with any race. This would account for a total percentage greater than 100. The majority of residents within Douglas, El Paso, and Teller counties are Caucasian (white) and not of Hispanic origin. Median family income and per capita income for El Paso and Teller counties are similar to the state averages; Douglas County reports median family and per capita incomes that are greater than the state average. The percentage of families and individuals with incomes below poverty level, are lower in all three counties than is reported for the state of Colorado.

Table 3-15: Demographic and Income Characteristics

	Douglas County	El Paso County	Teller County	Colorado State
Race and Hispanic Origin (% of population)				
White	92.2%	84.7%	94.5%	89.5%
Black	1.9%	7.3%	1.5%	4.4%
Asian	3.7%	3.1%	0.7%	2.7%
Native Hawaiian and Other Pacific Islander	0.1%	0.2%	0.1%	0.3%
American Indian and Alaska Native	0.5%	1.2%	1.1%	1.2%
2 or more races	1.7%	3.3%	2.1%	2.0%
Hispanic or Latino (of any race)	7.3%	13.8%	5.3%	20.3%
Income				
Median family income	$109,043	$68,991	$67,901	$69,591
Per capita income	$42,253	$27,041	$29,259	$29,679
Poverty Status in 1999 (%)				
Families below poverty level	1.9%	7.6%	5.2%	8.2%
Individuals below poverty	2.8%	10.5%	8.0%	11.9%

Source: US Census Bureau

3.7.2.3 Lifestyles, Attitudes, Beliefs, and Values

Recreational activities and travel routes are important to many people, and management of these resources can greatly influence personal lifestyles. The study area consists of three counties that are distinct in terms of social and economic characteristics. El Paso County includes the City of Colorado Springs, and has a more metropolitan way of life and perhaps a more diverse population. The county also has a substantial military presence. Although Douglas County is in relatively close proximity to the Colorado Springs and Denver metropolitan areas, the population is less diverse in terms of racial and economic characteristics. Douglas County is one of the most affluent and well-educated counties in the nation. Teller County is more rural in nature, and has a substantial retiree population attracted to the county by rural amenities in close proximity to a large metropolitan area. All three counties consider the national forest as a valuable resource in providing a high quality of life. The travel time to the forest from Douglas County is considerably more than the other two.

Subsistence use of resources provides products to some local families. Firewood can be an important source of heat, and harvested wild game and fish along with other forest products can be food staples. However, residents rely on this area more for its recreational and aesthetic qualities than its productive capacity. Recreational activities are an important source of entertainment for lower income families that can't afford to travel long distances to seek leisure time. The close and even bordering proximity to the larger populations create a unique opportunity for all classes and activity interests to take advantage of the natural setting. Some

forest visits can be over a lunch break or after work, while others can be several days or longer. All of these factors influence lifestyles, attitudes, beliefs, and values.

Perceptions of access to the Forests, motorized recreation, and travel on and off system roads vary according to user groups; some are in favor of expanding travel and motorized recreational opportunities, and some are in favor of more limitations and closures to motorized access. The heavy use and competition for motorized activities on existing routes has lead to user conflicts and continued degradation of the route and even surrounding resources. Clashes between residents with differing value systems are likely to occur, because the population (user groups) served by the Forest is diverse, as it includes residents of urban and rural areas, as well as residents employed in some capacity by the military.

3.7.3 Environmental Consequences

3.7.3.1 Effects Common to All Alternatives

Activities supported by the PSICC affect economic and social conditions in a variety of ways. For example, many local residents identify forest recreation and natural amenities with their quality of life. People are drawn to this region for the dry mild climate and specifically for the high quality of life provided by the natural beauty and setting of the Pikes Peak region. Therefore management of the PSICC may affect some lifestyles, attitudes, beliefs, and values. Some social displacement of specific recreational activities could occur. Refer to Section 3.6, Recreation Resources for additional discussion of recreational opportunities provided under each of the alternatives.

In addition to the social implications of forest management, visitors to the PSICC have some consequences for local economic conditions. Ultimately, expenditures related to use of the Forests may impact the type and number of jobs and level of income in the local economy. Expenditures by non-locals are considered new money to the economy and support additional jobs and income for the resident work force.

Overall impacts of implementing the proposed project to social and economic resources are expected to be minimal. No user fees are proposed under any of the alternatives. Expenditures made for the proposed project under any action alternative, as well as the net economic impact to the local economies from changes in visitation would be negligible, because the effects would be very small relative to the large and diverse economy of the three affected economies; particularly urban Colorado Springs. Implementation of this plan would be dependent on the acquisition of grants through external funding sources such as the Colorado State OHV registration grant program and other sources of funding and labor that are not directly tied to standard appropriations.

Direct Effects

Direct economic effects of the proposal include the cost of implementing the project. Estimated costs for implementing proposed changes to roads and trails under each of the alternatives are summarized in Table 3-16. Estimated costs include costs for design of new trails; contractor labor for operation of heavy equipment during new motorized trail

construction; and other direct costs for signs, width restrictors, post and cable, gates, and other materials. It is assumed that Forest Service personnel and volunteers would make minor improvements to existing trails, construct new non-motorized trails, and supplement contractor labor during construction of new motorized trails. System and non-system trails that would be decommissioned under each alternative would require closure signs, access barriers, soil stabilization features, and/or vegetation restoration work. Cost estimates for Alternatives A, B, and C are $3K, $612K, and $477K, respectively, given these assumptions (Table 3-16).

The addition of system trails under both action alternatives would also increase the miles of trails requiring annual maintenance. Annual maintenance costs for motorized OHV trails, single-track motorized trails, and non-motorized trails are estimated at $205/mile, $185/mile, and $165/mile, respectively.

Table 3-16: Estimated Costs to Implement Proposed Changes to Roads and Trails

Converted/Modified System Roads and Trails	Alternative A No Action	Alternative B Preferred Alternative	Alternative C
Convert road open to all vehicles to full size trail open to all OHVs or new full size trail open to OHVs	-	$10,000	$8,000
Convert administrative/special use road to road open to all vehicles	-	$200	$200
Convert non-motorized trail to 50" or less OHV trail	-	$6,200	$0
Convert road open to all vehicles to 50" or less OHV trail	-	$2,100	$1,100
Convert road open to all vehicles to non-motorized trail	-	$2,100	$2,100
Convert road open to all vehicles to licensed vehicles only road	-	$3,000	$1,850
Convert road open to all vehicles to Seasonal Designation	-	$6,900	$6,900
Convert road open to licensed vehicles to administrative/ special use road	-	$2,050	$2,100
Convert road open to all vehicles to administrative /special use road	-	$12,150	$14,175
New Construction			
New 50" or less OHV trail	-	$75,100	$25,550
New motorcycles only trail	-	$216,000	$94,000
New road open to all vehicles	-	$1,350	$1,250
New non-motorized trail	-	$58,000	$112,000
New licensed vehicles only road	-	$2,400	$950
New admin/special use road or convert decommissioned road to admin/special use road	-	$100	$100

Converted/Modified System Roads and Trails	Alternative A No Action	Alternative B Preferred Alternative	Alternative C
Closure and Rehabilitation			
Close and Rehabilitate road open to all vehicles	$2,700	$30,100	$22,150
Close and Rehabilitate 50" or less OHV trail	-	$1,900	$1,900
Close and Rehabilitate administrative/special use / level 1 road	-	$2,200	$2,200
Close and Rehabilitate non-system OHV trails (motorcycle, ATV, or 4x4)	-	$180,000	$180,000
ESTIMATED TOTAL	$2,700	$611,850	$476,525

Indirect Effects

Indirect effects include changes in the study area economy or effects to local lifestyles and values from changes in motorized and non-motorized recreation opportunities.

Based on an increasing trend of annual resident ATV and dirt bike registrations in Colorado (145% increase in the number of OHV registrations between the 2000-01 and 2007-08 seasons) (COHVCO 2009), as well as an increasing local population with an interest in recreational opportunities, demands for all types of motorized and non-motorized recreation opportunities in the three-county study area will likely continue.

Each alternative provides options for a variety of motorized and non-motorized opportunities by designating routes to appeal to different user groups and providing new loop opportunities. It is unlikely that changes in the mix of motorized and non-motorized trails, or changes in the road system under any action alternative would cause noticeable changes in the larger economy of the three-county study area, as the costs of project implementation and the benefits of enhancing recreational opportunities are very small relative to the large and complex economy of the three-county study area. The overall impact on the region surrounding the analysis area is expected to remain stable or to increase under the action alternatives, as there would be an increase in motorized and non-motorized recreation opportunities.

Local businesses within the three-county study area would benefit directly from people seeking to access NFS lands for motorized and non-motorized recreation opportunities. Businesses that may be affected by the proposed project also provide services and supplies to a variety of user groups for a large area of public lands in the surrounding region. Noticeable effects to the tourism and recreation economic sectors of the economy would not be anticipated under any of the proposed alternatives.

The dominant use of the project area consists of motorized and non-motorized trail-related opportunities. The action alternatives would improve recreational opportunities and experiences for both motorized and non-motorized user groups, and reduce user-group conflicts in the project area. For some forest visitors, improvements proposed under the action alternatives are of great importance and would influence their choice of recreation destinations.

There would be no adverse effects of the proposed alternatives on other authorized non-recreation improvements and uses under term special use permits and/or easements, because the proposed project is primarily an improvement of existing uses in the project area, and would not displace non-recreation uses. There would be no lost revenue for other special use permit holders.

3.7.3.2 Alternative A

Direct Effects

The cost associated with closure and rehabilitation of 1.8 miles of road currently open to all vehicles would be $2,700. There would be no other expenditures for proposed new facility construction, new trails, or realigned trails.

Indirect Effects

Alternative A would maintain motorized and non-motorized recreational opportunities at current levels. There would be no changes to the current MVUM. Unauthorized routes would continue to have no status or authorization and motor vehicle travel by the public would be limited to designated routes shown on the MVUM. All routes not shown on the MVUM would be prioritized for closure and rehabilitation. Social behaviors would continue to conflict with various activities and regulations and policies.

There would be no change to system roads and trails and no indirect effects to the economy or the lifestyles and values of residents in the three-county region. Recreational use of the project area would be expected to remain stable or increase proportionally to population growth over time. Implementation of Alternative A would likely not affect expenditures made in the local or regional economy.

3.7.3.3 Alternative B

Direct

Costs for construction, reconstruction, and minor improvement of trails under Alternative B are estimated at $611,850. Preliminary cost estimates for the new Highway 67 trailhead and the Illinois Gulch Parking Area are $1.4 million and $432K, respectively, assuming that all work would be conducted by an independent contractor.

Alternative B would increase the miles of motorized and non-motorized trail requiring maintenance by 34.1 miles and 6.4 miles, respectively. This increase in trail miles is not expected to have measurable effects on the District's trail maintenance due to the availability and commitment of external resources to address many maintenance needs (see Section 2.4.4.1, Implementation Strategies and Funding).

Indirect Effects

Alternative B would provide the greatest net increase in the miles of motorized and non-motorized system trails of the action alternatives. Trail-based recreational opportunities would

increase for motorized ATV, 4x4, single-track users, mountain bikers, and other non-motorized users.

Alternative B promotes and enhances motorizes opportunities in the Rainbow Falls Area and deemphasizes motorized activities in other sections of the planning area. The development of the trailhead off Highway 67 and the future connectivity to the north and possibly to the west would help to address the increased demand for motorized activities. The designation of two "open riding areas" would allow users to travel off-road and challenge their vehicle and skill level in a controlled and managed setting. Motorized users would have routes specific for their activity and would reduce user conflicts and resource damage.

The town of Woodland Park and other local businesses could see some increased economic value. The addition of 16.5 miles of motorized single-track trail (and improved connectivity to adjacent areas) could draw additional non-local motorized users, who make greater expenditures on lodging, gasoline, food, and other trip related expenditures than local users. This alternative provides the best scenario for economic gain for businesses that provide supplies and services to both motorized and non-motorized user groups. However, there are considerable outdoor recreational opportunities available outside of the project area that contribute to the local economy, and economic effects of Alternative B to local businesses are anticipated to be very small relative to the existing recreation resource on the PCISS as well as the large, diverse economy of the three-county region.

It is likely that impacts to motorized users would be more social in nature than economic. The restrictions in motorized travel may close off certain areas of the Forests that have been traditionally used for motorized recreation. With the exception of the Rainbow Falls area, NFSR 323, and NFSR 307, unlicensed motor vehicles would be prohibited in the planning area. The seasonal closure for NFSR 346 would prohibit winter access through the MEF.

Impacts to users who access the area for other activities would be minimal. The designated camping and fire sites along NFSR 348 could limit some capacity in this immediate area. Once the sites are fully occupied, campers would have to travel to other areas for that activity. Forest visitors camping in areas with designated camping could see added value to their experience, as a result of less crowding.

The closure and rehabilitation of NFSR 224B and the end of NFSR 327 preserve the value of roadless area. Alternative B would add non-motorized trails and a connection from NFSR 307 to Mount Herman Road (NFSR 320). This would promote more long distance travel for equestrian, bicycles and foot travel. Greater restrictions on motorized travel could stimulate recreational visits for non-motorized and other activities. Non-motorized and other recreational activities account for a large portion of forest visits. Less motorized recreation in some areas may increase the quality of the experience for these visitors.

3.7.3.4 Alternative C

Direct Effects

Costs for construction, reconstruction, and minor improvement of trails under Alternative C are estimated at $476,525. Alternative C would increase the miles of motorized and non-motorized trail requiring maintenance by 15.7 miles and 13.4 miles, respectively. This increase in trail miles is not expected to have measurable effects on the District's trail maintenance due to the availability and commitment of external resources to address many maintenance needs (see Section 2.4.4.1, Implementation Strategies and Funding).

Indirect Effects

Alternative C would provide a net increase of 5.3 miles of motorized roads and trails and 13.4 miles of non-motorized trails (Table 2-1). Recreational opportunities would increase for motorized ATV, 4x4, single-track users, and mountain bikers and other non-motorized users; however, the increases in motorized and non-motorized opportunities would be less than proposed under Alternative B.

This alternative would enhance motorized recreation activities in the Rainbow Falls and Saylor Park areas; but also improve non-motorized uses by reducing illegal motorized use of non-system routes elsewhere in the project area, and by the creation of a contiguous non-motorized emphasis area in the southern portion of the project area. The addition of 7.5 miles of motorized single-track trail could draw additional non-local motorized users, who make greater expenditures on lodging, gasoline, food, and other trip related expenditures than local users; however, this beneficial effect would be smaller than would occur under Alternative B.

There are considerable outdoor recreational opportunities available outside of the project area that contribute to the local economy, and economic effects of Alternative C to local businesses are anticipated to be very small relative to the existing recreation resource on the PCISS as well as the large, diverse economy of the three county region.

The social effects of Alternative C would be similar to Alternative B. However, the extent of designated camping areas would be less under Alternative C than is proposed under Alternative B.

3.8 Vegetation

3.8.1 Approach to Analysis

The National Forest Management Act (36 CFR 219.19) states that, "Fish and wildlife habitat shall be managed to maintain viable populations of existing native and desired nonnative vertebrate species in the planning area." Results of litigation have broadened this to include plants. This is stated in the USDA Departmental Regulation 9500-4, and has been incorporated into FSM 2760.22: "Maintain viable populations of all native and desired nonnative wildlife, fish and plant species in habitats distributed throughout their geographic range on NFS lands." NFMA continues, "In order to ensure that viable populations will be maintained, habitat must

be provided to support, at least, a minimum number of reproductive individuals and habitat must be well distributed so that those individuals can interact with others in the planning area."

3.8.1.1 Methodology

The Regional Forester has identified sensitive species for Region 2, and PSICC has further refined this list, to include only those species with the potential to occur within its administrative boundaries. The threatened, endangered, and Regional Forester's Sensitive Species (RFSS) list for the PSICC was used to identify those species that could occur in the project area. Based on that and research of other records (e.g., Colorado Natural Heritage Program 2010), it was determined that the habitat in the project area could be suitable for six of the plant species on the RFSS list.

Rare plant species habitats within the project area were identified using the Colorado Natural Heritage Program (CNHP) database records and four PSICC GIS layers that describe habitat attributes that may affect plant distribution – geology, soils, vegetation, and elevation. Doing so allows the effects on threatened, endangered, and RFSS plant species to be avoided in the project design. Species habitat preferences are based on CNHP data for "S" level precision, i.e. locations mapped with second accuracy (within three arc seconds of latitude and longitude). This allows a reasonable level of confidence in determining site conditions where plants occur. While species may occur on other substrates or cover types, this analysis suggests logical places to prioritize searches for additional occurrences. Only the species that may occur or have habitat that could be affected by the project will be carried forward in the analysis. Should other occurrences be found having conditions different from those predicted, that information will be added to species analysis.

Six species on the RFSS list have been documented in or near the project area or may have potential habitat within the area. Included in the species information are: the best period for identification, habitat information (geology, soils, vegetation, elevation), distribution (overall range, watershed, counties), and G- and S- ranks and threats as they occur in the project area. This information describes the significance of the species, best time for surveys for populations, and habitat conditions that may be impacted by project implementation.

3.8.1.2 Significance Criteria

For the purposes of this analysis, the number of known populations of RFSS plants known to occur within the Forest boundary is the first consideration of whether or not a plants' viability would be in question as a result of the project. Loss of viable populations of any species may be significant. RFSS have been addressed at the Regional level for their viability concerns.

3.8.2 Existing Conditions

Most of the 101,368 acre project area lies within the Pikes Peak-Rampart Range ecological subsection as defined by McNab, *et al.* (2007), although a narrow strip along the eastern edge of the area is in the Southern Front Range Foothills. The predominant underlying geology is rocks of Pikes Peak batholith (Tweto 1979). Also present in the Rampart Range are rocks identified as Williams Canyon limestone and Fountain formation. Due to geologic processes, the

Foothills have a greater diversity of formations in the much smaller area. Most of the soils in the area are derived from decomposing Pikes Peak granite. These soils are typically gravelly and are very erodible. Smaller areas have soils derived from decomposing Williams Canyon and Fountain formation limestones, as well as other rock types (Moore 1992). Slopes in the area are quite variable, from essentially flat to nearly vertical. All aspects can be found.

Vegetation is rather diverse within the project area. Vegetation types vary by the effects of precipitation and the types of soils that have developed on the site. Brief descriptions of site characteristics of stands (based on LANDFIRE Rapid Assessment Reference Condition Models 2007) are presented here.

Quaking aspen (*Populus tremuloides*) forests and woodlands often have significant amounts of encroaching conifers. Understories are usually herbaceous dominated with snowberry (*Symphoricarpos* spp.), meadow rue (*Thalictrum fendleri*), and yarrow (*Achillea millefolium*). They occur on flat to steep slopes of all aspects. Soils are deep, cool and moist. Stands vary from a few acres to hundreds of acres in size. This vegetation type is equivalent to the "Aspen Dominated Stands" EV label.

Lodgepole pine (*Pinus contorta*) forests are cold and moist. Soils are excessively well-drained and have a coarse texture. Stands are often very dense and have little diversity in the understory. Shrubs, when present, include bearberry (*Arctostaphylos uva-ursi*), Oregon grape (*Mahonia repens*), and snowberry. Stands in this area are small. This vegetation type is equivalent to the "Lodgepole Pine" EV label.

Dry-mesic montane mixed conifer forests and woodlands typically occur below 9,000 feet elevation. Ponderosa pine (*Pinus ponderosa*), Douglas-fir (*Pseudotsuga menziesii*), white fir (*Abies concolor*), and aspen are the most common trees. Mountain mahogany (*Cercocarpus montanus*) and wax currant (*Ribes cereum*) are frequent shrubs. Areas covered by this vegetation type may be quite large, forming a matrix in which other, less extensive vegetation types, occur. This vegetation type is equivalent to the "Ponderosa Pine-Douglas-fir" EV label.

Mesic montane mixed conifer forests and woodlands are found in the montane and subalpine zones. They tend to be moist and cool. Near wet areas, blue spruce (*Picea pungens*) becomes more common. Gambel oak (*Quercus gambelii*), bearberry, and bluebells (*Mertensia* spp.) may be common in the understory. Stands are generally small, occurring in narrow ecological sites. This vegetation type is equivalent to the "Douglas-fir", "Mixed Conifer – cool and/or moist" and "Mixed Conifer – warm and/or dry" EV labels.

Ponderosa pine (*Pinus ponderosa*) woodlands are generally associated with xeric conditions. Douglas-fir (*Pseudotsuga menziesii*) may enter some stands, particularly on north-facing slopes. Mountain mahogany and blue grama (*Bouteloua gracilis*) are common to abundant understory plants. Areas covered by this vegetation type may be quite large, forming a matrix in which other, less extensive vegetation types, occur. This vegetation type is approximately equivalent to the "Ponderosa Pine-Gambel Oak" EV label.

Dry-mesic Engelmann spruce (*Picea engelmannii*)-subalpine fir (*Abies lasiocarpa*) forests and woodlands in the analysis area are at higher elevations on gentle to steep slopes. Other conifers

may occur within these stands. The understory may have a diversity of shrubs and herbaceous plants. These stands may be fairly large. This vegetation type is equivalent to the "Spruce-Fir" EV label.

Subalpine-montane bristlecone pine (*Pinus aristata*) and limber pine (*Pinus flexilis*) woodlands are found on mid to upper slopes. Conditions within these stands are often cold but dry. The understory is usually sparse. Stands in this area are typically small. This vegetation type is equivalent to the "Bristlecone/Limber Pines" EV label.

Lower montane foothill shrublands occur on lower mountain slopes and are typically dominated by mountain mahogany. Sites are xeric with relatively little soil development. Common grasses are blue grama and mountain muhly (*Muhlenbergia montana*). These stands are small in the analysis area. This vegetation type is equivalent to the "Shrub-Mountain Mahogany dominated" EV label.

Gambel oak-mixed montane shrublands appear at low elevations on all aspects. Around the edges of dense oak stands, understory species include snowberry, elk sedge (*Carex geyeri*), yarrow, and lupine (*Lupinus perennis*). Stands are small in this area, but are usually slightly larger than the previous type. This vegetation type is equivalent to the "Shrub-Gambel Oak" EV label.

Ponderosa pine savannas have widely spaced trees with dense understory herbaceous vegetation. Arizona fescue (*Festuca arizonica*) and mountain muhly are abundant, forming much of the ground cover. Gambel oak appears in scattered small clumps. Stands may be large, merging into ponderosa pine woodlands. This vegetation type is equivalent to the "Ponderosa Pine/Grass" EV label.

Montane-subalpine grasslands occur on a wide variety of slopes and aspects, with southerly aspects generally forming the larger stands. Dominant grasses include mountain muhly, Thurber fescue (*Festuca thurberi*), Arizona fescue, and nodding brome (*Bromus anomalus*). Grasslands in this area are generally small. This vegetation type is equivalent to the "Grass/Forb/Subshrub Dominated" EV label.

Montane riparian systems are found along perennial streams. Blue spruce or narrowleaf cottonwood (*Populus angustifolia*) is the dominant tree species in these areas, and various willows (*Salix* spp.) are the common shrubs. Riparian areas are small and linear because of the local topography. This vegetation type is equivalent to the "Riparian-Tree Dominated" EV label.

Riparian shrublands and grasslands typically occur as long, narrow vegetation zones along perennial streams. They may be dominated by willows or sedges (*Carex* spp.) and wetland grasses. Riparian areas are small and linear because of the local topography. This vegetation type is equivalent to the "Riparian-Grass Dominated" and "Riparian-Shrub Dominated" EV labels.

None of the six RFSS plants discussed below have been observed within the project area, although potential habitat is present.

Rydberg's golden columbine (*Aquilegia chrysantha* Gray var. *rydbergii* Munz) is found in montane warm mixed conifer stands, particularly in rocky ravines along streams (Ladyman 2005) in Douglas-fir forests. Tree cover in these areas varies from 20% to 60%, and shrub cover ranges from 10% to 80% (Ladyman 2005). It does require moist conditions (Ladyman 2005). There are potential threats to some populations from recreational uses along roads and trails, and from invasive species.

Narrowleaf grapefern (*Botrychium lineare* W.H. Wagner) is found in deep grass and forb meadows in this vicinity, and historically disturbed dry coniferous forest in other areas (Beatty *et al.* 2003). It has been found among the riparian transition vegetation associated with aspen at Pikes Peak. It may be threatened by recreational activities, and also by noxious weed encroachment.

Lesser yellow lady's-slipper (*Cypripedium parviflorum* Salisb.) inhabits a wide variety of habitats in the lower montane including warm mixed coniferous forest here, and in aspen groves and moist ponderosa pine/Douglas-fir forests, and in subalpine wetlands in other nearby areas (Spackman *et al.* 1997). Threats include over-collecting, unregulated recreation, invasive species, and habitat conversion. Lesser yellow-lady's-slipper may respond favorably to light disturbances.

Adder's-mouth [*Malaxis brachypoda* (Gray) Fern.] grows along streams in mosses where it is kept wet by water spray (Spackman *et al.* 1997). The local population is disjunct from the major part of the species range.

Rock cinquefoil (*Potentilla rupincola* Osterhout) is found on granitic outcrops or on thin, gravelly granitic soils, in montane and subalpine areas. Rock cinquefoil may be threatened by invasive plants and development (Anderson 2004).

Selkirk's violet (*Viola selkirkii* Pursh ex Goldie) grows in montane to subalpine cold mountain (aspen) forests, and in moist woods and thickets. Habitat may be threatened by unregulated motorized recreation.

3.8.3 Environmental Consequences

Travel management will have no direct impact at the stand level and will not change stand types. Activities associated with travel management occur on the ground and only isolated trees would need to be removed, generally for safety concerns. Roads and trails are linear features through the understory of forests and woodlands, and through shrublands and grasslands. Shrubs may be slightly more affected by activities associated with roads and trails, but the greatest effects would be to herbaceous vegetation. The effects to shrubs and herb will be greatest in shrub and herbaceous dominated communities.

Road and trail construction and maintenance have a variety of effects on vegetation and habitat. Restoration efforts associated with closure of user-created trails may cause many of these same effects to plants and their habitats. Most of the Rampart area has severely erodible soils. Appropriate locating of travel routes will mediate soil and vegetation loss.

Stream crossings should be perpendicular to the stream to minimize the area of vegetation to be impacted. With this angle of crossing, very little damage to plants would occur, but as the angle increases or decreases, more area may be subjected to potential damage.

3.8.3.1 Effects Common to All Alternatives

Direct Effects

Trail and road construction and maintenance, as well as improving parking areas, trailheads and drainage, have a variety of factors that may affect plant habitats. Alternatives vary by the amount of disturbances, not the type. Due to the erosive soils in the analysis area, implementing any of the alternatives could cause moderate soil disturbance, moderate to concentrated soil compaction, herbaceous plant removal, and shrub removal along the existing routes. Among these, those that cause greatest concern are soil disturbance and compaction, the removal of understory vegetation, and invasion of noxious weeds. If graded or obliterated, there may be short term soil compaction and vegetation loss, but with the long term benefits of increased vegetation and soil stability.

The use of OHVs can cause many of the same concerns as the construction of trails and roads.

Ground disturbance may expose roots of plants, leading to pedestalling of plants exposing their roots to drying, the eventual loss of vegetation, and to the development of rills and gullies. Implementing actions could cause moderate soil disturbance along trail routes. Closing routes reduces traffic and allows vegetation to reoccupy disturbed areas over time.

Trail users create by-passes around trail segments that are difficult to use as they become entrenched. Surface layers of the soil are removed from the site exposing greater amounts of plant roots and exposing areas completely lacking vegetation to the forces of natural and mechanical soil disturbance. Without grading or obliteration of the closed roads and trails, erosion may continue leading to more habitat loss. Movement of soil can increase sedimentation into wetlands and streams, and impact water quality. Stream crossings not perpendicular to the flow result in stream banks where the stabilizing vegetation is removed and soils erode due to flowing water. Bank erosion along streams and ponds can lead to the loss of riparian vegetation and wetlands. Maintaining trails reduces the impacts of trails to water quality and destructive soil movement, thereby protecting adjacent vegetation. Less erosion of soils keeps more vegetation in place.

Compaction of the soil on the roots of plants may cause the decline in health of the plants by limiting their ability to take up water or damaging roots. Soil compaction, and its effects on plants, is of greater concern in riparian areas and wetlands due to the finer texture (higher clay content) of the soils. Many riparian and wetland plants are susceptible to damage from compacted soils.

The amount of photosynthetically active plant matter can be reduced through removal of leaves and twigs on plants along roads and trails. Dust and silt from trail use may stresssome vegetation. Many activities can cause dust and silt to settle on vegetation reducing photosynthetic activity in plants.

Seed planted to stabilize disturbed areas may cause competition for the plants already present.

Constructing new trail segments would necessitate the removal of herbaceous and shrubby plants along the route. Activities could dislodge plants in the area of disturbance. The layers of

vegetation in the area can be reduced. The herbaceous layer may be removed or lost. Shrub canopy may be reduced. It is possible that undiscovered individuals of RFSS may be along the path, and thus could be damaged or destroyed by uprooting, crushing or stem breakage during construction and maintenance efforts.

Plants could be lost due to increased or decreased available water, depending on slope position and soil texture. With trails placed in appropriate locations, the effects of altered hydrology would be minimized. Movement of soil can increase sedimentation into wetlands and streams, and impact water quality.

Rydberg's golden columbine, lesser yellow lady's slipper, and Selkirk's violet are forest canopy gap species that typically occur in moist areas, often near streams. These species could benefit from small gaps in the canopy that would allow more sunlight to reach the ground. However, any soil compaction or displacement or alteration of soil moisture would be likely to be detrimental to any habitats affected.

Narrowleaf grapefern typically enters dry woodland communities 25 to 50 years following disturbance. Reduction of activity in the forests of the project area, particularly those that would stabilized the soil, would benefit the species in the long term. Rerouting of existing user created roads or trails may cause destruction of undiscovered grapeferns, but closed trails could eventually provide habitat for them.

White adder's-mouth orchids appear to require perennially moist streamsides. Any soil movement could degrade water quality affecting this plants' habitat. Excessive soil movement could bury the habitat in displaced soil. Removal of overstory vegetation would have the effect of drying the site out, making conditions no longer suitable for this species to occur.

Rock cinquefoil would occur in dry areas, among rocky outcrops in areas with coarse soil. Activities in open riding areas could damage or destroy undiscovered plants that may be present. Soils may be disturbed, compacted, or removed.

Acres of vegetation types that would be disturbed under each of the alternatives are summarized in Table 3-17 below.

Table 3-17: Acres of Disturbance for Roads and Trails by Vegetation Type and Alternative

Vegetation Type	Alternative A (acres)	Alternative B (acres)	Alternative C (acres)
Aspen Dominated Stands	43	47	46
Lodgepole Pine	26	24	26
Ponderosa Pine–Douglas-fir	75	77	76
Douglas-fir; mixed conifer–cool and/or moist; mixed conifer–warm and/or dry	98	103	101
Ponderosa Pine-Gambel Oak	17	19	18
Spruce-Fir	2	2	2
Bristlecone/Limber Pines	19	23	20

Vegetation Type	Alternative A (acres)	Alternative B (acres)	Alternative C (acres)
Shrub-Mountain Mahogany Dominated	4	4	4
Shrub–Gambel Oak	18	17	17
Ponderosa Pine/Grass	76	79	80
Grass/Forb/Subshrub Dominated	91	95	93
Riparian–Tree Dominated	23	23	23
Riparian–Grass Dominated; Riparian-Shrub Dominated	20	22	22

Indirect Effects

Soil disturbance and compaction have detrimental impacts to the local hydrology, causing more soil erosion, leading to less available habitat for plants and potentially changing the understory vegetation. Ground disturbance can lead to the development of rills and gullies. Vegetation holds the soils in place and prevents sediment from altering aquatic habitats. Riparian areas and wetlands have diverse ecological systems with high species diversity. These are important wildlife habitats, and hold moisture through the season for slow release through the summer.

Roads and trails may alter the hydrology of an area, affecting the types of plants able to grow there by affecting sedimentation rates, water quantity and quality, and either increase or decrease available moisture. In areas adjacent to compacted soils, the moisture holding capabilities of the soil can change, indirectly leading to alterations of species composition. Plants could be lost due to increased or decreased available water, depending on slope position and soil texture. Disruption of the moisture holding capabilities can change the habitats on the site and those down slope. Overland flow of water could be disrupted by trail construction and maintenance.

Closure, rerouting, and creation of roads and trails may impact the vegetation in riparian areas, floodplains, and wetlands due to erosion of soil and deposition of eroded sediment. This has the potential to increase erosion. Downhill from such sites, there is an increase in sediment loads that can cause plants to be buried in the sediments.

Following construction of trail segments, moderate to concentrated soil compaction would occur when the trail is being used. Roads and trails increase the runoff from precipitation because of soil compaction. Soil compaction may be causing accelerated runoff and further soil erosion.

Noxious weeds can invade areas following soil disturbance and the removal of vegetation. Areas where erosion has removed soil have the potential to become seedbeds for noxious weeds. The seeds of many weeds are often transported by vehicles. Seeding as mitigation in disturbed areas can increase competition for the natural vegetation of the area. Once established, non-native invasive plants then create additional problems by simplifying vegetative structure and providing competition for resources, making the area less suitable for diverse vegetation. Invasion by non-native invasive plants could enter the area along the trail route.

Noxious weeds and seeding used to stabilized disturbed soils could compete for resources to the detriment of the rare plants. Caution would be needed treat any weeds that might become established near the RFSS plants.

The presence of roads and trails may affect the behavior of insects necessary for the pollination of many plants. The presence of numerous user-created trails may impact the local movements of pollinators.

3.8.3.2 Alternative A

Direct and Indirect effects are as described under Effects Common to All Alternatives. The differences between alternatives and the impacts from those differences are negligible and, therefore, are similar across all alternatives.

3.8.3.3 Alternative B

Direct and Indirect effects are as described under Effects Common to All Alternatives.

3.8.3.4 Alternative C

Direct and Indirect effects are as described under Effects Common to All Alternatives.

3.9 Visual

3.9.1 Approach to Analysis

3.9.1.1 Methodology

Visual resources on NFS lands are assessed within the framework of the Visual Management System (VMS), which is used to inventory and manage the visual resources of a landscape. Visual Quality Objectives (VQOs) are associated with the degree to which a landscape is perceived to be intact, or whole, and are consistent with management area direction for visual resources.

There are five VQOs in the VMS system, each representing a different degree of acceptable alteration of the natural landscape. These are Preservation, Retention, Partial Retention, Modification, and Maximum Modification. NFS lands in the project area are managed under the Partial Retention and Modification VQOs, with the exception of the MEF, which does not have a stated VQO. Partial Retention and Modification VQOs are defined as:

- Partial Retention: Management activities are visually evident but subordinate to the characteristic landscape when managed according to the Partial Retention VQO. Activities may repeat form, line, color, or texture common to the characteristic landscape, but changes in their qualities of size, amount, intensity, direction, pattern, etc., remain visually subordinate to the characteristic landscape.
- Modification: Management activities may visually dominate the original characteristic landscape. However, management activities and introductions to the natural setting must be designed to blend with the landscape by using lines, forms, colors, and textures found in the surrounding natural landscape.

A goal of the Forest Plan (USDA Forest Service 1984) is to manage the visual resource to a desired condition that allows for acceptable alteration of the landscape. Visual resource management direction for management areas in the project area includes the adopted VQO classes, which are summarized in Table 3-18. Management area boundaries, to which the VQOs pertain, are shown on Map 3-2.

Table 3-18: Visual Resource Management Direction by Management Area

Management Area	Visual Resource Management[1]
02A	Design and implement management strategies to provide a visually appealing landscape. Enhance or provide more viewing opportunities and increase vegetation diversity in selected areas. Do not exceed an adopted VQO of Partial Retention. System travel routes are sensitivity level 1.
02B	Design and implement management strategies to provide a visually appealing landscape. Enhance or provide more viewing opportunities and increase vegetation diversity in selected areas. Do not exceed an adopted VQO of Partial Retention. Arterial and collector roads and trails are sensitivity level 1.
04B, 05B	Design and implement management strategies to blend with the natural landscape. Do not exceed an adopted VQO of Modification.
07A, 7D	Do not exceed an adopted VQO of Partial Retention within the foreground of arterial/collector roads & primary trails. Modification in all other areas.
10B	No VQO classes are applied to the Manitou Experimental Forest. Forest-wide direction applies where not in conflict with experimental forest management.
10E	Management activities in foreground and middleground dominate, but harmonize and blend with the natural setting. Management activities may also dominate, but appear natural when seen as background. Do not exceed an adopted VQO of Modification.

[1] Standards and guidelines for each Management Area direction are stated only if pertinent to the management of system roads and trails.

3.9.1.2 Significance Criteria

Significant adverse effects to visual resources would result in the event that a proposed alternative(s) is determined to not conform to the VQOs established in the 1984 Forest Plan.

3.9.2 Existing Conditions

The scenic resources of the project area play a vital role in the attraction, enjoyment, and economic value of recreational uses by visitors to the area, and enhance the quality of life for local residents. The existing landscape character of the project area is a predominantly natural landscape that provides a mountain setting for a variety of outdoor recreation opportunities. The landscape is characterized by steep, rugged forested terrain dissected by numerous drainages. The mosaic of vegetation in forested areas interspersed with grassland meadows and interesting rock formations contribute to the visual appeal of the project area. Pikes Peak and other steep mountains provide a scenic backdrop to views of the project area.

Existing visual modifications to the natural setting includes system roads, and system and non-system trails, and developed recreation facilities that include ancillary facilities such as parking areas, trailheads, campgrounds, and picnic areas. Visible management actions are generally subtle, so that the landscape retains a predominantly natural appearing character. A

proliferation of non-system user-created trails in the project area has led to the development of braided trails and non-system trails that extend from the ends of system trails or roads. Effects to scenic quality include evidence of erosion and removal of vegetation.

The project area is viewed from interior and exterior locations that include system roads and trails, recreation facilities, Rampart Range Road, and State Highway 67. The viewsheds of existing roads and trails range from enclosed, narrow corridors dominated by tree-stands adjacent to the routes to broad, expansive vistas visible from high points and some open areas. No scenic designations were identified in the project area or at locations with views of the project area. However, the Rampart Range Road is a noted scenic drive, although it has no scenic drive or byway designation.

3.9.3 Environmental Consequences

3.9.3.1 Impacts Common to All Alternatives

Direct Effects

Both action alternatives would increase the miles of motorized and non-motorized system trail in the project area. New construction of motorized trails would be focused in the Rainbow Falls area, while new non-motorized trail would be designated in the southern portion of the project area in the vicinity of Blodgett Peak and Waldo Canyon. While there are differences among the action alternatives in the mileage of motorized and non-motorized trails, the change to the overall scenic quality from any action alternative relative to the current condition would be negligible to minor. Visitors to the project area would continue to enjoy a variety of motorized and non-motorized recreation opportunities in a predominantly undisturbed, natural landscape.

Under both action alternatives, system road currently open to all vehicles would be redesignated as open to licensed vehicles only. Many of the road segments to be redesignated are short spur roads off of South Rampart Road. It is expected that redesignation of these spur roads would discourage use of these areas for staging of OHVs, and discourage motorized use of non-system routes that extend from the end of spur roads. A reduction in motorized use of non-system routes would have minor beneficial effects on visual resources. The proposed closure and rehabilitation of system roads in the vicinity of the Rampart East Roadless Area under each of the alternatives would also have minor beneficial effects on the scenic quality of landscapes within the project area.

Direct effects on visual resources from trail construction activities would be primarily short-term and would consist of the sight of construction equipment, construction activities, and temporary disruptions of trail access.

The addition of new motorized and non-motorized trails would result in a negligible degree of change in the overall scenic quality of the project area, as trails generally lie lightly on the land. As viewed in all distance zones, the natural-appearing edge effect, minimal if any cut and fill slopes, and adjacent undisturbed vegetation would reduce the visual impact of new or reconstructed trails. The curvilinear lines of new and modified trails would follow the contours of the terrain, and would not alter landforms. There would be no significant long-term effects

to the scenic quality of the natural landscape setting from new trails or existing trails modified to accommodate altered uses.

Indirect Effects

Indirect effects are described in Sections 3.9.3.2 - 3.9.3.4 below.

3.9.3.2 Alternative A

Direct Effects

Under the No Action Alternative there would be no change to system roads and trails within the project area; therefore, there would be no direct effects on the existing scenic quality of the project area.

Indirect Effects

Although motorized use of non-system routes would continue to be prohibited, in accordance with existing policy, ongoing visual impacts resulting from non-system trail use and proliferation would likely continue.

3.9.3.3 Alternative B

Direct Effects

Effects on visual resources from proposed project activities would be primarily short-term and construction-related, and would consist of the sight of construction equipment, construction activities, and temporary disruptions of road and trail access.

Alternative B would add 6.4 miles of non-motorized trail, 10.2 miles of ATV trail, and 16.5 miles of single-track motorcycle trail to the project area. New motorized recreation opportunities would be focused in the Rainbow Falls area. The addition of new trails would result in a negligible to minor degree of change in the scenic integrity of the landscape, as trails generally lie lightly on the land. The curvilinear lines of new and modified trails would follow the contours of the terrain, and would not alter landforms. Minimal cut and fill slopes and adjacent undisturbed vegetation would result in a natural-appearing edge effect, and would minimize the visual impact of new trails. 7.4 miles of 4x4 challenge trail would be added through redesignation of existing roads. The visual appearance of challenge trails would not be substantially different from existing roads.

NFS lands in the project area (exclusive of the MEF) are managed under the Partial Retention and Modification VQOs. Noticeable alteration to the existing landscape character under Alternative B would be minor. Redesignation of roads would alter their use but would not substantially alter their appearance. All motorized and non-motorized trails would repeat the form, line, color, and texture characteristic of the South Rampart Range landscape, and would be in conformance with VQO Modification and Partial Retention objectives in all management areas.

Open riding areas, parking areas and trailheads would be developed using materials and design complementary to the natural setting, and would retain tree cover to the extent practicable to

blend with the natural environment. Existing rock outcrops and rock ledges would be incorporated into the footprint of open riding areas. Open riding areas, parking areas and trailheads would be designed to be visually subordinate to the landscape, and would meet VQO Modification and Partial Retention objectives in all management areas.

The closure and rehabilitation of NFSR 327 and NFSR 324.B (accessing the East Rampart Roadless Area) and new restrictions on camping along NFSR 348 and NFSR 350 in the Rainbow Falls area (to prevent crowding and resource damage) would have minor beneficial effects on visual resources.

Indirect Effects

Development of open riding areas, parking areas, new loop trails, single-track trail, and 4x4 challenge routes would focus motorized recreation activities in the Rainbow Falls area. The indirect effect of this is expected to be a reduction in illegal motorized use of non-system routes elsewhere in the project area, and a corresponding reduction in visual impacts resulting from non-system trail use and proliferation.

3.9.3.4 Alternative C

Direct Effects

Alternative C would add 13.4 miles of non-motorized trail, 2.2 miles of ATV trail, 7.5 miles of single-track motorcycle trail, and 6.0 miles of 4x4 challenge trail to the project area. New motorized recreation opportunities would be focused in the Rainbow Falls area. Under Alternative C, a new parking area would be developed at Fern Creek and the existing trailhead at Rainbow Falls would be redeveloped to improve its quality and functionality. Camping would be restricted to designated sites along NFSR 350. NFSR 300.C and NFSR 300.CB accessing the Rampart East Roadless Area would be closed and rehabilitated.

Direct effects of implementing Alternative C would be similar to the direct effects of implementing Alternative B. Redesignation of roads would alter their use but would not substantially alter their appearance. All motorized and non-motorized trails would repeat the form, line, color, and texture of the characteristic South Rampart Range landscape, and would be in conformance with VQO Modification and Partial Retention objectives in all management areas.

The Fern Creek parking area would be developed using materials and design complementary to the natural setting and would remain visually subordinate to the landscape, in order to meet VQO Partial Retention objectives. The existing Rainbow Falls trailhead is in the MEF, which is not managed with VQO objectives. However, the redeveloped trailhead would not change the existing landscape character or affect the scenic quality of the natural setting.

Indirect Effects

Development of new ATV trail connections, single-track trail, and 4x4 challenge routes would focus motorized recreation activities in the Rainbow Falls area. The indirect effect of this is expected to be a reduction in illegal motorized use of non-system routes elsewhere in the

project area, and a corresponding reduction in visual impacts resulting from non-system trail use and proliferation.

3.10 Wildlife

The following information was summarized from the Wildlife Specialist Report, which is available online at the PSICC website. After comments on the draft EA are received, the Forest Service will enter into Tier 1 consultation with the US Fish and Wildlife Service. The outcome of the Tier 1 consultation will inform Tier 2 consultations that will be required for site-specific work performed under the final EA.

3.10.1 Approach to Analysis

Wildlife analyses considered a suite of selected species that may be affected by proposed activities in the project area. These included PSICC management indicator species (MIS), federally threatened, endangered, proposed, or candidate (TEPC) species, and Rocky Mountain RFSS.

3.10.1.1 Methodology

Management Indicator Species

MIS are used as surrogates for other species with similar life histories or habitat requirements in order to assess the effects of management activities. For the Pike and San Isabel National Forests, terrestrial MIS listed in Amendment 30 of the Forest Plan (USDA Forest Service 1984) are Rocky Mountain elk (*Cervus elaphus*) and Abert's squirrel (*Sciurus aberti*). Both species were evaluated for their potential to be affected by the different project alternatives. Current population trends were assessed using available data from the Colorado Division of Wildlife and PSICC MIS monitoring database.

The habitat capability (HABCAP ver. 4.0) model was selected by Region 2 of the Forest Service to assess the effects of habitat alterations on wildlife resources. HABCAP rates habitat conditions and calculates a habitat capability index (HCI) to indicate the estimated potential value of the habitat for each MIS relative to that species' theoretically ideal habitat conditions. Road and trail density, and the Region 2 vegetation (R2Veg) database were used to estimate the amount of suitable habitat available as cover and forage for MIS. The model was run for each management area (Map 3-2) within the project area except 9A (riparian), which is not uniquely mapped in the Forest Plan since it exists as part of the other MAs. The results were used to:

- Establish the existing quantitative habitat capability values for selected MIS in each MA;
- Compare changes in habitat capability values by alternative and species;
- Compare model outputs to Forest Plan MA standards; and
- Identify trends in relation to Forest Plan standards.

Federally Threatened, Endangered, Proposed, and Candidate Species

On March 3, 2011, the U.S. Fish and Wildlife Service (USFWS) approved the Forest Service list detailing the threatened, endangered, proposed and candidate (TEPC)species that may be

affected by activities in the project area (Appendix C). These included the Mexican spotted owl (*Strix occidentalis lucida*), Preble's meadow jumping mouse (*Zapus hudsonius preblei*), and Gunnison's prairie dog (*Cynomys gunnisoni*). All three species were evaluated for their potential to be affected by the different project activities. Effects to individual animals were qualitatively addressed. Effects to habitat were quantified by estimating acreage of previously mapped critical and/or potential habitat that would be altered by the project alternatives. The Gunnison's prairie dog is a candidate species and also on the RFSS list.

Regional Forester's Sensitive Species

The RFSS list, which includes candidate species, was last updated on June 9, 2009. The Regional Office further refined that list to identify the species that are known, likely, or may potentially occur on the various administrative units in Region 2 (USDA Forest Service 2011). Appendix C presents that list of species, along with a brief habitat description for each, and rationale for not considering some species in detail in this analysis. Only those species that may occur in the analysis area and may be affected by the proposed project were considered further in this analysis. Potential habitat in the project area was identified using descriptions in current literature, the R2Veg database, and information from the Colorado Division of Wildlife (CDOW) and Colorado Natural Heritage Program (CNHP). Effects to individual animals were qualitatively addressed. Effects to habitat were quantified by using spatially modeled data of the alternatives and the R2Veg database to estimate acreage of potential habitat that would be physically altered by project implementation.

3.10.1.2 Significance Criteria

For MIS, project effects would be considered significant if both habitat and population trends are predicted to decline. For federally threatened or endangered species and designated critical habitat, project effects would be considered significant if they are predicted to appreciably reduce the species' ability to survive or depreciate critical habitat value in the project area. For proposed species or proposed critical habitat, project effects would be considered significant if they led to a "likely to jeopardize proposed species/adversely modify proposed critical habitat" determination. For candidate species and RFSS, which are not covered by ESA, project effects would be considered significant if they led to a determination of "likely to result in a loss of viability on the planning area, in a trend to federal listing, or in a loss of species viability range wide."

3.10.2 Existing Conditions

The project area is primarily a forested landscape dominated by ponderosa pine with other conifers, aspen, shrubland, grassland, and riparian areas mixed into the matrix. This diversity of vegetation and the rugged topography provides a wide variety of habitats throughout the project area (Table 3-19).

Table 3-19: Acreages of Vegetation Types by Habitat Structural Stage from R2Veg Database

	Habitat Structural Stage (HSS)												
Vegetation Type[a]	1M	1T	2S	2T	3A	3B	3C	4A	4B	4C	5	N/A	Total (ac)
Aspen dominated					1,098	6,106	193	238	1,382	2			9,020
Barren – <25% vegetation								274				500	775
Bristlecone / Limber pines					931	1,385		1,366	636				4,318
Douglas-fir					146	4,951	57	196	3,951	11			9,312
Grass / Forb / Subshrub	9,632	1,596	318										11,546
Lodgepole pine				14	120	2,311	155	63	3,202	31			5,897
Mixed conifer – cool and/or moist					391	2,103	36	363	2,588	122			5,603
Mixed conifer – warm and/or dry					602	4,766	14	1,230	10,670	209	97		17,589
No Data								23					23
Pinyon / Juniper Woodland					200	131		6					337
Ponderosa pine / Douglas-fir					944	4,391	11	2,102	12,301	104	50		19,903
Ponderosa pine / Gambel oak			1,770		621	303		1,342	1,127		19		5,181
Ponderosa pine / Grass					1,837	2,758		6,672	6,594		24		17,885
Riparian – Grass dominated	729	45											773
Riparian – Shrub dominated			1,284										1,284
Riparian – Tree dominated					121	595	21	325	2,124	86			3,271
Road & Building dominated	473		110		73	21		448	307			770	2,202
Shrub – Gamble oak			3,813										3,813
Shrub – Mtn. mahogany			437	56									493
Spruce / Fir						94	6	10	192				304
Water												591	591
Total HSS (ac)	10,834	1,640	7,732	70	7,084	29,916	493	14,659	45,074	566	190	1,861	120,121

[a] Notation: 1 = grass-forb, 2 = shrub-seedling, 3 = sapling-pole, 4 = mature, 5 = old-growth. M = meadow, T = tree, S = shrub, A = canopy closure <40%, B = canopy closure 40-70%, C = canopy closure >70%.

3.10.2.1 Management Indicator Species

Abert's squirrel

The Abert's squirrel is a habitat specialist closely associated with ponderosa pine. Although it is capable of using other tree species, it obtains most of its life requirements from ponderosa pine seeds, twigs, and symbiotic hypogeous fungi. Abert's forage for these resources on the ground and in the canopy; they also use the canopy for nesting and escape cover. Abert's do not hibernate, and must acquire sufficient food resources to survive winter. Tree size, arrangement, density, vigor, and productivity affect habitat suitability for the Abert's squirrel; excessive tree removal (e.g., wildfire, timber harvest) can reduce available habitat. Harsh, snowy winters increase mortality, and drought in spring or summer reduces recruitment (Keith 2003). Squirrels are not known to respond to vehicle traffic on roads or trails specifically, but they do respond to direct approach by humans on foot by freezing or fleeing (e.g., *Sciurus carolinensis* [Cooper et al. 2008]). All MAs in the project area have some amount of potential Abert's squirrel habitat.

Across the Pike and San Isabel National Forests, 38 Abert's squirrel monitoring plots have been established and monitored since 2006. Four plots are on the Pike's Peak Ranger District and one of these is in the project area. In each plot, Abert's squirrel springtime feeding signs (i.e., pine cone cores, clipped twigs, peeled twigs, or fungi digs) are recorded at 256 1-m^2 subplots (technique based on Dodd et al. 1998). According to the forest-wide Abert's squirrel monitoring results, the percent of subplots with feeding sign has increased from 2006 – 2009 (Table 3-20), indicating an increasing squirrel population trend (Forest Service unpublished data).

Table 3-20: PSICC Abert's Squirrel Monitoring Results

Year	% of Subplots with Feeding Sign
2006	4.38
2007	6.13
2008	6.51
2009	9.23

Rocky Mountain Elk

Rocky Mountain elk are important to forest management because of their high public interest and economic value. Elk utilize all forest ecosystems in Colorado either seasonally or year-round. Elk use forested stands for cover, but they are also grazers and browsers, consuming a variety of grass, forb, and shrub species. Forage availability is inversely related to the percent of tree canopy closure, so elk use areas where cover (i.e., high tree canopy closure) and forage (i.e., low to no tree canopy closure) are suitably arranged on the landscape. Elk can be disturbed by human activity, especially during calving season. Vehicles present a particular source of disturbance, and high road densities degrade elk habitat (Naylor et al. 2009, Hoover and Wills 1984). All MAs in the project area have some amount of potential elk habitat.

The CDOW makes elk population estimates according to Data Analysis Unit (DAU), which is a combination of one or more Game Management Units (GMUs) that represent a relatively discrete herd. The project area covers GMUs 51 and 511, which are part of DAUs 51 and 23, respectively (a negligible amount of the project area covers GMU 512, included in DAU 23). Two herds are thought to use the project area. Chronic wasting disease has been documented in GMU 51, which includes the northern end of the project area in Douglas County. Since 2004 (earliest available population estimates), the herd that uses GMU 51 has maintained a stable to slightly decreasing population trend. The herd that uses GMU 511 has maintained a stable to slightly increasing population trend. Together, elk in the project area appear to be maintaining a stable to slightly increasing population trend (Table 3-21).

Table 3-21: Elk Population Estimates from Data Analysis Units (DAU) that Overlap the Project Area (data reported by CDOW)

Year	DAU 51	DAU 23	Sum
2004	1,880	1,620	3,500
2005	2,130	1,530	3,660
2006	1,840	1,540	3,380
2007	1,520	1,900	3,420
2008	1,750	1,970	3,720
2009	1,690	2,260	3,950

According to the 2009 PSICC annual monitoring report, all DAUs that contain a portion of the PSICC are above the CDOW's defined long term objective. The PSICC is an important area for hunting and viewing elk, but contains a relatively low elk population compared with the remainder of Colorado. Approximately 35,000 elk (12% of the statewide population) are located in DAUs, which contain a portion of the PSICC (USDA Forest Service 2009).

3.10.2.2 Federally Threatened, Endangered, Proposed, and Candidate species

Preble's meadow jumping mouse

Preble's meadow jumping mouse (Preble's) is listed as threatened (USFWS 1998), and a draft recovery plan has been written but not finalized (USFWS 2003a). Critical habitat was initially designated in 2003 (USFWS 2003b) and revised in Colorado in 2010 (USFWS 2010a). The PSICC created a conservative model of potential Preble's habitat on the forest (Forest Service date unknown).

In general, Preble's occur at elevations between 4,650 feet and 7,600 feet, although elevations may vary across the range of the subspecies (USFWS 2003b). Preble's are known to use riparian areas and land up to 330 feet beyond the 100-year floodplain for feeding, resting, and hibernating (USFWS 2010a). The active period for Preble's is estimated to be May 1 through October 31, and they hibernate during the remaining time (USFWS 2003a). They are primarily nocturnal or crepuscular; they feed on insects, fungi, and a variety of vegetative material; day

beds and hibernacula are located in grass clumps, under low shrubs, or sometimes underground (USFWS 2010a).

Preble's and a sympatric species, the western jumping mouse (*Z. princeps princeps*), are documented along Trout Creek within the project area (Meaney et al. 2001). Voucher specimens reside at the Denver Museum of Nature and Science (catalog numbers 10328 and 10331). Designated critical habitat and modeled potential habitat occur in the project area. Portions of critical habitat units 9, 10, and 11 (USFWS 2010a) occur in the project area (Table 3-22), and stream segments include Starr Canyon, Metz Canyon, Gove Creek (unit 9), Trout Creek (unit 10), and Beaver Creek (unit 11). Modeled potential habitat occurs in the northwest, northeast, east, and southern edges of the project area.

Table 3-22: Approximate Extent of Preble's Habitat in the Project Area

Habitat Description	Acres	Stream Miles
Critical habitat unit 9	275	3.0
Critical habitat unit 10	502	5.6
Critical habitat unit 11	58	0.6
Total critical habitat	835	9.0
Modeled potential habitat	7,280	-

Mexican spotted owl

The Mexican spotted owl (owl) is listed as threatened (USFWS 1993), and critical habitat has beendesignated for the species (USFWS 2004). The *Mexican Spotted Owl Recovery Plan* (Recovery Plan) describes two tiers of habitat management, restricted and protected (USFWS 1995, Part IIIB, pp. 84-95). Protected areas receive the highest level of protection under the Recovery Plan, and include protected activity centers (PACs) at known owl sites and steep slopes where existing conditions provide suitable owl nesting and roosting habitat. Restricted areas are managed to maintain and develop potential nesting and roosting habitat now and into the future, while providing a diversity of stand conditions and stand sizes across the landscape (USFWS 1995). On the Pike and San Isabel National Forests, PACs were established at current and historic sites where owls were known or suspected to breed. Using Rocky Mountain Region spatial vegetation and topography data, the two forests also created a very conservative model of forested stands that meet the general description of restricted and protected owl habitat. A subset of restricted stands was identified to be managed for nesting and roosting target conditions (USFWS 1995, Part IIIB, pp. 91-95).

Owl habitat in Colorado includes a combination of dense, mixed coniferous forests (Douglas-fir, ponderosa pine, white fir), steep slopes (greater than 40% slope), often with canyons or rocky outcroppings, and elevation range is 6,500 to 9,500 feet, with an average elevation of 7,500 feet. Breeding season is estimated to be March 1 through August 31. Eggs can hatch in May, owlets generally fledge in June, and depend on their parents through August or

September. Pairs generally nest in areas of older mixed conifer forest, and nests are located in live trees, snags, or rock crevices and ledges (USFWS 1995).

Individual owls use large tracts of land, and activities within the project boundaries could affect owls that occur just outside the project boundary. Therefore, the analysis area for the owl included lands up to 0.5 mile beyond the project area boundary. The analysis area includes portions of 2 critical habitat units (SRM-C-1a in the south and SRM-C-2 in the north), and many forested stands throughout the area modeled as target, restricted, or protected habitat (Table 3-23). Most of these stands have not been field-verified, and may or may not actually provide suitable habitat. The analysis area includes no PACs, but it is 0.2 mile from the nearest established PAC. One specimen collected from the Queen's Canyon area in 1919 resides at the University of Colorado Museum, Boulder (collection number 11875). Queen's Canyon is in critical habitat unit SRM-C-1a and was surveyed most recently in 2010, but no owl responses were detected (Forest Service unpublished data). However, the USFWS and local experts consider Queen's Canyon to be excellent quality owl habitat, and owl occupancy is considered very likely.

Table 3-23: Approximate Extent of Mexican Spotted Owl Habitat in the Project Area

Owl Habitat	Acres
Restricted habitat	26,220
Target habitat	10,667
Protected habitat	7,451

Gunnison's Prairie Dog

Gunnison's prairie dog (prairie dog) was petitioned for listing in the montane portion of its range in 2004. In 2008, USFWS determined listing was warranted but precluded due to other higher priorities. The species has remained a candidate for listing since then (USFWS 2010b).

Prairie dog habitat includes level to gently sloping grasslands and semi-desert and montane shrublands, at elevations from 6,000 to 12,000 feet. Within these broad ecotypes, prairie dog colonies occupy grass-shrub areas in valleys, plateaus, benches, and mountain meadows. Grasses are the most important food item, with forbs, sedges, and shrubs also occasionally used. Suitable habitat and 10 current or historic prairie dog colonies are known to occur along the western edge of the project area or within 0.5 mile of the project boundary (CDOW unpublished data). These colonies occur in vegetation types classified by R2Veg as Grass/Forb/Subshrub or Road and Building Dominated, which cover 19,989 acres.

3.10.2.3 Regional Forester's Sensitive Species

Gunnison's prairie dog (see previous section)

*Northern leopard frog (*Rana pipiens*)*

The northern leopard frog occurs in many parts of Colorado, primarily in the central, western, and northern portions of the state. Seasonal movement patterns consist of spring movement

from overwintering sites to breeding ponds, adult dispersal from breeding ponds into upland foraging habitat followed by natal dispersal from breeding ponds during the summer, and fall migration to overwintering sites. Active season habitats include wet meadows and the banks and shallows of marshes, ponds, lakes, reservoirs, streams, and ditches. Adults and subadults also use grassy upland habitats for foraging and dispersal; individuals have been found 1.8 miles from surface water. Overwintering sites include flowing water or large water bodies that do not freeze solid (Smith and Keinath 2007). Potentially suitable riparian areas and adjacent uplands occur throughout the project area, but are concentrated in the northern half.

*Northern goshawk (*Accipiter gentilis*)*

The northern goshawk (goshawk) is a forest generalist; in Colorado, it is considered a rare to uncommon resident in foothills and mountains. Nests are typically located in large trees in stands with high percent canopy cover. Ponderosa pine, lodgepole pine, and aspen are common nest trees, but other species are also used. Goshawks prey on a variety of small mammals and birds, so high-quality foraging habitat consists of a variety of forest structural stages from stand initiation phase through old-growth. The breeding season occurs from early March through mid-August. During the non-breeding season, individuals may remain on the breeding territory or migrate a short distance to lower elevations or latitudes. In the winter, goshawks use a variety of vegetation types, such as forests, woodlands, shrub lands, and forested riparian strips in search of prey (Kennedy 2003). Potentially suitable goshawk habitat occurs throughout the project area.

*Olive-sided flycatcher (*Contopus cooperi*)*

In Colorado, olive-sided flycatchers breed from early May into September in forests between 7,000 to 11,000 feet elevation. They are associated with montane or subalpine forest where mature trees are in close proximity to openings and gaps in the forest and snags are prevalent. Olive-sided flycatchers usually do not occur in closed canopy forests and are uncommon in forests in the sapling-pole or mature forest stages that lack gaps or edges. During migration, olive-sided flycatchers use a greater diversity of forest types, such as lowland and deciduous forests, than they use during the breeding season. In Colorado, migrants occur in all types of woodlands (Kotliar 2007). Potentially suitable olive-sided flycatcher habitat occurs throughout the project area.

*American peregrine falcon (*Falco peregrinus anatum*)*

The American peregrine falcon (peregrine) was delisted from endangered species status in 1999 (USFWS 1999), and populations are monitored according to a post-delisting monitoring plan (Green et al. 2006). In Colorado, most peregrines nest on prominent cliff faces with adequate ledges. Vegetation type does not influence occupancy, but individuals can be sensitive to disturbance at nest sites (Craig and Enderson 2004). During migration, peregrines may occur anywhere in the state, and a few individuals overwinter in mountainous areas (Andrews and Righter 1992). Potentially suitable peregrine nesting habitat occurs at various large rock outcroppings in the project area.

*Bald eagle (*Haliaeetus leucocephalus*)*

The bald eagle was delisted from threatened species status in 2007 (USFWS 2007), and populations are monitored according to a post-delisting monitoring plan (USFWS 2009). The species occurs in forested areas near large bodies of water. In Colorado they are frequently found near large rivers, lakes, and reservoirs in the mountainous west, and along major rivers on the eastern plains. In summer, approximately 40-50 pairs nest in the state. The winter population is much greater, reaching an estimated 800 birds. Bald eagles nest and roost in large trees or snags; they hunt from tall perches or by soaring over suitable habitat (Buehler 2000, CDOW 2010). Bald eagles are not known to nest in the project area, but may use it occasionally during the winter.

*Lewis's woodpecker (*Melanerpes lewis*)*

Lewis's woodpeckers are typically associated with open-canopy ponderosa pine forest and cottonwood riparian forests, although they also use other pines, aspen, firs, oak or pinyon-juniper woodlands, and agricultural areas. During the breeding season Lewis's woodpeckers primarily hunt insects by flycatching or gleaning; in winter they consume more mast (i.e., nuts, fruits) and grain products, much of which they have stored. They are poor excavators and require soft wood of large diameter snags or partial snags for nest cavities, or will use existing cavities. Recently burned ponderosa forests provide highly suitable nesting and foraging habitat. Open stand conditions provide space for aerial maneuvering, and promote vigorous understory growth for insect production. They are resident across Colorado year-round where suitable habitat exists, although individuals may migrate short distances to follow food resources through the year (Abele et al. 2004). Potentially suitable Lewis's woodpecker habitat occurs throughout the project area, but more commonly at middle to lower elevations.

*Flammulated owl (*Otus flammeolus*)*

Flammulated owls occur in arid montane forests of western North America from Canada to Mexico, with some non-breeding season occurrences in Central America. They are considered neotropical migrants, but migration patterns are poorly understood. They are insectivorous and must winter where they can find sufficient prey (e.g., moths, beetles). In Colorado, flammulated owls are uncommon to common summer residents in montane pine forests of the foothills and lower mountains. They are secondary cavity nesters and arrive at their breeding areas in late April and remain through October. The most commonly used forest types are ponderosa pine and Douglas-fir with a mixture of large older trees, scattered thickets of saplings and/or shrubs, and openings in the forest matrix. Aspen is also frequently associated with flammulated owl territories. Older forest stands provide larger trees and snags with cavities, have patches of dense foliage for roosting, and typically form open stands with a well-developed grass or shrub understory that supports high numbers of arthropods (Hayward and Verner 1994, McCalllum 1994). Dr. Brian Linkhart and others have studied flammulated owls extensively on the Manitou Experimental Forest within the project area, and the species occurs throughout the project area where ponderosa pine and Douglas-fir are present (Forest Service unpublished data).

*American three-toed woodpecker (*Picoides dorsalis*)*

The American three-toed woodpecker occurs in the boreal forests of North America from Alaska through Canada, Oregon and New England, and through the Rocky Mountains to New Mexico and Arizona. In Colorado, they are considered rare to locally uncommon year-round residents, although relatively few details are known about the species because they are retiring and difficult to observe. During summer the three-toed woodpecker can be found from about 8,000 to 12,000 feet in elevation; during winter they will migrate to lower elevation areas. They are most commonly found in spruce-fir and lodgepole pine forests, although other conifers and aspen may be used if foraging opportunities are plentiful. They are insectivorous, and will temporarily populate recently burned or insect-killed forests to forage on insect larvae in dead and dying trees. Three-toed woodpeckers also typically occur in older, unlogged forests, which tend to have higher densities of dead and damaged trees with pockets of wood-boring beetle infestations (Wiggins 2004). There is a limited amount of potentially suitable three-toed woodpecker habitat in the higher elevations of the northern and central portions of the project area.

*Townsend's big-eared bat (*Corynorhinus townsendii*)*

Townsend's big-eared bat occurs in western, central, and southeastern Colorado. The essential habitat component for the species is the availability of suitable caves for day roosts and hibernacula; abandoned mines also serve as suitable cave-analogs. Occasionally buildings are used for day roosts. Vegetation type is a secondary component, but a mosaic of mostly forest or woodland with canopy openings is typically used for foraging habitat. Tree species appears unimportant, but wetland areas can provide an abundance of prey items. Townsend's big-eared bats are slow, maneuverable fliers that primarily feed on moths. Overall, suitable habitat includes roost sites in close proximity (e.g., < 10 mi) to foraging and watering sites (Gruver and Keinath 2006). Potentially suitable roosting and foraging habitat occurs patchily across the project area.

*Fringed myotis bat (*Myotis thysanodes*)*

The fringed myotis is generally found in dry habitats where open areas (e.g., grasslands and deserts) are interspersed with mature forests (usually ponderosa pine, pinyon-juniper, or oak), creating complex mosaics with ample edges and abundant snags. Use of more mesic forest types (e.g., lodgepole pine or mixed conifer) is not well-studied. Fringed myotis use caves, mines, and buildings as maternity colonies, solitary day and night roosts, and hibernacula. They also use bridges and rock crevices as solitary day and night roosts, and they may hibernate in crevices. They regularly day roost underneath bark and inside hollows of snags, particularly ponderosa pine and Douglas-fir in medium stages of decay. Ideal habitat includes nearby (e.g., < 8 mi) open water and suitable roost habitat. Fringed myotis are capable of slow, agile flight, and evidence suggests they capture a variety of insects (e.g., beetles, moths, flies, others) primarily by gleaning (Keinath 2004). Potentially suitable roosting and foraging habitat occurs in the middle to lower elevations of the project area.

*Rocky Mountain bighorn sheep (*Ovis canadensis canadensis*)*

Bighorn sheep in Colorado are patchily distributed across the western, central, and southeast parts of the state. They are primarily animals of open habitats, such as alpine meadows, open grasslands, shrub-steppe, talus slopes, rock outcrops, and cliffs. They may also use areas of open-canopy deciduous and conifer forests, especially where openings are created by clear-cuts or fire. Typically, bighorn sheep use slopes of 36% to 80%, and avoid slopes less than 20%. In general, they forage opportunistically depending on seasonal availability, selecting forbs most frequently, followed by grasses, and then shrubs. The Rampart Range bighorn sheep herd occupies the southeast portion of the project area year-round. This is a hunted population of 60 to 80 individuals in sheep game management unit S34 (Beecham et al. 2007).

3.10.3 Environmental Consequences

In the course of analyzing the three alternatives, the interdisciplinary team identified some proposed actions that needed to be modified. When the analysis of effects to wildlife began, hiking trail TR10 was part of Alternative B, and trail OHV1 was considered a newly created motorized trail in Alternative B. The final analysis considered TR10 under Alternative C (not Alternative B), and acknowledged that trail OHV1 is an existing route that would be designated as a NFS 50-inch motorized trail. The decision to modify the proposed actions in Alternatives B and C was made after completion of the quantitative analysis, and is therefore not reflected in the data tables. In total, the quantitative analysis overestimates changes due to Alternative B by 1.96 acres and underestimates changes due to Alternative C by 1.2 acres. The qualitative description of TR10 and OHV1 are addressed in the narrative below.

The length of hiking trail TR10 in Queen's Canyon would be 5 miles and its estimated area would be 1.2 acres. The trail would cover 8 vegetation types, including Douglas-fir, Grass/Forb/Subshrub dominated, Mixed Conifer Cool and Moist, Mixed Conifer warm and dry, Ponderosa Pine - Douglas-fir, Ponderosa Pine - Gambel Oak, Ponderosa Pine - Grass, and Shrub – Gamble Oak dominated. Compared to existing conditions, it would create new disturbance in habitat for elk, the Mexican spotted owl (critical protected and target), Preble's meadow jumping mouse (potential), northern goshawk, olive-sided flycatcher, Lewis's woodpecker, flammulated owl, Townsend's big-eared bat, fringed myotis bat, and Rocky Mountain bighorn sheep (winter, summer, production).

The length of motorized trail OHV1, northeast of Rampart Reservoir, is 1.6 miles and its estimated area is 0.76 acres. The trail covers 6 vegetation types, including Aspen Dominated Stands, Douglas-fir, Grass/Forb/Subshrub dominated, Mixed Conifer Cool and Moist, Mixed Conifer warm and dry, and Ponderosa Pine - Douglas-fir. The trail currently crosses through habitat for Abert's squirrels and elk, the Mexican spotted owl (restricted, and within 0.5 mile of protected), northern goshawk, olive-sided flycatcher, Lewis's woodpecker, flammulated owl, Townsend's big-eared bat, and fringed myotis bat.

3.10.3.1 Effects Common to All Alternatives

Roads and motorized and non-motorized trails have the potential to affect terrestrial wildlife, and all alternatives would impact habitat for MIS, TEPC species (Table 3-24), and RFSS (Table

3-25). Potential effects would be similar among many species, but the extent of effects would be related to the extent of project activities under each alternative. Across the project area, Alternative B would have the most miles of roads and trails, followed by Alternative C, then Alternative A.

Table 3-24: Roads and Trails in Habitat for TEPC Species

Species and Habitat Description	Alt. A	Alt. B	Alt. C
Preble's meadow jumping mouse critical and potential habitat			
Road or trail stream crossings (count)	76	90	80
Roads or trails in critical habitat (ac)	5.1	5.1	5.1
Roads or trails in potential habitat (ac)	33.8	33.3	32.4
Reclaimed potential habitat (ac)	0	2.3	3.4
Mexican spotted owl potential habitat (critical, protected, target, restricted)			
Roads or trails in potential habitat (ac)	126.0	133.0	129.0
Reclaimed potential habitat (ac)	0.5	13.0	10.0
Potential habitat w/in 0.5 mi of new or decommissioned route (ac)	542	32,397	20,004
Gunnison's prairie dog potential habitat (R2Veg database: Grass/Forb/Subshrub; Road & Building Dominated)			
Roads or trails in potential habitat (ac)	99.8	103.6	101.5
Reclaimed potential habitat (ac)	0	2.7	3.0

Table 3-25: Road and Trail Acreage in Habitat for RFSS under each Alternative

Species and Habitat Description	Alt. A	Alt. B	Alt. C
Northern leopard frog habitat (R2Veg database: Riparian –grass, -shrub, -tree)			
Existing and new roads/trails	42.7	45.2	44.6
Reclaimed habitat	1	1.8	1.7
Northern goshawk habitat (R2Veg database: Aspen; Bristlecone/Limber pine; Douglas-fir; Lodgepole pine; Mixed Conifer -cool/moist, -warm/dry; Pinyon-Juniper; Ponderosa pine – Douglas-fir, -Gambel oak, -grass; Riparian – tree; Spruce-Fir)			
Existing and new roads/trails	380	396.8	393
Reclaimed habitat	2.5	26.3	17
Olive-sided flycatcher habitat (R2Veg database: Bristlecone/Limber pine; Douglas-fir; Lodgepole pine; Mixed Conifer -cool/moist, -warm/dry; Ponderosa pine – Douglas-fir, -Gambel oak, -grass; Riparian – tree; Spruce-Fir)			
Existing and new roads/trails	337.1	349.8	346.5
Reclaimed habitat	1.9	24.6	16
Lewis's woodpecker habitat (R2Veg database: Aspen; Douglas-fir; Lodgepole pine; Mixed Conifer -warm/dry; Pinyon-Juniper; Ponderosa pine – Douglas-fir, -Gambel oak, -grass; Riparian – tree)			
Existing and new roads/trails	314.5	327.6	324.9
Reclaimed habitat	1.2	19.6	12
Potential flammulated owl habitat (R2Veg database: Douglas-fir; Mixed Conifer -warm/dry; Ponderosa pine – Douglas-fir, -grass)			
Existing and new roads/trails (ac)	231.7	238.7	237.5
Reclaimed habitat (ac)	0.62	16.5	9.3
Potential American three-toed woodpecker habitat (R2Veg database: Lodgepole pine; Spruce-Fir)			
Existing and new roads/trails (ac)	28.3	26.3	28.3
Reclaimed habitat (ac)	0	5.4	2.5
Townsend's big-eared bat and fringed myotis habitat (R2Veg database: Pinyon-Juniper; Ponderosa pine –Douglas-fir, -Gambel oak, -grass; Riparian –shrub, -tree)			
Existing and new roads/trails	200.8	209.4	208.2
Reclaimed habitat	1.2	10.7	6.2

Species and Habitat Description	Alt. A	Alt. B	Alt. C
Rocky Mountain bighorn sheep habitat (CDOW NDIS)			
Overall range - Roads and Trails	66.8	69.4	71
Overall range - Reclaimed habitat	0	4.7	1.7
Production areas - Roads and Trails	3	3.9	3
Production areas - Reclaimed habitat	0	0	0
Summer range - Roads and Trails	44.4	44.7	44.5
Summer range - Reclaimed habitat	0	3.1	1.7
Winter range - Roads and Trails	13.7	13.1	12.5
Winter range - Reclaimed habitat	0	1.2	1.2

Potentially suitable habitat acreages were estimated from the R2Veg database or CDOW Natural Diversity Information Source.

Direct Effects

Injury or mortality from collision with, or being crushed by moving vehicles is a direct effect that could affect some individual animals. Other, more widespread direct effects do not involve physical contact, and relate to the moment an animal detects human activities.

Wildlife responses to human disturbances are shaped by characteristics of the human activity and characteristics of the wildlife. Activity characteristics include the type, the person's behavior, predictability, frequency and magnitude, timing (e.g., breeding season), and relative location (e.g., above vs. below, in the open vs. screened by topography or vegetation). Characteristics of wildlife that affect responses to disturbance include life history, group size, sex, and age (i.e., experienced vs. inexperienced). Wildlife express different types of responses to human disturbances including habituation, attraction, and avoidance (Knight and Gutzwiller 1995). The exact response will depend on the animal's interpretation of the situation and ability to cope. Habituated animals may have chronically elevated heart rates. Animals attracted to human activity could become a nuisance or ingest non-food items. Avoidance may manifest as active-defense (fight or flight) or passive-defense (inhibition of activity). All of these responses can negatively affect individuals and populations (Joslin and Youmans 1999).

Animals detect many different cues that could represent a disturbance. They may see or smell a person or machinery, feel the vibrations of motion, or hear noise produced by people or machinery. Scent and vibrations were not factors considered in this analysis. Visibility of human activities can be effectively screened by vegetation and topography, and line-of-sight is limited in the project area due to the rough and forested nature of the land. Although a person or vehicle may not be visible through trees or around a hillside, noise travels past these barriers. Anthropogenic noise can be controlled to some extent by vegetation, topography, and regulation. On July 1, 2010, Colorado enacted a law requiring all ATVs and dirt bikes operated on public lands to meet a sound limit of 96 dBA if manufactured after 1/1/1998, and 99 dBA if manufactured prior to 1/1/1998 (Colorado Revised Statutes 2010). However, OHVs that are

not in compliance with the regulations could be present in the project area. Due to differences in species frequency sensitivities, and the variable nature of sound attenuation through different vegetation types, it is not practical to quantify the distance at which all wildlife may hear vehicles and humans on roads and trails (e.g., Wiens et al. 2008, Delany et al. 1999). However, we can assume there would be some effects because many wildlife species are known to be affected by noise to some degree.

Effects of anthropogenic noise on wildlife vary according to species, individual, season, and pattern of exposure. Although it is not possible to completely predict the effects of noise on wildlife in every situation, it undeniably exacerbates the problems posed by habitat fragmentation and wildlife responses to human presence (Barber et al. 2009). Effects may include (1) masking of critical auditory cues from mates, social groups, competitors, prey, and predators; (2) physiological problems like hearing loss, elevated stress hormones, and hypertension (these effects can appear at exposure levels of 55-60 dBA); (3) behavior modification that limits resting, feeding, socializing, or breeding activities and increases active- and passive defense behavior; (4) animals may avoid noisy areas, effectively reducing the amount of available habitat (Barber et al. 2009, Ouren et al. 2007).

Indirect Effects

Road and trail construction and obliteration change the amount of suitable habitat available to wildlife. The amount of change depends on the width of the road or trail. According to the Forest Service Handbook, 2-lane arterial roads are 20-24 ft wide, 1-lane collector roads are 12-16 ft wide, and local roads are 10-14 ft wide. Motorized trails are ≤ 50 in wide, and non-motorized trails are 36 in wide (USDA Forest Service 1984, FSH 2309.18 Ch. 20). For a 1-mile section of road or trail, the amount of habitat area changed may be 2.9 ac for a 2-lane road, 1.9 ac for a 1-lane road, 0.5 ac for a motorized trail, and 0.3 ac for a non-motorized trail. Road shoulders and cut and fill slopes would increase the area changed. In addition to changes in habitat availability, road and trail construction also increases habitat fragmentation, whereas obliteration decreases habitat fragmentation. Habitat fragmentation affects an animal's ability to make necessary daily, seasonal, or dispersal movements. The severity of the effect depends on the degree of fragmentation and the animal's capacity to cope with habitat fragmentation.

Effects that alter the physical condition of the habitat are often more pronounced in wet, unstable, and sensitive environments, particularly from off-highway vehicles (Meyer 2002). Roads and trails present along streams can negatively affect riparian vegetation with concurrent increases in sedimentation to adjacent streams. Sediment can inhibit or kill periphyton communities, bacteria, and fungi, which are important food sources for invertebrates, amphibians, and fish (Knight and Gutzwiller 1995). The presence of roads and trails is also considered a potential avenue for the introduction and spread of non-native plant species, including noxious weeds (Chong et al. 2003). Noxious weeds are capable of affecting wildlife habitat at the landscape scale (Joslin and Youmans 1999).

During winter, snowmobile activity in the project area is very limited due to regulation, generally poor snow conditions, and rough terrain. Over-the-snow motorized travel is prohibited on Manitou Experimental Forest and south of Douglas County. When and where

over-the-snow travel is possible, additional effects to terrestrial wildlife may occur due to snow compaction, including loss of subnivean space, colder temperatures, less light, and higher carbon dioxide levels beneath the snow; physical damage to plants and delayed spring melt; and changes in the competitive advantage between species with high footloads and species with low footloads (Whiteman 2008 cited by Wrigley 2009).

3.10.3.2 Alternative A

Direct Effects

Management Indicator Species

Under the no action alternative (and current conditions), habitat capability indices (HCI) values would not meet any of the Forest Plan habitat capability standards in any season for either MIS (Table 3-26). Abert's squirrel predicted HCI values were the same for both seasons.

Table 3-26: Alternative A Habitat Capability Indices (HCI) for Management Indicator Species by Management Area, and Relevant Forest Plan Standards

MA	Forest Plan	Elk – Winter	Elk – Summer	Abert's squirrel
2A	0.70	0.28	0.36	0.26
2B	0.60	0.32	0.35	0.19
4B	0.80	0.39	0.40	0.29
5B	0.80	0.51	0.58	0.11
7A	0.40	0.32	0.28	0.37
7D	0.40	0.21	0.29	0.10
10B	0.40	0.33	0.33	0.29
10E	0.40	0.30	0.36	0.12

Federally Threatened, Endangered, Proposed, and Candidate Species

Alternative A would result in no changes to existing Preble's potential or critical habitat, prairie dog potential or occupied habitat, and have no direct effects on individuals. A portion of the road that would be decommissioned (NFSR 322A) occurs in restricted owl habitat (Table 3-24), but the area is of marginal habitat suitability. There is a small chance that dispersing owls may be present in the area during decommissioning activities and could be temporarily disturbed. There would be no changes to owl critical habitat.

Regional Forester's Sensitive Species

Alternative A would have no direct effects on the peregrine, bald eagle, three-toed woodpecker, or bighorn sheep. The road that would be decommissioned occurs in potentially suitable habitat for the northern leopard frog, northern goshawk, olive-sided flycatcher, Lewis's woodpecker, Townsend's big-eared bat, and fringed myotis bat. Decommissioning activities could temporarily disturb any of these individuals, or kill individual frogs. Active bird nests could be abandoned if adults are disturbed at the nest area.

Indirect Effects

Management Indicator Species

Given that current population trends of both elk and Abert's squirrels have been stable to increasing, the project area has demonstrated sufficient habitat capability for both MIS. Therefore, under Alternative A these trends would be expected to continue, HCI values notwithstanding.

Federally Threatened, Endangered, Proposed, and Candidate Species

Alternative A would have no indirect effects on individual Preble's or prairie dogs. The road decommissioning would ultimately indirectly benefit owls by the long-term restoration of 0.5 ac of potentially suitable restricted habitat.

Regional Forester's Sensitive Species

Alternative A would have no indirect effects on the peregrine, bald eagle, three-toed woodpecker, or bighorn sheep. Decommissioning the road would create slight long term improvements in suitable habitat for the northern leopard frog, northern goshawk, olive-sided flycatcher, Lewis's woodpecker, flammulated owl, Townsend's big-eared bat, and fringed myotis bat.

Significance

Management Indicator Species

Population trends of both the Abert's squirrel and Rocky Mountain elk are expected to remain stable to slightly increasing. Habitat trends of both MIS are expected to remain stable. These conditions would not exceed the significance criteria for MIS.

Federally Threatened, Endangered, Proposed, and Candidate Species

Under Alternative A, the expected effects would **not** appreciably reduce the ability of Mexican spotted owls or Preble's meadow jumping mice to survive in the project area or depreciate critical habitat value in the project area. The expected effects would **not** lead to a determination of, "likely to result in a loss of viability on the planning area, in a trend to federal listing, or in a loss of species viability range wide," for the Gunnison's prairie dog. These conditions would not exceed the significance criteria for TEPC species.

Regional Forester's Sensitive Species

Under Alternative A, the expected effects would ***not*** lead to a determination of, "likely to result in a loss of viability on the planning area, in a trend to federal listing, or in a loss of species viability range wide," for any RFSS. These conditions would not exceed the significance criteria for RFSS.

3.10.3.3 Alternative B

Direct Effects

Management Indicator Species

Under the preferred action, HCI values would not meet any of the Forest Plan habitat capability standards in any season for either MIS (Table 3-27). Abert's squirrel predicted HCI values were the same for both seasons. Compared to Alternative A, predicted HCI values of Alternative B are lower in 12 cases, higher in 5 cases, and the same in 7 cases. Compared to Alternative A, the average difference in predicted HCI values across all cases is negligible (-0.008).

Table 3-27: Alternative B Habitat Capability Indices (HCI) for Management Indicator Species by Management Area

MA	Forest Plan	Elk – Winter	Elk – Summer	Abert's squirrel
2A	0.70	**0.28**	0.32	0.26
2B	0.60	*0.32*	0.35	0.19
4B	0.80	0.38	**0.41**	**0.28**
5B	0.80	**0.50**	**0.57**	0.11
7A	0.40	*0.37*	*0.31*	*0.38*
7D	0.40	**0.18**	**0.25**	**0.04**
10B	0.40	**0.32**	**0.32**	0.29
10E	0.40	**0.26**	**0.32**	*0.14*

Bold = lower than Alternative A, Italics = higher than Alternative A.

Federally Threatened, Endangered, Proposed, and Candidate Species

Compared to Alternative A, there would be more acres of roads and trails in potential owl and prairie dog habitat, and fewer acres of roads and trails in potential Preble's habitat. There would be more acres of reclaimed potential habitat for owls, Preble's, and prairie dogs (Table 3-24). Construction at the Highway 67 trailhead and the Illinois Gulch parking area could affect Preble's. Construction at the Fern Creek parking area could affect owls. Project activities associated with these actions may temporarily disturb individuals of these species, and could kill individual Preble's if they are present. Because all of these species are rare within suitable habitat in the project area, the chances for, and degree of, direct effects would be minimal.

Regional Forester's Sensitive Species

There would be no direct effects to peregrines or bald eagles. Compared to Alternative A, there would be more acres of roads and trails, and more acres of reclaimed land in potential habitat for frogs, goshawks, flycatchers, Lewis's woodpeckers, flammulated owls, both bats, and overall bighorn range. New trail construction in bighorn production areas is not expected to affect bighorns because they use slopes inaccessible to humans, and the area currently receives considerable use by hikers. There would be fewer acres of roads and trails and more reclaimed habitat in three-toed woodpecker potential habitat and bighorn winter range. Trailhead and

parking area construction may also directly affect frogs, goshawks, flycatchers, and Lewis's woodpeckers. Project activities associated with these actions may temporarily disturb individuals of these species, and could kill individual frogs if they are present. Because the amount of altered habitat would be relatively small in proportion to the available habitat in the project area, the degree of effects to these species would be minimal.

Indirect Effects

Management Indicator Species

Given that current population trends of both elk and Abert's squirrels have been stable to increasing, the project area has demonstrated sufficient habitat capability for both MIS. Because the predicted habitat capability under Alternative B is only nominally different than that of Alternative A, the same trends would be expected to continue or simply remain stable, HCI values notwithstanding.

Federally Threatened, Endangered, Proposed, and Candidate Species

Forested stands of potential owl restricted habitat include portions of the proposed sites for the Fern Creek parking area and the Flake open riding area, but both of these sites are heavily impacted by current OHV use and do not provide suitable habitat. Construction at the Highway 67 trailhead and the Illinois Gulch parking area could affect Preble's potential habitat. The Lovell Gulch trailhead could affect prairie dog potential habitat. For all species, the proportion of reclaimed habitat acres to road and trail acres would exceed that of Alternative A, representing a potential overall gain in suitable habitat.

As currently proposed under Alternative B, the Highway 67 trailhead and the Illinois Gulch parking area would each permanently disturb a significant amount of potentially suitable Preble's habitat, which could warrant a determination of, "likely to adversely affect," for the species. Further site-specific project planning would be needed to determine if formal or informal consultation with USFWS would be required.

Regional Forester's Sensitive Species

There would be no indirect effects to peregrines or bald eagles. The trailhead and parking area construction could affect potential habitat for the goshawk, flycatcher, Lewis's woodpecker, and both bats. For all species, the proportion of reclaimed habitat acres to road and trail acres would exceed that of Alternative A, representing a potential overall gain in suitable habitat.

Significance

Management Indicator Species

Population trends of both the Abert's squirrel and Rocky Mountain elk are expected to remain stable. Habitat trends of both MIS are expected to remain stable to slightly decreasing. These conditions would not exceed the significance criteria for MIS.

Federally Threatened, Endangered, Proposed, and Candidate Species

Under Alternative B, the expected effects would ***not*** appreciably reduce the ability of Mexican spotted owls or Preble's meadow jumping mice to survive in the project area or depreciate

critical habitat value in the project area. The expected effects would ***not*** lead to a determination of, "likely to result in a loss of viability on the planning area, in a trend to federal listing, or in a loss of species viability range wide," for the Gunnison's prairie dog. These conditions would not exceed the significance criteria for TEPC species.

Regional Forester's Sensitive Species

Under Alternative B, the expected effects would ***not*** lead to a determination of, "likely to result in a loss of viability on the planning area, in a trend to federal listing, or in a loss of species viability range wide," for any RFSS. These conditions would not exceed the significance criteria for RFSS species.

3.10.3.4 Alternative C

Direct Effects

Management Indicator Species

Under Alternative C, HCI values would not meet any of the Forest Plan habitat capability standards in any season for either MIS (Table 3-28). Abert's squirrel predicted HCI values were the same for both seasons. Compared to Alternative A, predicted HCI values of Alternative C are lower in 11 cases, higher in 5 cases, and the same in 8 cases. Compared to Alternative A, the average difference in predicted HCI values across all cases is negligible (-0.009).

Table 3-28: Alternative C Habitat Capability Indices (HCI) for Management Indicator Species by Management Area

MA	Forest Plan	Elk – Winter	Elk – Summer	Abert's squirrel
2A	0.70	**0.27**	**0.31**	0.26
2B	0.60	0.32	0.35	0.19
4B	0.80	**0.38**	0.40	**0.28**
5B	0.80	0.51	*0.59*	0.11
7A	0.40	*0.38*	*0.31*	*0.38*
7D	0.40	**0.20**	**0.28**	0.10
10B	0.40	**0.28**	**0.31**	**0.22**
10E	0.40	**0.25**	**0.32**	*0.13*

Bold = lower than Alternative A, Italics = higher than Alternative A

Federally Threatened, Endangered, Proposed, and Candidate Species

Direct effects of Alternative C would be somewhat similar to those of Alternative B, with differences in the amount of roads and trails in potential habitat and the amount of reclaimed habitat (Table 3-28). The Rainbow Falls trailhead redevelopment would occur in the same footprint of the existing trailhead, so would not affect Preble's. The effects of the Fern Creek parking area would be the same as those under Alternative B. There is one major difference between Alternatives B and C; the creation of non-motorized trail TR10 in Queen's Canyon,

and associated increase in human visitation, would significantly compromise the value of critical habitat in the canyon. Creating a busy hiking trail in otherwise high-quality habitat could permanently render the canyon unsuitable for owl occupation.

Regional Forester's Sensitive Species

Direct effects of Alternative C would be similar to those of Alternative B, with slight differences in the amount of roads and trails in potential habitat and the amount of reclaimed habitat. The Fern Creek parking area could affect the frog, goshawk, flycatcher, and Lewis's woodpecker.

Indirect Effects

Management Indicator Species

Given that current population trends of both elk and Abert's squirrels have been stable to increasing, the project area has demonstrated sufficient habitat capability for both MIS. Because the predicted habitat capability under Alternative C is only nominally different than that of Alternative A, the same trends would be expected to continue or simply remain stable, HCI values notwithstanding.

Federally Threatened, Endangered, Proposed, and Candidate Species

Indirect effects of Alternative C would be somewhat similar to those of Alternative B, with differences in the amount of roads and trails in potential habitat and the amount of reclaimed habitat. The Rainbow Falls trailhead redevelopment would occur in the same footprint of the existing trailhead, so would not affect Preble's. The effects of the Fern Creek parking area would be the same as those under Alternative B. There is one major difference between Alternatives B and C; the creation of non-motorized trail TR10 in Queen's Canyon, and associated increase in human visitation, would significantly compromise the value of critical habitat in the canyon. Creating a busy hiking trail in otherwise high-quality habitat could permanently render the canyon unsuitable for owl occupation.

Regional Forester's Sensitive Species

Direct effects of Alternative C would be similar to those of Alternative B, with slight differences in the amount of roads and trails in potential habitat and the amount of reclaimed habitat. The Fern Creek parking area could affect habitat for the frog, goshawk, flycatcher, and Lewis's woodpecker.

Significance

Management Indicator Species

Population trends of both the Abert's squirrel and Rocky Mountain elk are expected to remain stable. Habitat trends of both MIS are expected to remain stable to slightly decreasing. These conditions would not exceed the significance criteria for MIS.

Federally Threatened, Endangered, Proposed, and Candidate Species

Under Alternative C, the expected effects ***could*** appreciably reduce the ability of Mexican spotted owls to survive in the project area and depreciate critical habitat value in the project area. They would ***not*** appreciably reduce the ability of Preble's meadow jumping mice to survive in the project area or depreciate critical habitat value in the project area. The expected effects would ***not*** lead to a determination of, "likely to result in a loss of viability on the planning area, in a trend to federal listing, or in a loss of species viability range wide," for the Gunnison's prairie dog. These conditions would not exceed the significance criteria for Preble's meadow jumping mouse or Gunnison's prairie dog, but would exceed the significance criteria for Mexican spotted owls.

Regional Forester's Sensitive Species

Under Alternative C, the expected effects would ***not*** lead to a determination of, "likely to result in a loss of viability on the planning area, in a trend to federal listing, or in a loss of species viability range wide," for any RFSS. These conditions would not exceed the significance criteria for RFSS.

4 CUMULATIVE AND OTHER IMPACTS

4.1 Cumulative Impacts

4.1.1 Air Quality

Projects considered for cumulative effects analysis include the Trout West and Catamount fuels reduction projects. Both projects are utilizing mechanical thinning to reduce fuels rather than prescribed burning, and cumulative effects to regional air quality would be negligible to minor.

4.1.2 Fisheries

The accumulation of small modifications of habitat results in local, regional, or global changes in fisheries. Many of these effects can be sublethal but still alter the growth and productivity of aquatic biota (Burns 1990). Roads and motorized trails are recognized as one of the most important features that contribute to modifications of aquatic habitat (Trombulak and Frissell 2000). In the project area, there are approximately 237 miles of motorized roads and trails and 54 miles of non-motorized trails that have the potential to influence aquatic systems. These are a subset of approximately 27,000 miles of public road and 30,000 miles of National Forest Systems road have been constructed in Forest Service Region 2 (USDA Forest Service 1998). Reducing problem roads is recognized as a primary method for reducing local influences on aquatic systems (Switalski et al. 2004).

Past land uses on public and private land within and near the project area have caused long-term modifications of the forest landscape, original stream channels, and riparian vegetation, thus altering the characteristics of fisheries habitat in the project area. These modifications are a result of dams, water diversions, bridges, roads, trails, logging, grazing, mining, fire suppression, homesteading, and agricultural use. Historically, the near-elimination of beaver from many of these watersheds also had a significant effect on the functions and processes that they provide to aquatic systems (Wohl 2001). Existing impacts from roads, trails, and other development are contributing to cumulative effects on the project area fisheries through the loss of riparian vegetation, accelerated erosion, and increased sediment transport.

Whirling disease is present in many of the perennial streams in the South Platte and Arkansas River watersheds and likely exists in some of the project area streams. It is estimated that whirling disease infections have negatively impacted recruitment of wild rainbow and brook trout fry in 350-400 miles of streams in Colorado (Nehring and Thompson 2001). This disease is a parasitic condition affecting fish, primarily natives, brook and rainbow trout. Tubifex worms, an alternate host for whirling disease, may increase due to excess stream-bottom sediments caused by past land uses, recent wildfires, and livestock grazing. No other aquatic invasive species are known to exist in the project area.

Current and future fuels management projects are projected to reduce the risk of catastrophic fires and thus reduce the potential for catastrophic sediment delivery over the long-term. Past and on-going restoration efforts within the project area, such as closing non-system routes,

fencing, and seeding are also helping reduce erosion and sediment delivery. Improvements in livestock grazing are also expected to improve riparian and stream habitat conditions and have cumulative benefits to the aquatic ecosystem in the Trout Creek watershed.

OHV and other recreational activities are going to occur in the project area for the foreseeable future. The latest data (2005-2007) shows that the estimated number of OHV participants nationally has leveled or slightly decreased in recent years (NSRE 2008). Fuel costs may moderate the rate of growth of motorized recreation use on Forest trails. Regardless, managing the current and future use in this highly urbanized area is expected to be challenging, given limited budgets and staffing

4.1.3 Heritage Resources

Trail and road use, erosion, off-trail use and associated public use over time have the potential to degrade and destroy heritage resources. Projects including barrier installation, obliteration of user-created treads, and dispersed recreation require heritage resource documentation. Other forest activities, road/trail/public use, planned improvements or directed use would follow the heritage resources process diminishing impacts.

4.1.4 Hydrology and Soils

The cumulative effects for all alternatives are the sum of existing impacts, project related impacts and foreseeable future impacts. Past measurable detrimental impacts to soil, water, and aquatic resources associated with wild fires, fire suppression activities, historic mining, timber harvest, dispersed camping, roads and road maintenance, OHV use, fuels reduction projects and water supply infrastructure (dams, diversions, etc.) would still exist on the landscape. Old roads and trails that are no longer used are in various stages of natural recovery.

Under the Action Alternatives, past measurable detrimental impacts to soil, water, and aquatic resources, associated primarily with OHV use would still exist on the landscape. Compacted or eroded areas would remain and natural recovery of these areas would continue at current rates. Some additional direct soil impacts, such as compaction or removal of protective ground cover, would result from construction of new roads, trails, rock crawling areas, or parking lots. Conversely, restoration actions, associated with the action alternatives would occur, enhancing watershed hydrologic function, promoting site stability, and accelerating natural recovery. Foreseeable future effects may result from unauthorized expansion of the road trail network. Effects can be mitigated through application of Watershed Conservation Practices and enforcement of the rules and regulations, but decreasing the area subjected to OHV use inevitably decreases the risk to soil, water, and aquatic resources. Because all of the action alternatives propose more routes in the area all of these alternatives would have more direct, indirect, and cumulative impacts compared to the No Action Alternative.

4.1.5 Noise

Given the typically quiet environment along a trail in a forest area, the ambient background noise from other activities is considered negligible. Therefore, noise generated from the

operation of OHVs would be the dominant noise source in the area immediately adjacent to motorized trails. Therefore, no significant cumulative effects would be anticipated.

4.1.6 Recreational Resources

Recreation demand in the project area is expected to change over time as a result of changing recreational preferences, projected increases in population, and continued improvements to the road system in Woodland Park and Monument that will increase access to the area. The result will be the need to manage greater numbers of people with varying recreational needs. Ongoing planning initiatives along the Front Range of Colorado will serve to coordinate recreation management and services on the Pike, San Isabel, Arapaho and Roosevelt National Forests as well as State Parks and local open space. Programs such as the Front Range Recreation Alignment will attempt to provide seamless recreation management with consistent rules and regulations such as motor vehicles on designated roads and trails only, designated sites to park and camp and consistent travel management signs and maps.

4.1.7 Social and Economic

The management of forest resources on the PSICC generates revenue and employment in the timber and wood products, agricultural, and recreation sectors of the local economy through the sale of timber, livestock grazing, permitting of special uses, and management of areas for recreational use. The Proposed Action would improve recreational opportunities within the project area, resulting in modest beneficial effects for recreation and tourism-based businesses. Cumulative effects for the local economy are anticipated to be beneficial.

4.1.8 Vegetation

The majority of routes in the present proposal are in the National Forest System or are well-established user-created routes. The effects of individual activities in both Alternative B and C would be the same. The amount of the effects differs somewhat between the alternatives. There would be relatively little new construction under either of the action alternatives. About 42 miles of new trails are proposed in Alternative B, and about 20 miles are proposed in Alternative C. About 24 miles of roads and trails are proposed for closure in Alternative B, and about 20 miles are proposed in Alternative C. Much of this mileage is on established user-created routes. A variety of measures could be used to close routes that would not be part of the final system. These could be signed or obliterated.

Using an average of eight feet wide for proposed road and trail construction and maintenance, about one acre of land is directly impacted per linear mile of road or trail. About 0.24% of the area has existing roads and trails. The No Action alternative would impact a minute fraction of the area. Alternative B would directly impact about 0.04% of the analysis area with new trails, raising the total area with trails to 0.25% of the analysis area. Approximately 0.02% of the area would have trails closed due to this project. Alternative C would decrease the coverage of trails to 0.19% of the analysis area. Approximately 0.02% of the area would have trails closed due to this project. These account for a minute fraction of the watersheds in the analysis area. Because most of the routes are already in place as either NFS routes or user-created routes, the impacts of this project would be much less than those figures.

There will be continued maintenance of other roads in the vicinity by the state, county, and by private individuals. Scientific studies will continue on the Manitou Experimental Forest. Development will continue to occur on private land in the area. Concurrent with these will be the likely increase in traffic on roads in the vicinity. Dispersed recreation use will also continue on NFS lands.

4.1.9 Visual

Past and present actions with effects on visual resources in the project area include fuel reduction projects, travel management actions, special uses such as utility ROWs, and the development of user-created non-system trails. Reasonably foreseeable future actions include a continuation of present management activities (i.e., fuels reduction; road and trail maintenance) and uses (i.e., permitted special uses; motorized and non-motorized recreation). Future actions in the project area would be authorized with consideration for the VQOs established for the management areas in which they occur. Implementation of the travel management alternatives would have incremental effects on visual resources, but would not inhibit the ability of the District to manage uses consistent with management area VQOs. Therefore, significant cumulative effects to visual resources would not be anticipated.

4.1.10 Wildlife

As part of regular on-going Forest Service duties, unauthorized non-system user-created routes (i.e., social trails) would be closed and rehabilitated as funding and resources allow. The exact amount of acreage affected by these routes is unknown, but field inventory data indicates there are more than 100 miles of social trails distributed throughout the project area (USDA Forest Service 2006). Activities to rehabilitate these routes could temporarily disturb wildlife, but in the long term wildlife would benefit from the improved habitat. Other Forest Service activities in the project area that could contribute to cumulative effects include a limited amount of cattle grazing, various special use permits, prescribed burning, and mechanical forest thinning. These activities are expected to continue in the future, and would modify existing habitat and/or potentially disturb or kill individual animals. Ongoing state, county, and local maintenance and use of all roads in the project area is expected to continue at current levels. The Forest Service is not aware of any other state, county, or private activities that would contribute to cumulative effects.

5 CONSULTATION AND COORDINATION

Letters soliciting public input on the South Rampart Travel Management Plan were sent to agencies, stakeholders and the Forest Service's public mailing list at the beginning of the 30-day public scoping period that began June 7, 2009.

Letters were sent to the following agencies:

- Colorado Division of Wildlife
- Colorado Springs Parks and Recreation
- Colorado Springs Utilities
- US Air Force Academy
- US Fish and Wildlife Service
- Douglas County Parks and Trails
- El Paso County Parks
- El Paso County Trustee
- United States Forest Service Rocky Mountain Research Station

Letters were sent to the following stakeholders:

- Balanced Rock Bike and Ski
- Big Horn 4X4 Club
- Cavalier Trail Riding Club
- Colorado 4 Wheelers
- Colorado Land Cruisers Club
- Colorado Motorcycle Trail Riders Association
- Colorado Motorized Trails
- Colorado Mountain Club
- Colorado Quad Runners ATV Club
- Colorado Springs Christian Four Wheelers
- Friends of the Monument Preserve
- Friends of the Peak
- Fun Treks Guidebooks

- IMBA- Medicine Wheel
- Pikes Peak Area Bikeways Coalition
- Pikes Peak Area Council of Governments
- Pikes Peak Enduro Club
- Pikes Peak Range Riders
- Predator 4WD LLC
- Rampart Range MMC
- Sierra Club, Rocky Mountain Chapter
- Southern Rockies Conservation Alliance
- The Wilderness Society
- Team Cycle
- Teller County Trails Committee
- The Quiet Use Coalition
- Toyota 4WD Club
- Trails and Open Space Coalition
- Wild Connections
- Quad Dusters
- Teller County 4H
- Bike Colorado
- Rocky Mountain Recreation Initiative

The following stakeholders participated in brief interviews with the planning team:

- Tom Mowle, El Paso Public Trustee
- Colorado Motorcycle Trail Riders Association
- Medicine Wheel Trail Advocates (IMBA)
- Colorado Mountain Club
- Sierra Club – Pikes Peak Chapter
- Colorado OHV Coalition
- Wild Connections

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Appendix A:
Travel Analysis Process

United States

Department of

Agriculture

Forest Service

Travel Analysis Process Report Addendum

South Rampart Travel Management Plan

USDA Forest Service, Pike and San Isabel National Forests, Cimarron and Comanche National Grasslands

Douglas, Teller, and El Paso Counties, Colorado

Draft

July 2011

TABLE OF CONTENTS

INTRODUCTION

This report is an addendum to the Pike and San Isabel Forest-wide Travel Analysis Process (TAP) and is provided in an abbreviated form. It is valuable to have the Forest-wide TAP to review along with this document.

BACKGROUND

Travel analysis is an integrated ecological, social, and economic science-based approach to transportation planning that addresses existing and future road and motorized trail management options. A complete science-based travel analysis will inform management decisions about the benefits and risks of: constructing new routes in unroaded areas; relocating, stabilizing, changing the standards of, or decommissioning unneeded routes; access issues; and increasing, reducing, or discontinuing route maintenance. An appropriate balance between the benefits of access to the National Forest and the risks of route-associated effects to ecosystems is necessary to develop an optimum transportation system. One of the top priorities of the U.S. Forest Service (Forest Service) is to provide road and motorized trail systems that are safe for the public, responsive to public needs, environmentally sound, affordable, and efficient to manage. Completing the TAP is a key step to meeting this objective.

The TAP is designed to define route-related issues important to the public and to forest managers. It provides a set of analytical questions to be used in fitting analysis techniques to individual situations. The detail of the analysis should be appropriate to the intensity of the issues addressed. Travel analysis provides information to line officers by disclosing the important issues and effects relevant to route management proposals. Any actual route management decision made as a result of this TAP must be determined in a National Environmental Policy Act (NEPA) document.

Relevant rules, regulations, directives, reports, guidance, and documents associated with the TAP are as follows:

- USDA Forest Service Miscellaneous Report FS-643, August, 1999
- USDA Forest Service Rocky Mountain Region 2, R2 Roads Analysis Supplement to FS-643, June 16, 2003
- 36 CFR Part 212
- Forest Service Manual FSM 7700, Chapters 7703, 7710 & 7712
- Forest Service Handbook 7709.55

This TAP for the South Rampart study area was developed using the approach from the Forest-wide Pike and San Isabel National Forest Travel Analysis Process Report. The South Rampart TAP was prepared to inform a travel management plan for the study area.

PROCESS AND PRODUCTS

See the 2009 Forest-wide TAP.

1.0 SETTING UP THE ANALYSIS

1.1 Objectives Of The Analysis

The primary objective of this travel analysis is to provide the Pike National Forest-Pikes Peak District managers with an appropriate level of information to manage and maintain a road and motorized trail system that is safe and responsive to public and agency needs, affordable and efficiently managed, environmentally sound, and in balance with available funding. This travel analysis develops, organizes, and displays information about Operational Maintenance Level 1, 2, 3, 4, and 5 National Forest System Roads (NFSR), as well as National Forest System Motorized Trails (NFSMT) under the jurisdiction of the Forest Service. This TAP analyzes existing system roads and motorized trails as identified on the 2009 Pikes Peak Ranger District Motor Vehicle Use Map (MVUM) as well as administrative and special use roads.

Other objectives of this travel analysis are:

1. To meet the requirements of providing a travel analysis for the Pike and San Isabel National Forests Plan Revision, and to give direction for the revision effort
2. Inform a forest travel management plan for the South Rampart Range study area
3. To support subforest scale and project level analyses
4. To help identify the minimum road and motorized trail system needed for public and agency access in order to achieve forest and resource management goals and safeguard ecosystem health
5. To identify opportunities and provide recommendations for improving the Forest transportation system
6. To help prioritize route maintenance needs

1.2 Interdisciplinary Team Members and Participants

U.S. Forest Service

- Ralph (Jerry) Stevenson, Forest Engineer
- Brent Botts, District Ranger
- Frank Landis, Recreation Manager*
- Rick Ellsworth, Trails and Roads Coordinator*
- Mikele Painter, Wildlife Biologist
- Jon C. Pfeiffer, OHV Coordinator
- Gary Morrison, Forest Transportation Planner*
- Barb Timock, Public Affairs
- Sue Miller, Recreation/Special Uses/NEPA
- Brian Banks, GIS Coordinator
- Jeff Hovermale, Lands and Special Uses
- Erick Zanatto, Fire Management Officer
- Tony Edwards, Non-Renewable Resources*

- Dana Butler, Hydrologist
- Steve Olson, Botanist
- Rob Ayotte, Fuel Specialist
- Curt Fair, Archeologist
- Michael Ryan, Manitou Experimental Forest
- Richard Oakes, Manitou Experimental Forest
- Chris Sporl, USFS Rocky Mountain Region 2

AECOM - Consultant

- Bruce Meighen, NEPA*
- Drew Stoll, Recreation and Transportation*
- Tanya Copeland, NEPA
- Scott Reyman, Recreation and Transportation*

* Core TAP Team Member

1.3 Information Needs

The following information and database sources were used for this TAP:

- The Pike and San Isabel National Forests Land and Resource Management Plan (aka Forest Plan, 1984 and associated Environmental Impact Statement [EIS] and Record of Decision [ROD])
- INFRA Roads Database
- GIS spatial databases for roads, land ownership, 6th level watersheds, streams, riparian areas, soil types, architectural sites, invasive species, recreation sites, T&E species, 2006 South Rampart Route GPS Inventory, etc.
- 2009 Pike Peak RD MVUM
- 2009 Pike and San Isabel National Forest Travel Analysis Process Report

1.4 Analysis Plan

See the 2009 Forest-wide TAP for more details.

The analysis plan for the South Rampart area was built on to the 2009 Pike and San Isabel National Forest Travel Analysis Process. Information critical to the South Rampart area has been added to the appropriate section of this addendum. A core team was assembled to define an analysis plan for the South Rampart area. The core team completed an initial rapid analysis of all routes using the criteria defined in the Forest-wide TAP. This rapid analysis was completed during three workshops in which the team had GIS data available on one wall screen and a TAP table on another screen. The core team collectively ranked each route based on the TAP criteria, which allowed for an iterative, collaborative, and rapid analysis process. While the core team members are not experts on

each of the criteria, their substantial experience in the Ranger District allowed them to make an initial judgment on the route criteria. On the last day of the workshop, the entire interdisciplinary (ID) team convened to review and comment on the analysis of the core team. The draft TAP table was then distributed to each ID team member for their detailed and specialized review of the analysis. Changes recommended by individual ID team members were incorporated and the TAP was redistributed to the entire ID team for final review. This rapid analysis method was effective and allowed completion of the TAP with limited budget and time.

The main focus of this TAP is to evaluate all existing and proposed National Forest System Roads as well as motorized trails in the South Rampart study area. According to Forest Service Manual 7700-2003-2 (FSM 7712.13b), this type of analysis is required to inform land management planning decisions when preparing a travel management plan or revising an existing land and resource management plan.

The first step was to identify the most important road and trail related issues in the South Rampart Range study area and the information needed to address these concerns. The issues include environmental, social, and economic components. It was important to understand how these issues arose and how they have been addressed in the past. Consensus among the ID team resulted in the final list of issues that were used to drive the analysis. See Chapter 3.0 of this report for a list and description of these issues.

The next step in the process required ID team members to assess each road with respect to its relative benefits and associated risks. High, moderate, and low benefit ratings were assigned for each road with respect to its recreational use, fire/fuels access, timber access, special use access, and forest management access. High, moderate, and low risk ratings were assigned for each road with respect to its potential to adversely impact watersheds, wildlife, botany, and archeological sites. A similar burden rating was also assigned to each road with respect to its annual maintenance cost. Numerical indices were then applied to each high, moderate, and low rating, resulting in a benefit factor and risk factor for each road. The benefit factors and risk factors were then summed to determine preliminary "Total Benefit" and "Total Risk" factors for each road.

For example, let's say Road 000 was rated as High Benefit for recreational use and Low Risk for archeology. The High Benefit rating for recreation would be assigned a benefit factor of 2, and the Low Risk rating for archeology would be assigned a risk factor of 0. The Total Benefit factor would be determined for that road by adding all five of the benefit factors, and the Total Risk factor would be determined for that road by adding all five risk factors. In this example, let's say that the Total Benefit factor was determined to be 10, and the Total Risk factor was determined to be 0.

The Total Benefit and Total Risk factors were then assigned to one of four possible road management categories as follows:

- High Benefit/High Risk (H/H)
- High Benefit/Low Risk (H/L)

- Low Benefit/High Risk (L/H)
- Low Benefit/Low Risk (L/L)

The High Benefit roads identify those roads with a high potential for future investment, and the Low Benefit roads identify those roads with a low potential for future investment. High Risk roads identify those roads with a high potential for negative impacts, and Low Risk roads identify those roads with a low potential for negative impacts. Road management options for each category helped the ID team to prioritize road options and develop strategies to move toward a well-balanced transportation system.

In the example above, a 10 Total Benefit factor (score) was determined to be a High Benefit, and a 0 Total Risk factor was determined to be a Low Risk. Therefore, Road 000 was assigned to the High Benefit/Low Risk road management category. For details on how index numbers were assigned to each rating and how the road management categories were determined from total factor numbers, see Chapter 5.0 of this report.

The next step was for ID team members to use answers to the 73 questions contained in the R2 Roads Analysis Supplement to FS-643, which was prepared for the Forest-wide TAP. During this step, if a specialist decided that a specific road rating needed to be revised, the revised rating was submitted to the team leader with a reason for the change.

The final step involved synthesizing all the information, finalizing the ratings and factors for each specific road, and finalizing the road management category for each road analyzed. This step described the opportunities to improve the transportation system and identified priorities to help the decision makers in managing the roads within their jurisdiction. Key findings and recommendations are summarized in Chapter 6.0 of this report to highlight the results from this analysis.

1.5 Public Involvement

Public involvement related to road issues is a continuous process. Some of the issues identified in this TAP are a direct result of dialogue with concerned citizens, user groups, and other public agencies.

A Draft TAP will be made available for public review and comment on the Pike and San Isabel National Forest and Cimarron and Comanche Grasslands (PSICC) website for 30 days prior to finalization of the TAP. All public comments will be reviewed and may be incorporated into the Final TAP at the end of the 30-day review period. See Appendix E (final version) for additional information on public comments.

2.0 DESCRIBING THE SITUATION

2.1 The Analysis Area

See the 2009 Forest-wide TAP.

The South Rampart Range area is located in the northeast portion of the Pikes Peak Ranger District in Pike National Forest and is located roughly between State Highway (SH)67 to the west; the Pikes Peak Ranger District boundary to the east and north; and US Highway 24 to the south. The South Rampart Range area is bordered by the communities of Woodland Park and Manitou Springs to the south; West Creek to the northwest; and Colorado Springs, Palmer Lake, and Monument to the east. The South Rampart area is located in Douglas, Teller, and El Paso counties.

The Rampart East and West Roadless Areas are located in the northeast and northwest portions of the South Rampart area, respectively. The North Monument and Trout Creek watersheds are designated as watershed conservation areas for the town of Palmer Lake. The watersheds are located in the study area, with Rampart Range Road (FS300) on their west edge and the Forest boundary on their east edge.

Monument Open Space is located in the eastern portion of the South Rampart area next to the town of Monument. The Open Space is owned by the Forest Service but is designated as an open space due to its value as a community recreation area and a historic Forest Service tree nursery. Friends of Monument Open Space help maintain trails and a trailhead. The Open Space is a popular location for non-motorized recreation.

Manitou Experimental Forest (MEF) is mostly located within the South Rampart Range study area along SH67, north of the town of Woodland Park. MEF was established to study Forest resources in Pike National Forest. The experimental forest has a complex land use, including research plots, experimental station facilities, grazing allotments, numerous private lands, a private sawmill, Rainbow Falls off-highway vehicle(OHV) trailhead, some dispersed camping, Manitou Lake and Pike Community picnic areas, Colorado Campground, several designated non-motorized trails, and several public and administrative roads. While MEF has a complex land use, the intent is for the Forest to be managed primarily for research, with public use as a secondary benefit. Impacts to scientific research and biological resources in MEF from public use have occurred in the past and need to be minimized in the future.

There are multiple other public and private lands in and around the South Rampart area that influence the need for access and public use. The U.S. Air Force Academy (Academy) operates Farish Memorial Recreation Area (Farish) on the east edge of South Rampart as an area for Academy recreation events and activities. Farish depends on the use of Forest Service roads to access their property, and there are roads open to the public east of the Farish property that can only be accessed through Farish roads. The Academy also has a special use permit for training purposes in the northeast portion of the South Rampart area, east of Rampart Road in the Ice Cave Creek area. Their training activities occur during the summer months, during which time Forest roads are

used and maintained by the Academy. A portion of the South Rampart area adjacent to the west boundary of the Academy is designated as a military preserve. The purpose of the military reserve is to serve as a "buffer zone" between public use of the National Forest and the Academy.

Colorado Springs Utilities operates Rampart, Northfield, and Stanley reservoirs in the South Rampart area as municipal water supply reservoirs. El Paso County manages Blodgett Open Space and the City of Colorado Springs manages Garden of the Gods Park, which are popular recreation destinations on the southeast edge of the South Rampart area. Most people that visit Blodgett Open Space hike to Blodgett Peak, which is located in the National Forest.

2.2 The National Forest Transportation System

See the 2009 Forest-wide TAP for more information.

The following table summarizes the Forest Service system roads and trails that were evaluated in this TAP.

Table 2-1: Existing National Forest Service System Routes in South Rampart Study Area

Route Class	Road Maintenance Level					Trail	Total Miles
	1	2	3	4	5		
Administrative or Special Use Roads	1.8	18.8	10.5				31.0
Roads Open to Licensed Vehicles			54.0	1.6	6.5		62.0
Roads Open to Licensed Vehicles with Seasonal Closure			0.7				0.7
Roads Open to All Vehicles		118.5	9.3	1.2			129.0
Roads Open to All Vehicles with Seasonal Closure		2.3					2.3
50-Inch or Less Wide Motorized Trail						10.1	10.1
Total Miles	1.8	139.6	74.5	2.7	6.5	10.1	235.1

2.2.1 Motorized Trail Statistics

Within the South Rampart area, there are currently 10 miles of 50-inch or less system motorized trails. Many roads open to use by all vehicles are also heavily used as recreation routes by ATVs and motorcycles. Most of this use is concentrated in the Rainbow Falls area at the north edge of MEF. A few routes connect to roads and ATV trails in the South Platte Ranger District, which is located just north of Rainbow Falls. The South Platte Ranger District is currently constructing new ATV and motorcycle trails just north of Rainbow Falls. There are no existing system trails designated for single track motorcycle use and no areas designated for open cross-country motorized trails within the South Rampart area. There are over 120 miles of visitor-created non-system motorized trails and roads within the South Rampart area based on a National Forest Service route inventory completed

in 2006. While non-system routes are not analyzed in this report, it is important to understand the reason these routes are being used by the public. While part of the reason is that visitors do not follow the rules and stay on designated routes, other reasons are crowding, inadequate motorized trail system, lack of single track and challenge, desire to explore, and use extending beyond dead-end roads.

2.2.2 Road Statistics and Details

Within the South Rampart area there are a total of 194 miles of NFSRs on 157 individual roads that are managed and maintained for public, private, or Forest use. There are 31 miles of NFSRs on 36 individual roads that are maintained for administrative or special use purposes, but are closed to public use. There are 10 miles of NFSMTs on five individual motorized trails that are maintained for OHV and other recreation purposes. Therefore, there are 235 miles of road and trail under analysis in this study on 198 individual routes. The Objective Maintenance Level is the maintenance level to be assigned at a future date considering future road management objectives, traffic needs, budget constraints, and environmental concerns. These statistics are based on the 2009 MVUM and INFRA data for Pikes Peak Ranger District.

NFSR 322.A (Limbaugh Road) is a road normally open to all vehicles. This road was closed by administrative order to prevent resource impacts associated with off-system route creation and use. Motorized vehicles were creating new routes on hillsides, wetlands, and meadows and causing severe resource damage. This road is located in the Monument Creek watershed, which requires watershed protection per the Forest Plan. The Pikes Peak Ranger District has been restoring damage in the area and intends to reopen the road when it can be properly managed with access barriers, such as post and cable.

2.2.3 Motorized Mixed Use

See the 2009 Forest-wide TAP for more information.

The following NFSRs and NFSTs allow or prohibit unlicensed motor vehicles in the South Rampart area (as of 2009):

Table 2-2: NFSRs and NFSTs

Route Class	Road Numbers	Total Miles
Administrative and Special Use Only Roads (closed to public use)	300.A, 300.CC, 300.H, 300.I, 300.J, 300.L, 300.N, 300.R, 303, 303.A, 303.B, 304, 319, 320.F, 320.G, 321, 321.A, 321.D, 321.E, 322, 326, 328, 328.A, 336.A, 345.A, 345.B, 345.C, 345.D, 346.B, 347.A, 347.B, 348.A, 349, 353, 353.A, 353.B	31.0
Roads Open to Public Use with License Plated Vehicles Only	300, 300.B, 303, 306, 306.A, 306.AA, 306.B, 306.C, 306.D, 306.E, 306.F, 309, 312, 312.A, 320, 335, 335.B,	62.0

Route Class	Road Numbers	Total Miles
	336, 338.C, 338.D	
Roads Open to Public Use with License Plated Vehicles Only with a Seasonal Closure	North portion of 300	0.7
Roads Open to Public Use for All Vehicles (mixed use)	913, 300.C, 300.CA, 300.CB, 300.D, 300.E, 300.F, 300.G, 300.K, 300.M, 300.N, 300.P, 300.Q, 300.S, 300.U, 300.V, 301, 302, 302.A, 305, 307, 307.A, 311, 311.A, 313, 314, 314.A, 314.B, 315, 318, 319, 320.A, 320.B, 320.C, 320.D, 322, 322.A 323, 324, 324.A, 324.B, 325, 325.A, 325.B, 327, 332, 332.A, 332.AA, 332.B, 332.C, 332.CA, 332.D, 332.E, 335, 335.A, 338.DA, 338.DB, 338.E, 338.EA, 344, 344.B, 345, 346, 346.B, 347, 347.C, 347.E, 348, 348.B, 348.C, 348.D, 348.E, 348.F, 348.G, 349, 350, 350.A, 350.B, 351, 352, 352.A, 352.B, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910, 911, 912, 915, 916, 917, 918, 919, 920, 921, 922, 923, 924, 925, 926, 927, 928, 929, 930, 931, 932, 933, 934, 935, 936, 937, 938, 939, 940, 941, 942, 943, 944, 945, 946, 947, 948, 949, 950, 951, 952, 953, 954, 955, 956, 957, 987, 988	129.0
Roads Open to Public Use for All Vehicles with Seasonal Closure (mixed use)	North portion of 348	2.3
Motorized Trails Open to Public Use (for vehicles 50 inches or less wide)	630, 631, 633, 634, 650	10.1

According to this data, a total of 63 miles of current NFSRs in the South Rampart area are restricted to licensed motor vehicles only; 131.3 miles of NFSRs in the South Rampart area under analysis are open to OHV use (motorized mixed use). Many of these mixed use roads are dead-end roads that follow ridges or provide access to campsites. Administrative and special use roads closed to public use totaled 31 miles.

2.2.4 Road Management Objectives

See the 2009 Forest-wide TAP.

2.3 Meeting Forest Plan Objectives

See the 2009 Forest-wide TAP.

2.4 Current Budget

See the 2009 Forest-wide TAP.

3.0 IDENTIFYING THE ISSUES

3.1 Description of the issues

See the 2009 Forest-wide TAP for more information.

The ID team and line officers identified the most important road-related issues. Information gathered from previous public responses from a variety of project proposals was incorporated into this list of issues. The issues are listed by three general categories: Environmental, Sociocultural, and Economic.

Category #1: Environmental Issues

- Effects on stream water quality and aquatic habitat due to increased sediment loads from roads.
- Impacts to aquatic species due to the presence of roads near streams.
- Impacts to certain terrestrial wildlife living in the forest due to roads through terrestrial wildlife habitat and travel corridors.
- Impacts to plant species in certain areas of the forest due to the presence of roads.
- Impacts of road-related activities due to the spread of invasive species on the forest.
- Adequacy of forest access to meet fuels management and fire suppression goals and objectives.
- Adequacy of forest access to meet timber management objectives and goals.
- Adequacy of forest access to meet range allotment goals and objectives.

Data needed to address these concerns:

- Various GIS coverages for roads, etc.
- INFRA databases for roads, etc.
- Management Objectives
- Management Area Prescriptions

Category # 2: Sociocultural Issues

- Impacts on paleontological, archeological, and historic sites within the forest due to the current system of roads.
- Adequacy of roads to satisfy the variety of motorized recreational needs on the forest.
- Impacts on non-motorized recreation activities due to the amount of roads on certain parts of the forest.
- Adequacy of forest access to meet the demand for special uses on the forest.
- Adequacy of forest access to meet administrative management objectives and goals.

- Effects on public water supplies due to increased sediment loads from roads.

Data needed to address these concerns:

- GIS coverages for roads and heritage sites
- INFRA databases for roads and heritage sites
- SUDS database for special uses
- Management Objectives (Forest Plan)
- Management Area Prescriptions (Forest Plan)

Category #3: Economic Issues

- Adequacy of funding for road maintenance for the current road system under Forest Service jurisdiction.

Data needed to address these concerns:

- GIS coverages for roads
- INFRA databases for roads and condition survey data
- Forest Service records for road and trail maintenance

4.0 ASSESSING BENEFITS, PROBLEMS AND RISKS

The 2009 Forest-Wide TAP provides detailed answers to approximately 73 questions related the benefits and risks of National Forest Service roads and trails.

4.1 Aquatic, Riparian Zone, and Water Quality (AQ)

4.2 Terrestrial Wildlife (TW)

4.3 Ecosystem Functions and Processes (EF)

4.4 Economics (EC)

4.5 Commodity Production: Timber, Minerals, Range, Water Production, Special Forest Products, and Special Use Permits (TM), (MM), (RM), (WP), (SP), (SU)

4.6 General Public Transportation (GT)

4.7 Administrative Uses (AU)

4.8 Protection (PT)

4.9 Recreation: Unroaded and Road-Related (UR), (RR)

4.10 Social Issues, Cultural and Heritage, Civil Rights and Environmental Justice (SI), (CH), (CR)

5.0 DESCRIBING OPPORTUNITIES AND SETTING PRIORITIES

5.1 Introduction

In order to identify opportunities to improve the transportation system, the South Rampart area of Pike and San Isabel National Forest Objective Maintenance Level 1 – 5 system roads and system motorized trails were evaluated based on key benefits and risks associated with each individual road and trail. Each road was assigned a High, Moderate, or Low benefit rating for five priority management areas: recreational use, fire/fuels access, timber access, special use access, and forest management access. Each road was also assigned a High, Moderate, or Low risk rating to show the degree of risk it posed to watersheds, wildlife, botany, archeology, and available finances. Those ratings were then converted to numerical indices so that numerical value factors (score) could be totaled to produce a weighted Total Benefit Factor, and numerical risk factors could be totaled to produce a weighted Total Risk Factor. The protocols utilized to assign benefit and risk ratings and indices are described below.

In a few cases a double high rating score was applied to categories when a resource condition should be strongly emphasized. This causes either the benefit or risk ranking to automatically be rated as high. An example would be a short spur road that has a very high recreation value because it provides access to a campsite, but does not have other benefits that would cause its total benefit rank to be a high value. Some routes (based on their route number) have been divided into two or more segments and each of the segments has been analyzed individually.

Benefits

5.2 Criteria for Recreational Use Benefit

Recreational Use Benefit:

- High Benefit = 2
- Moderate Benefit = 1
- Low Benefit = 0

The recreational use ratings for roads are based on the location of and access to developed recreation sites/facilities and to dispersed recreation areas.

A **High** (H) rating was assigned to roads that are the primary access routes to developed recreation sites/facilities, or primary access routes to popular dispersed recreation areas.

A **Moderate** (M) rating was assigned to roads that are the primary access routes to other dispersed recreation areas.

A **Low** (L) rating was assigned to roads that are secondary access routes to recreation areas, or to roads not leading to any recreation areas.

5.3 Criteria for Fire/Fuels Access Benefit

Fire/Fuels Access Benefit:

- High Benefit = 2
- Moderate Benefit = 1
- Low Benefit = 0

The fire/fuels access ratings for roads are based on factors such as ridgelines, canyons, private lands/homes, fuels projects, water sources, structures, etc. The roads allow rapid access for equipment and, in many instances, are used as firebreaks.

A **High** (H) benefit rating was assigned to roads that are primary access routes to ridges, canyons, private property, fuels projects, water sources, and other structures.

A **Moderate** (M) benefit rating was assigned to secondary access roads to the above-mentioned areas.

A **Low** (L) benefit rating was assigned to small spur roads or to roads in areas with multiple access roads in better condition.

5.4 Criteria for Timber Access Benefit

Timber Access Benefit:

- High Benefit = 2
- Moderate Benefit = 1
- Low Benefit = 0

Timber access benefit was rated based on a number of relevant factors, including but not limited to:

A **High** (H) benefit was given to those segments of roads that gave access or were needed for access to remove timber.

A **Moderate** (M) benefit was given to those segments of roads that would benefit timber for access but were not necessarily needed, especially if they conflicted with another resource or a temporary road could be used to obtain the same access.

A **Low** (L) benefit was given to those segments of roads that did not benefit timber access or there was a need to access an area for timber removal.

5.5 Criteria for Special Use Access Benefit

Special Use Access Benefit:

- High Benefit = 2
- Moderate Benefit = 1
- Low Benefit = 0

Special use access benefit was rated based on a number of relevant factors, including but not limited to:

- Current authorization or permit
- Proposed authorization or permit
- Long-term or short-term use

A **High** (H) benefit rating was assigned to roads with a current or proposed authorization or permit.

A **Moderate** (M) benefit rating was assigned to a few select roads used for access, and where an authorization or permit was needed but had not been requested or granted.

A **Low** (L) benefit rating was assigned to roads without an authorization or permit.

5.6 Criteria for Forest Management Access Benefit

Forest Management Benefit:

- High Benefit = 2
- Moderate Benefit = 1
- Low Benefit = 0

Forest management access benefit was rated based on the anticipated needs of each specialist for monitoring and managing forest lands, assuming that no other roads were available for motorized access.

A **High** (H) rating was assigned to roads providing important access for managing the wildlife, botany, archeology, and water assets on the forest.

A **Moderate** (M) rating was not used for this category of access.

A **Low** (L) rating was assigned to all other roads.

Roads that are Important in Managing the Forest's Heritage Resources:

This priority was viewed in the context of access to significant heritage resources and staff responsibilities to monitor individual resources, and if necessary, conduct necessary repairs and stabilization. Road access may also be important in the context of visitor accessibility: roads may be the only available means for experiencing heritage sites for some segments of the public, particularly those segments with disabilities.

Risks

5.7 Criteria for Watershed Risk

Watershed Risk:

- High Risk = 3
- Moderate Risk = 2
- Low Risk = 0

The risk factors are higher for watersheds than other resource types. The justification for this is that watersheds have a higher relative risk of impact compared to other resource types.

A rating of 3 (**High**) was assigned to roads that had high numbers in most of the categories on the spreadsheet, or where site-specific reasons justified a High rating. In some cases where the risk was determined to be extremely high, the value assigned on the Road Matrix Table was HH, which by itself justified a High Total Risk Factor.

A rating of 2 (**Moderate**) was assigned to roads where the numbers were slightly lower for: length within watershed, length within 300' of a stream, length within highly erodible soils, and number of stream crossings.

A rating of 1 (**Low**) was assigned to roads where there were few to no crossings, and a low percentage for the soils and streams categories. When used to determine the Total Risk Factor, the Low ratings were assigned a value of 0 to be consistent with all the other ratings.

5.8 Criteria for Wildlife Risk

Wildlife Risk:

- High Risk = 2
- Moderate Risk = 1
- Low Risk = 0

Wildlife risk was rated based on a number of relevant factors, including but not limited to:

- RFSS (Regional Forester's Sensitive Species List)

- MSO (Mexican Spotted Owl) habitat
- GBCTT (Greenback Cutthroat Trout) habitat
- Preble's Meadow Jumping Mouse habitat

A **High** (H) rating was assigned to roads that directly accessed special habitat areas and had the potential to introduce disturbance during critical seasons for nesting/spawning, etc.

A **Moderate** (M) rating was assigned to roads that indirectly accessed special habitat areas and had a lower potential to introduce disturbance during critical seasons for nesting/spawning, etc.

A **Low** (L) rating was assigned to roads that do not access special habitat areas or roads that have a high background level of disturbance from other factors, such as being near county/state/US highways or campgrounds, or residential subdivisions or commercial enterprises.

5.9 Criteria for Botany Risk

Botany Risk:

- High Risk = 2
- Moderate Risk = 1
- Low Risk = 0

Four factors were considered in determining risks. The NatureServe rounded global rank of 1 through 5 was used. The lower the Global-rank, the rarer the species. Similarly, the next factor was the rounded S-rank. Since the Colorado Natural Heritage Program (CNHP) generally tracks only S-ranks 1 through 3, these rankings were used. The third factor was the precision of records in the CNHP data. Species given general location information were rated 3, moderate specificity of species locations were rated 2, and specific locations were rated 1. The fourth factor was the year of the most recent observation of a species at the documented occurrence. Records from 1995 to 2006 were rated 1; 1975 to 1994 were rated 2; 1900 to 1974 were rated 3; and records before 1900 were rated 4. A cumulative total for each species record along roads was summed. As a result, the lowest total provides the highest risk factor for each road segment. Where several species occur within the proximity of a road, the lowest ranked species determined the risk level. **High risk** road segments had at least one species with a cumulative total of 9 or lower. **Moderate risk** road segments carried a total of 10 or above. **Low risk** road segments had no documented species occurrences nearby.

5.10 Criteria for Archaeology Risk

Archaeology Risk:

- High Risk = 2
- Moderate Risk = 1

- Low Risk = 0

NFSRs rated as **high risk** include cases where use and maintenance of the road have and continue to affect archeological deposits on the road's surface or on its margins, and where the impact has been documented. Also rated as high risk are cases where the road intersects an archeological site and impacts are suspected but not documented. These NFSR roads might be changed to low or moderate risk pending field examination and documentation of the suspected impacts.

The **moderate risk** roads comprise cases where the road itself is a historic resource, and cases where the road passes through the defined area of a historic property or is adjacent to the property. In moderate risk cases, maintaining current public use levels and the present level/intensity of routine maintenance will not affect the cultural property. However, improvements or other new construction, or increasing public use or maintenance levels might affect the property.

Most of National Forest System roads rated as **low risk** generally do not intersect or are not in proximity to a historic property listed in or eligible for listing in the National Register of Historic Places. In some cases the road was in proximity to a listed or eligible property, but public use or routine maintenance of the road, or new construction of all or a portion of the road would not affect the property. It should be noted that the Forest Service has not examined all or even most of the NFSR for impinging historic properties and possible effects. Also, not all NFSR roads have been evaluated in terms of intrinsic historic significance. The analysis was done on the state of knowledge to date.

5.11 Criteria for Financial Burden Risk

Financial Burden

- High Burden = 2
- Moderate Burden = 1
- Low Burden = 0

The financial burden for roads is based on the estimated annual maintenance cost per mile and on the maintenance level of the road. The annual maintenance cost per mile was calculated from 2006 road data, using the INFRA R_DM03_L and R_DM03_L_CDW reports for current annual maintenance tasks per road, and the average annual maintenance costs by maintenance level. The results from these reports are as follows:

Objective Maintenance Level 1: $650 per mile average
Objective Maintenance Level 2: $650 per mile average
Objective Maintenance Level 3: $900 per mile average
Objective Maintenance Level 4: $1,600 per mile average
Objective Maintenance Level 5: $1,900 per mile average

A range of values was chosen for the moderate rating for each Objective Maintenance Level. Roads with annual maintenance cost values above that range were assigned a high rating, and roads with values below that range were assigned a low rating.

5.12 Road Management Opportunities and Priorities

The Total Benefit factors and Total Risk factors discussed above resulted in a total benefit/risk number for each road. The Total Benefit factors ranged from 0 to 10, and the Total Risk factors ranged from 0 to 9. Those roads with a Total Benefit factor greater than 3 represent high benefit roads, and those roads with a Total Risk factor greater than 4 represent high risk roads. Based on this analysis, each road was assigned to one of four road management categories as follows:

- High Benefit/High Risk (H/H)
- High Benefit/Low Risk (H/L)
- Low Benefit/High Risk (L/H)
- Low Benefit/Low Risk (L/L)

Roads with a high benefit represent those roads that constitute the potential minimum road system for management and access on the forest. Those roads with a low benefit are potentially not needed for management and access on the forest, at least not at their current maintenance level.

Roads with a high risk represent those roads that may be causing unacceptable resource and financial impacts. Those roads with a low risk represent roads that are not a major resource impact concern.

Road management options for each of the four road management categories are as follows:

1. High Benefit/High Risk – Priority roads for capital improvements
2. High Benefit/Low Risk – Roads with ideal conditions
3. Low Benefit/High Risk – Priority roads for in-depth benefit/risk analysis
4. Low Benefit/Low Risk – Priority roads for reducing maintenance level

6.0 REPORTING

6.1 Key Findings

The roads analyzed in this report have been separated into four road management categories shown in Table 6.1.

Table 6-1. Summary of Routes by Benefit and Risk

Travel Analysis Outcomes Route Numbers		**Minimum Road System**		**May not be Needed as Part of a Minimum Road System**	
		High Benefit/ **High Risk**	High Benefit/ Low Risk	Low Benefit/ **High Risk**	Low Benefit/ Low Risk
Route Classification	Administrative and Special Use Only Roads	300.A	303, 303.A, 303.B, 304, 321, 321.A, 321.D, 321.E, 322, 322, 322, 326, 328, 328.A, 345.A, 345.B, 345.C, 345.D, 348.A	319	300.CC, 300.H, 300.I, 300.J, 300.L, 300.N, 300.R, 320.F, 336.A, 347.A, 347.B
	Roads Open to Licensed Vehicles Only	300, 320	303, 306, 306.A, 306.AA, 306.B, 306.D, 306.E, 306.F, 312, 312.A, 335, 335.B, 338.C, 338.D, 377, 300.B, 306.C, 336	none	309
	Roads Open to all Vehicles	346, 347, 332.A, 348	313, 307, 315, 318, 322, 335, 335.A, 338.DA, 338.E, 338.EA, 346, 346.B, 300.C, 300.C, 300.CA, 300.CB, 300.U, 300.V, 301, 332.B, 338.DB, 344, 344.B, 345, 348.B, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910, 911, 912, 913, 915, 916, 917, 918, 919, 920, 921, 922, 923, 924, 925, 926, 927, 928, 929, 930, 931, 932, 933, 934, 935, 936, 937, 938, 939, 940, 941, 942, 943, 944, 945, 946, 947, 948, 949, 950, 951, 952, 953, 954, 955, 956, 957, 987, 988	300.P, 319, 325, 348.F	349, 307.A, 311, 311.A, 314, 314.A, 314.B, 319, 320.A, 320.B, 320.C, 320.D, 352, 352.A, 352.A, 352.B, 300.D, 300.E, 300.F, 300.G, 300.K, 300.M, 300.N, 300.Q, 300.S, 302, 302.A, 305, 323, 324, 324.A, 324.B, 325, 325.A, 325.B, 327, 332, 332.AA, 332.C, 332.CA, 332.D, 332.E, 347.C, 347.E, 348.C, 348.D, 348.E, 348.G, 349, 350.A, 350.B
	Motorized Trails	none	631, 633, 634, 650	none	630
	Total Miles	75.81	92.46	3.15	66.16

Note: Some route numbers may appear in multiple table cells. In these cases, the route was divided into 2 or more segments for each segment to be analyzed separately.

6.2 Recommendations

Using the above Road Management Category table, the Pikes Peak Ranger District should consider those roads listed in the H/H (High Benefit and High Risk) category for future capital improvements. These roads are needed as part of the minimum road system, and at the same time they are causing unacceptable resource and/or financial impacts. Action should be taken in order to reduce the risk impacts along these roads.

- NFSR 300.A – Rainbow Gulch Road provides access to a water pipeline.
- NFSR 300 – Rampart Road has a very high cost to maintain but is the primary access road to the area.
- NFSR 320 – Mt. Herman Road provides important access from the town of Monument, but can be reclassified as a maintenance level 2 road in order to reduce maintenance costs.
- NFSR 332.A, & 348 – These roads provide valuable recreation opportunities and access but need improvements to reduce their risks.
- NFSR 345, 346 & 347 – These roads are located in MEF, provide important access and connectivity, but also cause conflicts with MEF management.

The roads listed above in the H/L (High Benefit and Low Risk) category are part of the minimum road system for the South Rampart area. Regular maintenance of these roads should be the primary focus.

- NFSR 312 & 312.A – These roads are primarily used for access to properties leased to families for summer cabins.
- Roads in MEF may lead to experimental forest management conflicts.

Roads in the L/H (Low Benefit and High Risk) category should be analyzed in depth and potentially eliminated from the system completely unless mitigation measures can be easily implemented that will change the high risk to a low risk. When decommissioning occurs, the risk impacts need to be addressed so they are eliminated or greatly reduced as a result of the decommissioning process. These roads are not needed as part of the minimum road system cause resource and/or financial impacts.

- NFSR 319 – Power Line South Road provides access to a power line but may not be needed for regular maintenance purposes.
- NFSR 300.P, 325, 348.F – These roads have many visitor-created routes and should be considered for decommissioning to prevent this problem in the future.

Roads in the L/L (Low Benefit and Low Risk) category should be reviewed by Pikes Peak Ranger District and considered for maintenance level reduction, conversion to motorized trails, administrative use only, or decommissioning. These roads are not needed as part of the minimum

road system; but since they are not causing significant resource damage, they may be useful at a lower level of maintenance.

- Roads close to designated roadless areas may lead to visitor-created routes in these areas.
- Roads in MEF may lead to experimental forest management conflicts.

The information obtained from a complete project level travel analysis process sets the context for improving the road and motorized trail system on National Forest lands.

Appendix A. Final TAP Matrix Table

TAP Matrix Table SOUTH RAMPART STUDY AREA						ROAD BENEFIT RATINGS H, M, or L										ROAD RISK RATINGS H, M, or L										ROAD H/H	H/L	L/H
ROAD NUMBER - NFSR	ROAD NAME	ROAD LENGTH (MILES)	OBJ. MAINTENANCE LEVEL	SURFACE TYPE	ANNUAL MAINTENANCE COST/MILE	RECREATIONAL USE		FIRE/FUELS ACCESS		TIMBER ACCESS		SPECIAL USE ACCESS		FOREST MANAGEMENT ACCESS		WATERSHED RISK		WILDLIFE RISK		BOTANY RISK		ARCHAEOLOGY RISK		FINANCIAL BURDEN		Total Benefit Score	Total Risk Score	Combined Rating
NFS Roads																												
300	RAMPART RANGE	33.33	3	N	$1,507	2	H	2	H	2	H	2	H	2	H	2	M	2	H	2	H	1	M	2	H	**10**	**9**	**H /H**
300	RAMPART RANGE -Seasonal Designation Segment	0.69	3	N	$1,507	2	H	2	H	2	H	2	H	2	H	2	M	2	H	2	H	1	M	2	H	**10**	**9**	**H /H**
300.A	RAINBOW GULCH	1.48	2	N	$650	2	H	2	H	0	L	2	H	1	M	1	M	1	M	1	M	1	M	1	M	**7**	**5**	**H /H**
300.B	SPRINGDALE CG	0.33	3	N	$900	1	M	2	H	0	L	2	H	0	L	0	L	0	L	0	L	0	L	0	M	**5**	**0**	**H/L**
300.C	PLUM CREEK	1.04	2	N	$650	1	M	2	H	1	M	0	L	0	L	0	L	0	L	0	L	0	L	0	L	**4**	**0**	**H/L**
300.C	PLUM CREEK	0.72	2	N	$650	1	M	2	H	1	M	0	L	0	L	0	L	0	L	0	L	0	L	0	L	**4**	**0**	**H/L**
300.CA	UNIT C	0.83	2	N	$650	1	M	2	H	1	M	0	L	0	L	0	L	0	L	0	L	0	L	0	L	**4**	**0**	**H/L**
300.CB	UNIT F	0.67	2	N	$650	1	M	2	H	1	M	0	L	0	L	0	L	0	L	0	L	0	L	0	L	**4**	**0**	**H/L**
300.CC	300.CC	0.83	2	N	$650	0	L	0	L	1	M	0	L	0	L	0	L	0	L	0	L	0	L	0	L	**1**	**0**	**L/L**
300.D	STAGGS - MIDDLE SEGMENT	0.89	2	N	$650	0	L	1	M	1	M	0	L	0	L	2	M	0	L	0	L	0	L	0	L	**2**	**2**	**L/L**
300.E	STAGGS SPUR	0.30	2	N	$650	0	L	1	M	1	M	0	L	0	L	2	M	0	L	0	L	0	L	0	L	**2**	**2**	**L/L**
300.F	UPPER JOHNS GULCH	1.70	2	N	$650	1	M	1	M	0	L	0	L	0	L	0	L	0	L	0	L	0	L	0	L	**2**	**0**	**L/L**
300.G	QUARTZ	0.98	2	N	$650	1	M	0	L	1	M	0	L	0	L	0	L	2	H	0	L	0	L	0	L	**2**	**2**	**L/L**
300.H	UNIT EQM	0.62	2	N	$650	0	L	0	L	1	M	0	L	0	L	0	L	0	L	0	L	0	L	0	L	**1**	**0**	**L/L**
300.I	UNIT KR	0.60	2	N	$650	0	L	0	L	1	M	0	L	0	L	0	L	0	L	0	L	0	L	0	L	**1**	**0**	**L/L**
300.J	UNIT I	0.52	2	N	$650	0	L	0	L	1	M	0	L	0	L	0	L	0	L	0	L	0	L	0	L	**1**	**0**	**L/L**
300.K	HIGH	0.11	2	N	$650	1	M	0	L	1	M	0	L	0	L	0	L	0	L	0	L	0	L	0	L	**2**	**0**	**L/L**
300.L	MICROWAVE	0.27	2	N	$650	0	L	0	L	0	L	2	H	0	L	0	L	0	L	0	L	0	L	0	L	**2**	**0**	**L/L**
300.M	RAMPART CAMPSITE	0.32	2	N	$650	1	M	0	L	0	L	1	M	0	L	0	L	0	L	0	L	0	L	0	L	**2**	**0**	**L/L**
300.N	AQUEDUCT	0.03	2	N	$650	1	M	0	L	0	L	0	L	0	L	0	L	0	L	0	L	0	L	0	L	**1**	**0**	**L/L**
300.N	AQUEDUCT - END SEGMENT	0.42	2	N	$650	0	L	0	L	0	L	1	M	0	L	0	L	0	L	0	L	0	L	0	L	**1**	**0**	**L/L**
300.P	RRR CAMP 1	0.21	2	N	$650	1	M	0	L	0	L	0	L	0	L	2	M	2	H	0	L	0	L	1	M	**1**	**5**	**L/H**

ROAD NUMBER - NFSR	ROAD NAME	ROAD LENGTH (MILES)	OBJ. MAINTENANCE LEVEL	SURFACE TYPE	ANNUAL MAINTENANCE COST/MILE	RECREATIONAL USE		FIRE/FUELS ACCESS		TIMBER ACCESS		SPECIAL USE ACCESS		FOREST MANAGEMENT ACCESS		WATERSHED RISK		WILDLIFE RISK		BOTANY RISK		ARCHAEOLOGY RISK		FINANCIAL BURDEN		Total Benefit Score	Total Risk Score	Combined Rating
300.P	RRR CAMP 1	0.12	2	N	$650	1	M	0	L	0	L	0	L	0	L	2	M	2	H	0	L	0	L	1	M	**1**	**5**	**L/H**
300.Q	RRR CAMP 2	0.23	2	N	$650	0	L	0	L	0	L	0	L	0	L	0	L	2	H	0	L	0	L	1	M	**0**	**3**	**L/L**
300.Q	RRR CAMP 2	0.14	2	N	$650	0	L	0	L	0	L	0	L	0	L	0	L	2	H	0	L	0	L	1	M	**0**	**3**	**L/L**
300.R	BACKSTOP	0.63	2	N	$650	0	L	0	L	0	L	0	L	0	L	0	L	2	H	0	L	0	L	0	L	**0**	**2**	**L/L**
300.S	WELLINGTON GULCH	1.05	2	N	$650	0	L	0	L	0	L	0	L	0	L	0	L	0	L	0	L	0	L	0	L	**0**	**0**	**L/L**
300.U	SOLDIER MTN	1.19	2	N	$650	1	M	2	H	1	M	1	L	1	M	0	L	0	L	0	L	0	L	0	L	**7**	**0**	**H/L**
300.V	RUPP GULCH	1.51	2	N	$650	1	M	2	H	1	M	1	L	1	M	2	M	0	L	1	M	0	L	0	L	**7**	**3**	**H/L**
301	EAGLE LAKE	0.15	3	N	$900	0	L	1	M	0	L	2	HH	0	L	0	L	0	L	0	L	0	L	0	L	**3**	**0**	**H/L**
302	ORMES PEAK	2.85	2	N	$1,650	1	M	1	M	0	L	0	L	0	L	0	L	2	H	0	L	0	L	1	M	**2**	**3**	**L/L**
302.A	DEVIL'S KITCHEN	1.20	2	N	$650	1	M	0	L	0	L	0	L	0	L	2	M	2	H	0	L	0	L	0	L	**1**	**4**	**L/L**
303	NORTHFIELD	3.90	3	N	$900	1	M	2	H	2	H	2	H	0	L	2	M	1	M	0	L	0	L	0	L	**7**	**3**	**H /L**
303	NORTHFIELD	2.20	3	N	$900	1	M	2	H	2	H	2	H	0	L	2	M	1	M	0	L	0	L	0	L	**7**	**3**	**H /L**
303.A	WEST MONUMENT	2.05	3	N	$900	1	M	2	H	2	H	2	H	0	L	2	M	1	M	0	L	0	L	0	L	**7**	**3**	**H /L**
303.B	STANLEY MICROWAVE	1.06	3	N	$900	1	M	2	H	2	H	2	H	0	L	2	M	1	M	0	L	0	L	0	L	**7**	**3**	**H /L**
304	WATERLINE	1.78	1	N	$650	0	L	0	L	0	L	2	HH	0	L	0	L	0	L	0	L	0	L	0	L	**2**	**0**	**H /L**
305	SAND GULCH	0.98	2	N	$650	1	M	1	M	0	L	0	L	0	L	0	L	0	L	0	L	0	L	1	M	**2**	**1**	**L/L**
306	LAKE CIRCLE DRIVE	3.53	5	A	$1,600	2	HH	2	H	2	H	2	H	0	L	0	L	1	M	1	M	0	L	2	H	**8**	**4**	**H /L**
306.A	MEADOW RIDGE CG	0.76	5	A	$1,600	2	H	2	H	2	H	2	H	0	L	0	L	0	L	0	L	0	L	1	M	**8**	**1**	**H /L**
306.AA	PEAK VIEW OVERLOOK	0.10	4	A	$1,900	2	H	1	M	2	H	2	H	0	L	0	L	0	L	0	L	0	L	0	L	**7**	**0**	**H /L**
306.B	THUNDER RIDGE CG	0.65	5	A	$1,900	2	H	2	H	2	H	2	H	0	L	0	L	0	L	0	L	0	L	1	M	**8**	**1**	**H /L**
306.C	PROMONTORY PG	1.00	5	A	$1,900	2	H	2	H	2	H	2	H	0	L	0	L	1	M	0	L	0	L	2	H	**8**	**3**	**H/L**
306.D	BPW TRAILHEAD	0.10	4	A	$1,900	2	H	1	M	2	H	2	H	0	L	0	L	0	L	0	L	0	L	0	L	**7**	**0**	**H /L**
306.E	WILDCAT OVERLOOK	0.10	5	A	$1,900	2	H	1	M	2	H	2	H	0	L	0	L	0	L	0	L	0	L	1	M	**7**	**1**	**H /L**
306.F	DIKESIDE PARKING	0.45	5	A	$1,900	2	H	1	M	2	H	2	H	0	L	2	M	0	L	0	L	0	L	2	H	**7**	**4**	**H /L**
307	SCHUBARTH	4.67	2	N	$1,504	2	H	2	H	0	L	1	M	1	M	0	L	0	L	0	L	0	L	1	M	**6**	**1**	**H /L**
307	SCHUBARTH	2.43	2	N	$1,504	2	H	2	H	0	L	1	M	1	M	0	L	0	L	0	L	0	L	1	M	**6**	**1**	**H /L**
307.A	ROLL OVER	3.27	2	N	$650	1	M	1	M	0	L	0	L	1	M	0	L	0	L	0	L	0	L	0	L	**3**	**0**	**L /L**
307.A	ROLL OVER	0.30	2	N	$650	1	M	1	M	0	L	0	L	1	M	0	L	0	L	0	L	0	L	0	L	**3**	**0**	**L /L**
309	FARISH	0.98	3	N	$900	0	L	0	L	0	L	2	H	0	L	0	L	0	L	0	L	0	L	0	L	**2**	**0**	**L /L**
311	HELL CREEK	2.37	2	N	$1,504	1	M	1	M	0	L	0	L	1	M	0	L	0	L	0	L	0	L	0	L	**3**	**0**	**L /L**
311	HELL CREEK	1.55	2	N	$1,504	1	M	1	M	0	L	0	L	1	M	0	L	0	L	0	L	0	L	0	L	**3**	**0**	**L /L**

ROAD NUMBER - NFSR	ROAD NAME	ROAD LENGTH (MILES)	OBJ. MAINTENANCE LEVEL	SURFACE TYPE	ANNUAL MAINTENANCE COST/MILE	RECREATIONAL USE		FIRE/FUELS ACCESS		TIMBER ACCESS		SPECIAL USE ACCESS		FOREST MANAGEMENT ACCESS		WATERSHED RISK		WILDLIFE RISK		BOTANY RISK		ARCHAEOLOGY RISK		FINANCIAL BURDEN		Total Benefit Score	Total Risk Score	Combined Rating
311.A	HELL CREEK SPUR	0.65	2	N	$1,504	1	M	1	M	0	L	0	L	1	M	0	L	0	L	0	L	0	L	0	L	**3**	**0**	**L /L**
311.A	HELL CREEK SPUR	0.19	2	N	$1,504	1	M	1	M	0	L	0	L	1	M	0	L	0	L	0	L	0	L	0	L	**3**	**0**	**L /L**
311.A	HELL CREEK SPUR	0.20	2	N	$1,504	1	M	1	M	0	L	0	L	1	M	0	L	0	L	0	L	0	L	0	L	**3**	**0**	**L /L**
311.A	HELL CREEK SPUR	0.25	2	N	$1,504	1	M	1	M	0	L	0	L	1	M	0	L	0	L	0	L	0	L	0	L	**3**	**0**	**L /L**
312	FARRISH MEMORIAL	0.32	3	N	$900	0	L	2	H	2	H	2	H	0	L	0	L	1	M	0	L	0	L	0	L	**6**	**1**	**H /L**
312	FARRISH MEMORIAL	1.12	3	N	$900	0	L	2	H	2	H	2	H	0	L	0	L	1	M	0	L	0	L	0	L	**6**	**1**	**H /L**
312.A	CARROLL LAKES	0.35	3	N	$650	0	L	2	H	2	H	2	H	0	L	0	L	0	L	0	L	0	L	0	L	**6**	**0**	**H /L**
313	HAY CREEK EAST	1.60	2	N	$1,504	1	M	1	M	0	L	0	L	0	L	2	M	0	L	1	M	0	L	0	L	**2**	**3**	**H /L**
314	ENSIGN GULCH	2.53	2	N	$650	1	M	1	M	0	L	1	M	0	L	0	L	0	L	0	L	0	L	0	L	**3**	**0**	**L /L**
314.A	SKID	0.33	2	N	$650	0	L	0	L	0	L	0	L	0	L	0	L	0	L	0	L	0	L	0	L	**0**	**0**	**L /L**
314.B	ENSIGN RIDGE	0.22	2	N	$650	0	L	0	L	0	L	0	L	0	L	0	L	0	L	0	L	0	L	0	L	**0**	**0**	**L /L**
315	BEAVER CREEK S. H.	2.70	3	N	$900	1	M	2	H	2	H	2	H	0	L	2	M	1	M	0	L	0	L	0	L	**7**	**3**	**H /L**
318	POWERLINE EAST	4.01	2	N	$650	1	M	2	H	0	L	2	H	0	L	0	L	0	L	0	L	0	L	0	L	**5**	**0**	**H /L**
319	POWERLINE SOUTH	0.85	2	N	$650	0	L	0	L	0	L	1	M	0	L	0	L	0	L	0	L	0	L	0	L	**1**	**0**	**L /L**
319	POWERLINE SOUTH	0.45	2	N	$650	0	L	0	L	0	L	0	L	0	L	2	H	2	H	2	H	0	L	0	L	**0**	**6**	**L/H**
319	POWERLINE SOUTH	0.82	2	N	$650	0	L	0	L	0	L	0	L	0	L	2	H	2	H	2	H	0	L	0	L	**0**	**6**	**L/H**
320	MOUNT HERMAN	1.54	3	N,A	$1,200	2	H	2	H	2	H	2	H	1	M	2	M	2	H	1	M	0	L	2	H	**9**	**7**	**H /H**
320	MOUNT HERMAN	10.30	3	N,A	$1,200	2	H	2	H	2	H	2	H	1	M	2	M	2	H	1	M	0	L	2	H	**9**	**7**	**H /H**
320.A	HERMAN SPUR 1 NORTH	0.31	2	N	$650	1	M	0	L	0	L	0	L	0	L	0	L	0	L	0	L	0	L	0	L	**1**	**0**	**L /L**
320.B	HERMAN SPUR 2 NORTH	0.38	2	N	$650	1	M	0	L	0	L	0	L	0	L	0	L	0	L	0	L	0	L	0	L	**1**	**0**	**L /L**
320.C	HERMAN SPUR 3 SOUTH	0.68	2	N	$650	1	M	0	L	0	L	0	L	0	L	0	L	0	L	0	L	0	L	0	L	**1**	**0**	**L /L**
320.D	MOUNT HERMAN SPUR NORTH	0.24	2	N	$650	1	M	0	L	0	L	0	L	0	L	0	L	0	L	0	L	0	L	0	L	**1**	**0**	**L /L**
320.F	HOTSHOT AVE	0.26	2	N	$650	0	L	0	L	0	L	0	L	0	L	0	L	0	L	0	L	2	H	0	L	**0**	**2**	**L/L**
320.G	MACINTOSH ROAD	0.16	3	N	$650																							
321	MONUMENT FIRE CENTER	1.58	3	N	$650	0	L	0	L	0	L	0	L	2	HH	0	L	0	L	0	L	1	M	0	L	**2**	**1**	**H/L**
321.A	TODD'S TRACK	0.70	3	N	$650	0	L	0	L	0	L	0	L	2	HH	0	L	0	L	0	L	1	M	0	L	**2**	**1**	**H/L**
321.D	HOUSE	0.13	3	N	$650	0	L	0	L	0	L	0	L	2	HH	0	L	0	L	0	L	1	M	0	L	**2**	**1**	**H/L**
321.E	HELIBASE	0.33	3	N	$650	0	L	0	L	0	L	0	L	2	HH	0	L	0	L	0	L	1	M	0	L	**2**	**1**	**H/L**
322	BALANCED ROCK	7.53	2	N	$650	1	M	2	H	1	M	1	M	1	M	2	M	0	L	0	L	0	L	0	L	**6**	**2**	**H /L**
322	BALANCED ROCK	0.13	2	N	$650	0	L	2	H	0	L	2	HH	0	L	1	M	0	L	0	L	0	L	0	L	**4**	**1**	**H/L**
322	BALANCED ROCK	0.05	2	N	$650	0	L	2	H	0	L	2	HH	0	L	1	M	0	L	0	L	0	L	0	L	**4**	**1**	**H/L**
322	BALANCED ROCK	0.60	2	N	$650	0	L	2	H	0	L	2	HH	0	L	1	M	0	L	0	L	0	L	0	L	**4**	**1**	**H/L**

ROAD NUMBER - NFSR	ROAD NAME	ROAD LENGTH (MILES)	OBJ. MAINTENANCE LEVEL	SURFACE TYPE	ANNUAL MAINTENANCE COST/MILE	RECREATIONAL USE		FIRE/FUELS ACCESS		TIMBER ACCESS		SPECIAL USE ACCESS		FOREST MANAGEMENT ACCESS		WATERSHED RISK		WILDLIFE RISK		BOTANY RISK		ARCHAEOLOGY RISK		FINANCIAL BURDEN		Total Benefit Score	Total Risk Score	Combined Rating
322	BALANCED ROCK	0.04	2	N	$650	0	L	2	H	0	L	2	HH	0	L	1	M	0	L	0	L	0	L	0	L	**4**	**1**	**H/L**
322	BALANCED ROCK	0.30	2	N	$650	0	L	2	H	0	L	2	HH	0	L	1	M	0	L	0	L	0	L	0	L	**4**	**1**	**H/L**
322	BALANCED ROCK	0.28	2	N	$650	0	L	2	H	0	L	2	HH	0	L	1	M	0	L	0	L	0	L	0	L	**4**	**1**	**H/L**
322	BALANCED ROCK	0.26	2	N	$650	0	L	2	H	0	L	2	HH	0	L	1	M	0	L	0	L	0	L	0	L	**4**	**1**	**H/L**
322.A	LIMBAUGH	1.79	1	N	$650	1	H	0	M	0	M	0	L	0	M	3	H	1	M	1	M	0	L	1	L	**1**	**6**	**H/H**
323	WINDING STAIRS	2.68	2	N	$650	1	M	1	M	1	M	0	L	0	L	0	L	0	L	0	L	0	L	0	L	**3**	**0**	**L/L**
323	WINDING STAIRS	1.17	2	N	$650	1	M	1	M	1	M	0	L	0	L	0	L	0	L	0	L	0	L	0	L	**3**	**0**	**L/L**
324	ICE CAVE	5.73	2	N	$650	1	M	1	M	1	M	1	M	0	L	2	M	0	L	0	L	0	L	0	L	**4**	**2**	**L/L**
324.A	CHIMNEY PEAK	0.20	2	N	$650	1	M	0	L	0	L	1	M	0	L	0	L	0	L	0	L	0	L	0	L	**2**	**0**	**L/L**
324.A	COUNTY LINE	0.25	2	N	$650	0	L	0	L	0	L	0	L	0	L	0	L	0	L	0	L	0	L	0	L	**0**	**0**	**L/L**
324.A	COUNTY LINE	0.24	2	N	$650	0	L	0	L	0	L	0	L	0	L	0	L	0	L	0	L	0	L	0	L	**0**	**0**	**L/L**
324.B	COUNTY LINE	2.25	2	N	$650	0	L	0	L	0	L	0	L	0	L	0	L	0	L	0	L	0	L	0	L	**0**	**0**	**L/L**
325	SAYLOR PARK	1.09	2	N	$650	1	M	1	M	1	M	1	M	0	L	0	L	0	L	0	L	0	L	0	L	**4**	**0**	**L/L**
325	SAYLOR PARK	0.38	2			1	M	0	L	0	L	0	L	0	L	2	H	2	H	2	H	0	L	0	L	**1**	**6**	**L/H**
325.A	SAYLOR PARK CUTOFF	0.43	2	N	$650	1	M	1	M	1	M	1	M	0	L	0	L	0	L	0	L	0	L	0	L	**4**	**0**	**L/L**
325.B	SAYLOR PARK SOUTH	0.49	2	N	$650	1	M	0	L	0	L	1	M	0	L	2	M	0	L	0	L	0	L	0	L	**2**	**2**	**L/L**
326	AVENGER	2.15	2			0	L	0	L	0	L	2	HH	0	L	0	L	0	L	0	L	0	L	0	L	**2**	**0**	**H/L**
327	GOVE CREEK	1.84	2	N	$650	0	L	2	H	0	L	0	L	0	L	2	M	0	L	1	M	0	L	0	L	**2**	**3**	**L/L**
327	GOVE CREEK	2.88	2	N	$650	0	L	2	H	0	L	0	L	0	L	2	M	0	L	1	M	0	L	0	L	**2**	**3**	**L/L**
328	NICHOLS RESERVOIR	2.00	2	N	$650	0	L	1	M	1	M	2	H	1	M	0	L	0	L	0	L	0	L	0	L	**5**	**0**	**H/L**
328.A	NICHOLS SOUTH	0.46	2	N	$650	0	L	1	M	1	M	2	H	1	M	0	L	0	L	0	L	0	L	0	L	**5**	**0**	**H/L**
332	LAURA LANE	1.73	2	N	$650	1	M	1	M	0	L	1	M	1	M	0	L	2	H	0	L	0	L	0	L	**4**	**2**	**L/L**
332.A	SARAH	1.83	2	N	$650	2	H	1	M	0	L	1	M	1	M	2	M	2	H	0	L	1	M	0	L	**5**	**5**	**H/H**
332.AA	SARAH SPUR	0.38	2	N	$650	1	M	1	M	0	L	1	M	1	M	0	L	2	H	0	L	1	M	0	L	**4**	**3**	**L/L**
332.B	JAKE	0.66	2	N	$650	2	H	1	M	0	L	1	M	1	M	0	L	2	H	0	L	0	L	0	L	**5**	**2**	**H/L**
332.C	LINDA	0.94	2	N	$650	1	M	1	M	0	L	1	M	1	M	0	L	2	H	0	L	0	L	0	L	**4**	**2**	**L/L**

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332.CA	LINDA SPUR	0.29	2	N	$650	0	L	1	M	0	L	1	M	1	M	0	L	2	H	0	L	0	L	0	L	**3**	**2**	**L/L**
332.CA	LINDA SPUR	0.32	2	N	$650	0	L	1	M	0	L	1	M	1	M	0	L	2	H	0	L	0	L	0	L	**3**	**2**	**L/L**
332.D	CONNECTOR	0.36	2	N	$650	0	L	1	M	0	L	1	M	1	M	0	L	2	H	0	L	0	L	0	L	**3**	**2**	**L/L**
332.E	LAURA LANE SPUR	0.08	2	N	$650	0	L	1	M	0	L	1	M	1	M	0	L	2	H	0	L	0	L	0	L	**3**	**2**	**L/L**
335	RED ROCKS	0.31	3	N	$900	1	M	2	H	2	H	2	H	0	L	0	L	0	L	0	L	0	L	0	L	**7**	**0**	**H /L**
335	RED ROCKS	0.53	3	N	$900	1	M	2	H	2	H	2	H	0	L	0	L	0	L	0	L	0	L	0	L	**7**	**0**	**H /L**
335.A	RED ROCKS SPUR	0.36	3	N	$900	0	L	2	H	2	H	2	H	0	L	0	L	0	L	0	L	0	L	0	L	**6**	**0**	**H /L**
335.B	RED ROCKS CG	0.30	3	N	$900	1	M	2	H	0	L	2	H	0	L	0	L	0	L	0	L	0	L	0	L	**5**	**0**	**H /L**
336	QUAKER RIDGE	1.20	3	N	$900	0	L	2	H	2	H	2	H	0	L	0	L	2	M	0	L	0	L	0	L	**6**	**2**	**H/L**
336.A	SHOOTING	0.49	3	N	$900	0	L	0	L	0	L	0	L	0	L	0	L	0	L	0	L	0	L	0	L	**0**	**0**	**L/L**
338.C	PIKE COMMUNITY PG	0.50	4	A	$1,600	2	H	2	H	0	L	2	H	0	L	0	L	0	L	0	L	0	L	1	M	**6**	**1**	**H /L**
338.D	COLORADO CG MAIN LOOP	0.85	4	A	$1,600	2	H	2	H	0	L	2	H	0	L	0	L	0	L	0	L	0	L	1	M	**6**	**1**	**H /L**
338.DA	COLORADO CG MIDDLE	0.33	4	A	$1,600	2	H	2	H	0	L	2	H	0	L	0	L	0	L	0	L	0	L	1	M	**6**	**1**	**H /L**
338.DB	COLORADO CG NORTH	0.09	4	A	$1,600	2	H	2	H	0	L	2	H	0	L	0	L	0	L	0	L	0	L	0	L	**6**	**0**	**H/L**
338.E	MANITOU PG	0.38	4	A	$1,600	2	H	2	H	0	L	2	H	0	L	0	L	0	L	0	L	0	L	2	H	**6**	**2**	**H /L**
338.EA	MANITOU PG NORTH	0.35	4	A	$1,900	2	H	2	H	0	L	2	H	0	L	0	L	0	L	0	L	0	L	2	H	**6**	**2**	**H /L**
344	FLAKE	2.99	2	N	$650	2	H	1	M	1	M	1	M	2	H	0	L	2	H	0	L	1	M	0	L	**7**	**3**	**H/L**
344.B	344.B	0.10	2	N	$650	2	H	1	M	0	L	0	L	2	H	0	L	2	H	0	L	0	L	0	L	**5**	**2**	**H/L**
345	LOWER JOHNS GULCH	2.20	3	N	$900	1	M	2	H	2	H	2	H	2	H	0	L	1	M	0	L	1	M	0	L	**9**	**2**	**H/L**
345.A	EXPERIMENTAL FOR SERVICE	0.34	3	N	$900	0	L	0	L	0	L	2	HH	0	L	0	L	0	L	0	L	0	L	0	L	**2**	**0**	**H/L**
345.B	BOARDWALK	0.34	3	N	$900	0	L	0	L	0	L	2	HH	0	L	0	L	0	L	0	L	0	L	0	L	**2**	**0**	**H/L**
345.C	EXPERIMENTAL FOR SERVICE	0.18	3	N	$900	0	L	0	L	0	L	2	HH	0	L	0	L	0	L	0	L	0	L	0	L	**2**	**0**	**H/L**
345.D	COLO CG BACK DOOR	0.91	3	N	$900	0	L	0	L	0	L	2	HH	0	L	0	L	0	L	0	L	0	L	0	L	**2**	**0**	**H/L**
346	HOTEL GULCH LOWER	1.00	3	N	$1,650	1	M	2	H	2	H	1	M	2	H	2	M	1	M	0	L	1	M	0	L	**8**	**4**	**H /L**
346	HOTEL GULCH UPPER	3.70	2	N	$1,650	1	M	2	H	2	H	1	M	2	H	2	M	2	H	0	L	1	M	1	M	**8**	**6**	**H /H**
346.B	HOTEL SPUR EAST - LOWER PORTION	0.25	2	N	$650	1	M	1	M	1	M	0	L	2	H	2	M	1	M	1	M	0	L	0	L	**5**	**4**	**H /L**
346.B	HOTEL SPUR EAST	0.76	2	N	$650																							
347	MISSOURI GULCH - UPPER	3.95	2	N	$750	2	H	2	H	2	H	1	M	2	H	2	M	2	H	1	M	0	L	1	M	**9**	**6**	**H /H**
347	MISSOURI GULCH - UPPER	3.71	2	N	$750	2	H	2	H	2	H	1	M	2	H	2	M	2	H	1	M	0	L	1	M	**9**	**6**	**H /H**
347	MISSOURI GULCH - UPPER	1.53	2	N	$750	2	H	2	H	2	H	1	M	2	H	2	M	2	H	1	M	0	L	1	M	**9**	**6**	**H /H**

ROAD NUMBER - NFSR	ROAD NAME	ROAD LENGTH (MILES)	OBJ. MAINTENANCE LEVEL	SURFACE TYPE	ANNUAL MAINTENANCE COST/MILE	RECREATIONAL USE		FIRE/FUELS ACCESS		TIMBER ACCESS		SPECIAL USE ACCESS		FOREST MANAGEMENT ACCESS		WATERSHED RISK		WILDLIFE RISK		BOTANY RISK		ARCHAEOLOGY RISK		FINANCIAL BURDEN		Total Benefit Score	Total Risk Score	Combined Rating
347.A	NANCY'S NIGHTMARE	1.07	2	N	$650	0	L	1	M	1	M	0	L	0	L	0	L	0	L	0	L	0	L	0	L	**2**	**0**	**L/L**
347.B	TU PHASE TWO	2.17	2	N	$650	0	L	1	M	1	M	0	L	0	L	0	L	0	L	0	L	0	L	0	L	**2**	**0**	**L/L**
347.C	MARK	1.02	2	N	$650	2	H	1	M	0	L	0	L	0	L	0	L	2	H	0	L	0	L	0	L	**3**	**2**	**L/L**
347.E	CHICKEN	0.62	2	N	$650	1	M	0	L	0	L	0	L	0	L	2	M	2	H	0	L	0	L	0	L	**1**	**4**	**L/L**
348	LONG HOLLOW	4.51	2	N	$700	2	H	2	H	2	H	2	H	2	H	2	M	2	H	0	L	1	M	2	H	**10**	**7**	**H/H**
348	LONG HOLLOW	2.27	2	N	$700	2	H	2	H	2	H	2	H	2	H	2	M	2	H	0	L	1	M	2	H	**10**	**7**	**H/H**
348.A	QUINN'S QUARRY	0.56	2	N	$650	0	L	0	L	0	L	2	HH	0	L	0	L	0	L	0	L	0	L	0	L	**2**	**0**	**H/L**
348.B	OVERLOOK	0.84	2	N	$650	2	H	2	H	1	M	0	L	0	L	0	L	2	H	0	L	0	L	0	L	**5**	**2**	**H/L**
348.C	AROUND HILL	0.90	2	N	$650	2	H	2	H	0	L	0	L	0	L	0	L	2	H	0	L	0	L	0	L	**4**	**2**	**L/L**
348.D	LOOKOUT	0.15	2	N	$650	2	H	1	M	0	L	0	L	0	L	0	L	2	H	0	L	0	L	0	L	**3**	**2**	**L/L**
348.E	HILL TOP	0.29	2	N	$650	2	H	1	M	0	L	0	L	0	L	0	L	2	H	0	L	0	L	0	L	**3**	**2**	**L/L**
348.F	STEVE'S PET PEEVE	0.54	2	N	$650	2	H	0	L	0	L	0	L	0	L	3	H	2	H	1	M	0	L	0	L	**2**	**6**	**L/H**
348.G	348.G	0.25	2	N	$650	2	H	0	L	0	L	0	L	0	L	0	L	2	H	0	L	0	L	0	L	**2**	**2**	**L/L**
349	DRURY	0.64	2	N	$650	2	H	0	L	0	L	0	L	1	M	2	H	2	H	0	L	0	L	0	L	**3**	**4**	**L/L**
349	DRURY MEF	0.71	2	N	$650	2	H	0	L	0	L	1	M	1	M	0	L	2	H	0	L	0	L	0	L	**4**	**2**	**L/L**
350	RAINBOW FALLS	0.46	3	N	$900	2	H	2	H	2	H	2	H	2	H	3	H	2	H	0	L	1	M	0	L	**10**	**6**	**H/H**
350	RAINBOW FALLS	0.49	3	N	$900	2	H	2	H	2	H	2	H	2	H	3	H	2	H	0	L	1	M	0	L	**10**	**6**	**H/H**

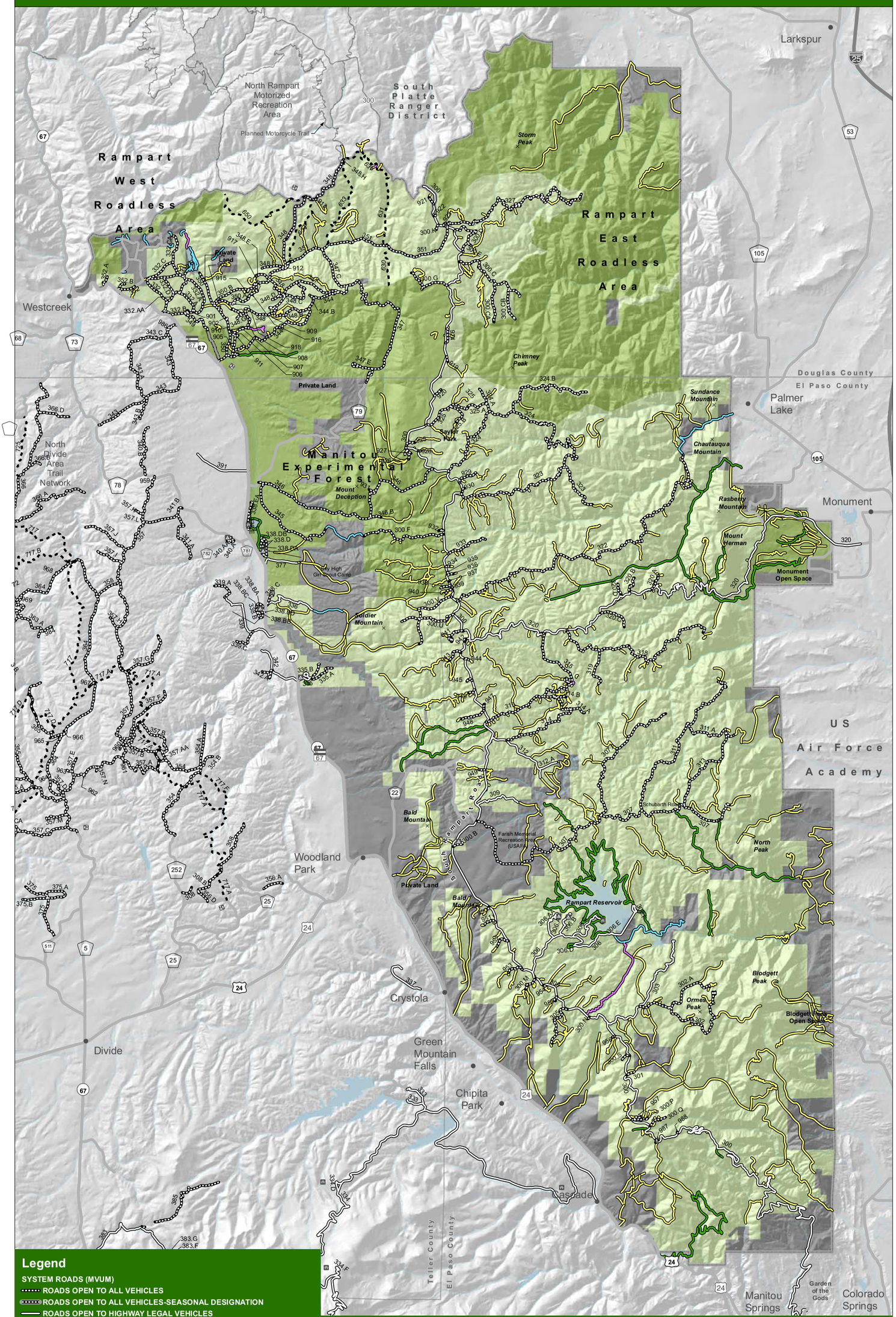
ROAD NUMBER - NFSR	ROAD NAME	ROAD LENGTH (MILES)	OBJ. MAINTENANCE LEVEL	SURFACE TYPE	ANNUAL MAINTENANCE COST/MILE	RECREATIONAL USE		FIRE/FUELS ACCESS		TIMBER ACCESS		SPECIAL USE ACCESS		FOREST MANAGEMENT ACCESS		WATERSHED RISK		WILDLIFE RISK		BOTANY RISK		ARCHAEOLOGY RISK		FINANCIAL BURDEN		Total Benefit Score	Total Risk Score	Combined Rating
350	RAINBOW FALLS	1.07	3	N	$900	2	H	2	H	2	H	2	H	2	H	3	H	2	H	0	L	1	M	0	L	**10**	**6**	**H/H**
350.A	ILLINOIS GULCH	1.51	2	N	$650	2	H	1	M	1	M	0	L	0	L	2	M	2	H	0	L	0	L	0	L	**4**	**4**	**L/L**
350.B	QUARRY	1.03	2	N	$650	2	H	1	M	1	M	0	L	0	L	0	L	2	H	0	L	0	L	0	L	**4**	**2**	**L/L**
350.B	QUARRY	0.04	2	N	$650	2	H	1	M	1	M	0	L	0	L	0	L	2	H	0	L	0	L	0	L	**4**	**2**	**L/L**
351	FERN CREEK	3.85	2	N	$650	2	H	2	H	2	H	2	H	2	H	3	H	2	H	0	L	0	L	1	M	**10**	**6**	**H/H**
352	TROUT CREEK RANCH	0.38	3	G	$1,200	0	L	2	H	0	L	1	M	0	L	0	L	2	H	0	L	0	L	0	L	**3**	**2**	**L /L**
352.A	CEMETERY	0.04	2	N	$650	0	L	1	M	0	L	2	H	0	L	0	L	2	H	0	L	0	L	0	L	**3**	**2**	**L /L**
352.A	CEMETERY	0.21	2	N	$650	0	L	1	M	0	L	2	H	0	L	0	L	2	H	0	L	0	L	0	L	**3**	**2**	**L /L**
352.B	PIT	0.10	2	N	$650	0	L	0	L	0	L	0	L	0	L	0	L	2	H	0	L	0	L	0	L	**0**	**2**	**L /L**
352.B	PIT	0.08	2	N	$650	0	L	0	L	0	L	0	L	0	L	0	L	2	H	0	L	0	L	0	L	**0**	**2**	**L /L**
353	WOODLAND PARK WC	0.82	2	N	$650																							
353.A	BONEYARD	0.28	2	N	$650																							
353.B	FIRE CACHE	0.13	2	N	$650																							
353.B	FIRE CACHE	0.08	2	N	$650																							
901	Camping Spur	0.06	2	N	$650	2	HH	0	L	0	L	0	L	0	L	0	L	2	H	0	L	0	L	0	L	**2**	**2**	**H/L**
902	Camping Spur	0.05	2	N	$650	2	HH	0	L	0	L	0	L	0	L	0	L	0	L	0	L	0	L	0	L	**2**	**0**	**H/L**
903	Camping Spur	0.16	2	N	$650	2	HH	0	L	0	L	0	L	0	L	0	L	2	H	0	L	0	L	0	L	**2**	**2**	**H/L**
904	Camping Spur	0.03	2	N	$650	2	HH	0	L	0	L	0	L	0	L	0	L	2	H	0	L	0	L	0	L	**2**	**2**	**H/L**
905	Camping Spur	0.06	2	N	$650	2	HH	0	L	0	L	0	L	0	L	0	L	2	H	0	L	0	L	0	L	**2**	**2**	**H/L**
906	Camping Spur	0.06	2	N	$650	2	HH	0	L	0	L	0	L	0	L	0	L	2	H	0	L	0	L	0	L	**2**	**2**	**H/L**
907	Camping Spur	0.02	2	N	$650	2	HH	0	L	0	L	0	L	0	L	0	L	2	H	0	L	0	L	0	L	**2**	**2**	**H/L**
908	Camping Spur	0.25	2	N	$650	2	HH	0	L	0	L	0	L	0	L	0	L	2	H	0	L	0	L	0	L	**2**	**2**	**H/L**
909	Camping Spur	0.11	2	N	$650	2	HH	0	L	0	L	0	L	0	L	0	L	2	H	0	L	0	L	0	L	**2**	**2**	**H/L**
910	Camping Spur	0.05	2	N	$650	2	HH	0	L	0	L	0	L	0	L	0	L	2	H	0	L	0	L	0	L	**2**	**2**	**H/L**
911	Camping Spur	0.08	2	N	$650	2	HH	0	L	0	L	0	L	0	L	0	L	2	H	0	L	0	L	0	L	**2**	**2**	**H/L**

ROAD NUMBER - NFSR	ROAD NAME	ROAD LENGTH (MILES)	OBJ. MAINTENANCE LEVEL	SURFACE TYPE	ANNUAL MAINTENANCE COST/MILE	RECREATIONAL USE		FIRE/FUELS ACCESS		TIMBER ACCESS		SPECIAL USE ACCESS		FOREST MANAGEMENT ACCESS		WATERSHED RISK		WILDLIFE RISK		BOTANY RISK		ARCHAEOLOGY RISK		FINANCIAL BURDEN		Total Benefit Score	Total Risk Score	Combined Rating
912	Camping Spur	0.09	2	N	$650	2	HH	0	L	0	L	0	L	0	L	0	L	2	H	0	L	0	L	0	L	**2**	**2**	**H/L**
913	Camping Spur	0.24	2	N	$650	2	HH	0	L	0	L	0	L	0	L	0	L	2	H	0	L	0	L	0	L	**2**	**2**	**H/L**
915	Camping Spur	0.06	2	N	$650	2	HH	0	L	0	L	0	L	0	L	0	L	2	H	0	L	0	L	0	L	**2**	**2**	**H/L**
916	Camping Spur	0.03	2	N	$650	2	HH	0	L	0	L	0	L	0	L	0	L	2	H	0	L	0	L	0	L	**2**	**2**	**H/L**
917	Camping Spur	0.03	2	N	$650	2	HH	0	L	0	L	0	L	0	L	1	M	2	H	0	L	0	L	0	L	**2**	**3**	**H/L**
918	Camping Spur	0.07	2	N	$650	2	HH	0	L	0	L	0	L	0	L	1	M	2	H	0	L	0	L	0	L	**2**	**3**	**H/L**
919	Camping Spur	0.11	2	N	$650	2	HH	0	L	0	L	0	L	0	L	0	L	0	L	0	L	0	L	0	L	**2**	**0**	**H/L**
920	Camping Spur	0.18	2	N	$650	2	HH	0	L	0	L	0	L	0	L	0	L	0	L	0	L	0	L	0	L	**2**	**0**	**H/L**
921	Camping Spur	0.16	2	N	$650	2	HH	0	L	0	L	0	L	0	L	0	L	2	H	0	L	0	L	0	L	**2**	**2**	**H/L**
922	Camping Spur	0.04	2	N	$650	2	HH	0	L	0	L	0	L	0	L	0	L	0	L	0	L	0	L	0	L	**2**	**0**	**H/L**
923	Camping Spur	0.07	2	N	$650	2	HH	0	L	0	L	0	L	0	L	0	L	0	L	0	L	0	L	0	L	**2**	**0**	**H/L**
924	Camping Spur	0.32	2	N	$650	2	HH	0	L	0	L	0	L	0	L	0	L	0	L	0	L	0	L	0	L	**2**	**0**	**H/L**
925	Camping Spur	0.19	2	N	$650	2	HH	0	L	0	L	0	L	0	L	0	L	0	L	0	L	0	L	0	L	**2**	**0**	**H/L**
926	Camping Spur	0.34	2	N	$650	2	HH	0	L	0	L	0	L	0	L	0	L	0	L	0	L	0	L	0	L	**2**	**0**	**H/L**
927	Camping Spur	0.10	2	N	$650	2	HH	0	L	0	L	0	L	0	L	0	L	0	L	0	L	0	L	0	L	**2**	**0**	**H/L**
928	Camping Spur	0.05	2	N	$650	2	HH	0	L	0	L	0	L	0	L	0	L	0	L	0	L	0	L	0	L	**2**	**0**	**H/L**
929	Camping Spur	0.43	2	N	$650	2	HH	0	L	0	L	0	L	0	L	0	L	0	L	0	L	0	L	0	L	**2**	**0**	**H/L**
930	Camping Spur	0.06	2	N	$650	2	HH	0	L	0	L	0	L	0	L	0	L	0	L	0	L	0	L	0	L	**2**	**0**	**H/L**
931	Camping Spur	0.16	2	N	$650	2	HH	0	L	0	L	0	L	0	L	0	L	0	L	0	L	0	L	0	L	**2**	**0**	**H/L**
932	Camping Spur	0.10	2	N	$650	2	HH	0	L	0	L	0	L	0	L	0	L	0	L	0	L	0	L	0	L	**2**	**0**	**H/L**
933	Camping Spur	0.91	2	N	$650	2	HH	0	L	0	L	0	L	0	L	0	L	0	L	0	L	0	L	0	L	**2**	**0**	**H/L**
934	Camping Spur	0.08	2	N	$650	2	HH	0	L	0	L	0	L	0	L	0	L	0	L	0	L	0	L	0	L	**2**	**0**	**H/L**
935	Camping Spur	0.02	2	N	$650	2	HH	0	L	0	L	0	L	0	L	0	L	0	L	0	L	0	L	0	L	**2**	**0**	**H/L**
936	Camping Spur	0.17	2	N	$650	2	HH	0	L	0	L	0	L	0	L	0	L	0	L	0	L	0	L	0	L	**2**	**0**	**H/L**
937	Camping Spur	0.03	2	N	$650	2	HH	0	L	0	L	0	L	0	L	0	L	0	L	0	L	0	L	0	L	**2**	**0**	**H/L**
938	Camping Spur	0.21	2	N	$650	2	HH	0	L	0	L	0	L	0	L	0	L	0	L	0	L	0	L	0	L	**2**	**0**	**H/L**
939	Camping Spur	0.02	2	N	$650	2	HH	0	L	0	L	0	L	0	L	0	L	0	L	0	L	0	L	0	L	**2**	**0**	**H/L**
940	Camping Spur	0.19	2	N	$650	2	HH	0	L	0	L	0	L	0	L	0	L	0	L	0	L	0	L	0	L	**2**	**0**	**H/L**
941	Camping Spur	0.58	2	N	$650	2	HH	0	L	0	L	0	L	0	L	0	L	0	L	0	L	0	L	0	L	**2**	**0**	**H/L**
942	Camping Spur	0.09	2	N	$650	2	HH	0	L	0	L	0	L	0	L	0	L	0	L	0	L	0	L	0	L	**2**	**0**	**H/L**
943	Camping Spur	0.39	2	N	$650	2	HH	0	L	0	L	0	L	0	L	0	L	0	L	0	L	0	L	0	L	**2**	**0**	**H/L**
944	Camping Spur	0.09	2	N	$650	2	HH	0	L	0	L	0	L	0	L	0	L	0	L	0	L	0	L	0	L	**2**	**0**	**H/L**
945	Camping Spur	0.15	2	N	$650	2	HH	0	L	0	L	0	L	0	L	0	L	0	L	0	L	0	L	0	L	**2**	**0**	**H/L**
946	Camping Spur	0.17	2	N	$650	2	HH	0	L	0	L	0	L	0	L	0	L	0	L	0	L	0	L	0	L	**2**	**0**	**H/L**
947	Camping Spur	0.11	2	N	$650	2	HH	0	L	0	L	0	L	0	L	0	L	0	L	0	L	0	L	0	L	**2**	**0**	**H/L**
948	Camping Spur	0.53	2	N	$650	2	HH	0	L	0	L	0	L	0	L	0	L	0	L	0	L	0	L	0	L	**2**	**0**	**H/L**
949	Camping Spur	0.13	2	N	$650	2	HH	0	L	0	L	0	L	0	L	0	L	0	L	0	L	0	L	0	L	**2**	**0**	**H/L**
950	Camping Spur	0.05	2	N	$650	2	HH	0	L	0	L	0	L	0	L	0	L	0	L	0	L	0	L	0	L	**2**	**0**	**H/L**
951	Camping Spur	0.26	2	N	$650	2	HH	0	L	0	L	0	L	0	L	0	L	0	L	0	L	0	L	0	L	**2**	**0**	**H/L**
952	Camping Spur	0.33	2	N	$650	2	HH	0	L	0	L	0	L	0	L	0	L	0	L	0	L	0	L	0	L	**2**	**0**	**H/L**
953	Camping Spur	0.36	2	N	$650	2	HH	0	L	0	L	0	L	0	L	0	L	0	L	0	L	0	L	0	L	**2**	**0**	**H/L**
954	Camping Spur	0.05	2	N	$650	2	HH	0	L	0	L	0	L	0	L	0	L	0	L	0	L	0	L	0	L	**2**	**0**	**H/L**
955	Camping Spur	0.12	2	N	$650	2	HH	0	L	0	L	0	L	0	L	0	L	0	L	0	L	0	L	0	L	**2**	**0**	**H/L**
956	Camping Spur	0.05	2	N	$650	2	HH	0	L	0	L	0	L	0	L	0	L	0	L	0	L	0	L	0	L	**2**	**0**	**H/L**
957	Camping Spur	0.19	2	N	$650	2	HH	0	L	0	L	0	L	0	L	0	L	2	H	0	L	0	L	1	M	**2**	**3**	**H/L**
987	Camping Spur	0.05	2	N	$650	2	HH	0	L	0	L	0	L	0	L	0	L	2	H	0	L	0	L	0	L	**2**	**2**	**H/L**
988	Camping Spur	0.03	2	N	$650	2	HH	0	L	0	L	0	L	0	L	0	L	2	H	0	L	0	L	0	L	**2**	**2**	**H/L**

ROAD NUMBER - NFSR	ROAD NAME	ROAD LENGTH (MILES)	OBJ. MAINTENANCE LEVEL	SURFACE TYPE	ANNUAL MAINTENANCE COST/MILE	RECREATIONAL USE		FIRE/FUELS ACCESS		TIMBER ACCESS		SPECIAL USE ACCESS		FOREST MANAGEMENT ACCESS		WATERSHED RISK		WILDLIFE RISK		BOTANY RISK		ARCHAEOLOGY RISK		FINANCIAL BURDEN		Total Benefit Score	Total Risk Score	Combined Rating
OTHER EXISTING ADMIN ROADS - INCOMPLETE?																												
310	????	1.05	?	?																								
310.A	????	0.41																										
310.A	????	1.67																										
321.B	????	0.92																										
321.C	????	0.43																										
321.D	????	0.13																										
321.E	????	0.33																										
321.F	????	0.22																										
338.C		0.32																										
338.D		0.84																										
348.H		0.07																										
		0.23																										
377	SKY HIGH GIRLSCOUT CAMP	0.71	2		$650	0	L	1	M	2	H	2	H	2	H	0	L	1	M	0	L	0	L	0	L	**7**	**1**	**H /L**
NFS MOTORIZED TRAILS																												
630	FERN SOUTH	0.90	TC3			0	L	0	L	0	L	0	L	0	L	0	L	2	H	0	L	0	L	0	L	**0**	**2**	**L/L**
631	FERN 3	3.23	TC3			2	HH	0	L	0	L	0	L	0	L	2	M	2	H	0	L	0	L	0	L	**2**	**4**	**H/L**
633	FERN 2	2.13	TC3			2	HH	0	L	0	L	0	L	0	L	2	M	2	H	0	L	0	L	0	L	**2**	**4**	**H/L**
634	FERN 1	1.53	TC3			2	HH	0	L	0	L	0	L	0	L	0	L	2	H	0	L	0	L	0	L	**2**	**2**	**H/L**
650	LONG HOLLOW	2.33	TC3			2	HH	0	L	0	L	0	L	0	L	0	L	2	H	0	L	0	L	0	L	**2**	**2**	**H/L**

Appendix B. Existing Conditions Map for South Rampart

S O U T H R A M P A R T



Legend

SYSTEM ROADS (MVUM)
- ROADS OPEN TO ALL VEHICLES
- ROADS OPEN TO ALL VEHICLES-SEASONAL DESIGNATION
- ROADS OPEN TO HIGHWAY LEGAL VEHICLES
- SPECIAL VEHICLE DESIGNATION
- ROADS OPEN TO HIGHWAY LEGAL VEHICLES-SEASONAL DESIGNATION
- INTERSTATE
- HIGHWAYS, US, STATE, COUNTY, & OTHER PUBLIC ROADS
- TRAILS OPEN TO VEHICLES 50" OR LESS IN WIDTH

OTHER IDENTIFIED SYSTEM AN NON SYSTEM ROADS AND TRAILS
- SPECIAL USE ROAD
- PRIVATE ROAD
- HIKING TRAIL
- NONSYSTEM ROAD OR TRAIL

- SOUTH RAMPART STUDY AREA
- SPECIAL MANAGEMENT AREAS
- PRIVATE
- NATIONAL FOREST SERVICE

Travel Management Plan/ Environmental Assessment

Existing Conditions

Pikes Peak Ranger District PSICC

Miles 0 1 2

Map DRAFT - July 27, 2011

Appendix C. Criteria Table Used for South Rampart TAP

Transportation Analysis Process (TAP) Criteria		
	Score	**Description**
RECREATIONAL USE		Based on the location of and access to developed recreation sites/facilities and to dispersed recreation areas.
High Benefit	2	Primary access routes to developed recreation sites/facilities, or to popular dispersed recreation areas.
Moderate Benefit	1	Primary access routes to other dispersed recreation areas.
Low Benefit	0	Secondary access routes to recreation areas, or to roads not leading to any recreation areas.
FIRE/FUELS ACCESS		Based on factors such as ridgelines, canyons, private lands/homes, fuels projects, water sources, structures, etc. Roads allow for rapid access for equipment and, in many instances, are used as firebreaks.
High Benefit	2	Primary access routes.
Moderate Benefit	1	Secondary access routes.
Low Benefit	0	Small spur roads or to roads in areas with multiple access roads in better condition.
TIMBER ACCESS		Access to remove timber.
High Benefit	2	Access, or is needed.
Moderate Benefit	1	Access, but wasn't necessarily needed.
Low Benefit	0	Does not benefit timber access or was a need to access an area for timber removal.
SPECIAL USE ACCESS		Current/proposed authorization or permit, long-term or short-term use.
High Benefit	2	Current or proposed authorization or permit.
Moderate Benefit	1	Access, and where an authorization or permit is needed but has not been requested or granted
Low Benefit	0	Without, or need for an authorization or permit
FOREST MANAGEMENT ACCESS		Anticipated needs for monitoring and managing forest lands, assuming that no other roads are available for motorized access.
High Benefit	2	Important access for managing the wildlife, botany, archeology, and water assets.
Moderate Benefit	1	Moderate important access for managing the wildlife, botany, archeology, and water assets.
Low Benefit	0	Rating was assigned to all other roads.
WATERSHED RISK		Based on the Watershed Risk Analysis rating sheet.
High Risk	3	High numbers in most of the categories on the spreadsheet, or where site-specific reasons justified a High rating. In some cases where the risk was determined to be extremely high, the value assigned on the Road Matrix Table was HH, which by itself justified a High Total Risk Factor.

Transportation Analysis Process (TAP) Criteria		
	Score	**Description**
Moderate Risk	2	Numbers were slightly lower for: Length within Watershed, Length within 300' of a Stream, Length within Highly Erodible Soils, and Number of Stream Crossings.
Low Risk	0	Few to no crossings, and a low percentage for the soils and streams categories.
WILDLIFE RISK		Regional Forester's Sensitive Species List, Mexican Spotted Owl habitat, Greenback Cutthroat Trout habitat, Preble's Meadow Jumping Mouse habitat, Canada Lynx habitat.
High Risk	2	Directly accessed special habitat areas and had the potential to introduce disturbance during critical seasons for nesting/spawning, etc.
Moderate Risk	1	Indirectly accessed special habitat areas and had a lower potential to introduce disturbance during critical seasons for nesting/spawning, etc.
Low Risk	0	Do not access special habitat areas or roads that have a high background level of disturbance from other factors, such as being near developed lands.
BOTANY RISK		Global and State Ranking, records in CNHP data, a botany score was used to calculate a score for each road.
High Risk	2	At least one species with a cumulative total of 9 or lower.
Moderate Risk	1	A total of 10 or above.
Low Risk	0	No documented species occurrences nearby.
ARCHEOLOGY RISK		Proximity to a historic property listed in or eligible for listing in the National Register of Historic Places.
High Risk	2	Use and maintenance of the road has and continues to affect archeological deposits on the road's surface or on its margins and where the impact has been documented, where the road intersects an archeological site and impacts are suspected but not documented.
Moderate Risk	1	Where the road itself is a historic resources and cases where the road passes through the defined area of a historic property or is adjacent to the property.
Low Risk	0	Do not intersect or are not in proximity to a historic property.
FINANCIAL BURDEN		Based on the estimated annual maintenance cost per mile and on the maintenance level of the road.
High Risk	2	Roads with values above average maintenance range cost or major differed maintenance.
Moderate Risk	1	Roads with values within the average maintenance range cost or differed maintenance.
Low Risk	0	Roads with values below average maintenance range cost.
ROAD MANAGEMENT CATEGORY		The total benefit factors and total risk factors result in a total benefit/risk number for each road.
High Benefit/ Risk		Total score of 5 or greater.
Moderate Benefit/ Risk		NA
Low Benefit/ Risk		Total score less than 5.

Transportation Analysis Process (TAP) Criteria		
	Score	**Description**
Possible Rankings		
High Benefit/ High Risk (H/H)	≥5/≥5	High Benefit/ High Risk – Priority roads for capital improvements.
High Benefit/ Low Risk (H/L)	≥5/<5	High Benefit/ Low Risk – Roads with ideal conditions.
Low Benefit/ High Risk (L/H)	<5/≥5	Low Benefit/ High Risk – Priority roads for in-depth benefit/risk analysis.
Low Benefit/ Low Risk (L/L)	<5/<5	Low Benefit/ Low Risk – Priority roads for reducing maintenance level.
HH		A double high rating score can be applied to categories when a resource condition should be strongly emphasized. This causes either the benefit or risk ranking to automatically be rated as high.

Appendix D: References

U.S. Dept. of Agriculture, Forest Service. 1984. Land and Resource Management Plan: Pike and San Isabel National Forests; Comanche and Cimarron National Grasslands. Pueblo, CO.

U.S. Dept. of Agriculture, Forest Service. 1999. Roads Analysis: Informing Decisions about Managing the National Forest Transportation System. Misc. Report FS-643. Washington, D.C.

U.S. Dept. of Agriculture, Forest Service. 2009. Pike and San Isabel National Forests Travel Analysis Process Report. Pueblo, CO

EDAW Inc. 2006. Route Inventory Report for the South Rampart Area of Pikes Peak Ranger District, Pike and San Isabel National Forests, Fort Collins, CO

See the Forest-wide TAP for additional references.

Appendix B:
Alternative Actions by Route

ROAD NUMBER - NFSR	ROAD NAME	ROAD LENGTH (MILES)	OBJ. MAINTENANCE LEVEL	NOTES	PROPOSED ALTERNATIVE ACTIONS
ROADS					
300.C	PLUM CREEK	1.04	2	DEADEND ROUTE, NONSYSTEM ROUTES, XMAS TREE, FUEL WOOD, AIRFORCE USE PERMIT	ALT B - Convert road open to all vehicles to licensed vehicles only road
300.C	PLUM CREEK	0.72	2	ENDS IS IN ROADLESS AREA, DEADEND ROUTE, NONSYSTEM ROUTES, XMAS TREE, FUEL WOOD, AIRFORCE USE PERMIT	ALT B - Convert road open to all vehicles to licensed vehicles only road ALT C - Close and rehabilitate road open to all vehicles
300.CA	UNIT C	0.83	2	DEAD END ROUTE, USER CREATED ROUTES, XMAS TREE, FUEL WOOD, AIRFORCE USE PERMIT	ALT B - Convert road open to all vehicles to licensed vehicles only road
300.CB	UNIT F	0.67	2	END IS IN ROADLESS, DEAD END ROUTE, NONSYSTEM ROUTES, XMAS TREE, FUEL WOOD, AIRFORCE USE PERMIT	ALT B - Convert road open to all vehicles to licensed vehicles only road ALT C - Close and rehabilitate road open to all vehicles
300.D	STAGGS - MIDDLE SEGMENT	0.89	2	NATURALLY REHABILITATING, VERY LOW PUBLIC USE, SHORT ROUTES	ALT B & C - Close and rehabilitate road open to all vehicles
300.E	STAGGS SPUR	0.30	2	NATURALLY REHABILITATING, VERY LOW PUBLIC USE, SHORT ROUTES	ALT B & C - Close and rehabilitate road open to all vehicles
300.F	UPPER JOHNS GULCH	1.70	2	ACCESS TO PRIVATE, MEF	ALT B & C - Convert road open to all vehicles to Administrative /special use road
300.G	QUARTZ	0.98	2	EDGE OF EXPERIMENTAL FOREST, MSO CRITICAL HAB, DEAD END ROUTE	ALT B - Convert road open to all vehicles to Administrative /special use road ALT C - Convert road open to all vehicles to licensed vehicles only road
300.K	HIGH	0.11	2	DEAD END ROUTE, XMAS TREE, CAMPSITES	ALT B - Convert road open to all vehicles to licensed vehicles only road
300.M	RAMPART CAMPSITE	0.32	2	5 CAMPSITES, NONSYSTEM ROUTES WATER ISSUE, DEAD ENDS	ALT B - Convert road open to all vehicles to licensed vehicles only road
300.N	AQUEDUCT	0.03	2	SHORTER LENGTH THAN LISTED HERE	ALT B - Convert road open to all vehicles to licensed vehicles only road
300.P	RRR CAMP 1	0.21	2	MANY NONSYSTEM ROUTES WATER ISSUES, MAJOR 4X4 USE, HIGH COST TO CONTROL OFF ROUTE USE	ALT B - Convert road open to all vehicles to licensed vehicles only road
300.P	RRR CAMP 1	0.12	2	MANY NONSYSTEM ROUTES WATER ISSUES, MAJOR 4X4 USE, HIGH COST TO CONTROL OFF ROUTE USE	ALT B & C - Close and rehabilitate road open to all vehicles
300.Q	RRR CAMP 2	0.23	2	MANY NONSYSTEM ROUTES, MAJOR 4X4 USE, HIGH COST TO CONTROL USE OFF ROUTE, VERY LOW REC VALUE	ALT B & C - Convert road open to all vehicles to non-motorized trail
300.Q	RRR CAMP 2	0.14	2	MANY NONSYSTEM ROUTES, MAJOR 4X4 USE, HIGH COST TO CONTROL USE OFF ROUTE, VERY LOW REC VALUE	ALT B & C - Close and rehabilitate road open to all vehicles
300.R	BACKSTOP	0.63	NA		ALT B & C - Close and rehabilitate administrative/ special use / level 1 road
300.S	WELLINGTON GULCH	1.05	2		ALT B & C - Convert road open to all vehicles to licensed vehicles only road
300.U	SOLDIER MTN	1.19	2	XMAS TREE, FUEL WOOD , CAMPSITES	ALT B - Convert road open to all vehicles to licensed vehicles only road
300.V	RUPP GULCH	1.51	2	XMAS TREE, FUEL WOOD , CAMPSITES	ALT B - Convert road open to all vehicles to licensed vehicles only road
301	EAGLE LAKE	0.15	3	ACCESS TO EAGLE LAKE YOUTH CAMP	ALT B & C - Convert road open to all vehicles to Administrative /special use road
302	ORMES PEAK	2.85	2	CAMPSITES, 2 TURKEY GUZZLERS, PARTIAL MIXED USE	ALT B & C - Convert road open to all vehicles to licensed vehicles only road
302.A	DEVIL'S KITCHEN	1.20	2	DEAD END ROUTE	ALT B - Close and rehabilitate road open to all vehicles ALT C - Convert road open to all vehicles to licensed vehicles only road
304	WATERLINE	1.78	1	SPECIAL USE/ ADMIN NEED	ALT B & C - Convert decommissioned road to administrative/ special use road
305	SAND GULCH	0.98	2	POPULAR FOR 4X4, NONSYSTEM ROUTES WATER ISSUES	ALT B & C - Convert road open to all vehicles to licensed vehicles only road
307	SCHUBARTH	4.67	2	ROW NEEDED FOR WEST END OF ROAD	ALT B - Camping and campfires allowed only in designated sites ALT C - Convert road open to all vehicles to licensed vehicles only road
307	SCHUBARTH	2.43	2	ROW NEEDED FOR WEST END OF ROAD	ALT B & C - Convert road open to all vehicles to licensed vehicles only road
307.A	ROLL OVER	3.27	2	DEAD END ROUTE	ALT B - Camping and campfires allowed only in designated sites ALT C - Convert road open to all vehicles to licensed vehicles only road
307.A	ROLL OVER	0.30	2	DEAD END ROUTE	ALT B - Close and rehabilitate road open to all vehicles ALT C - Convert road open to all vehicles to licensed vehicles only road
309	FARISH	0.98	3	PRIMARILY ACCESS TO FARISH REC AREA (AIRFORCE)	ALT C - Convert road open to licensed vehicles to administrative/ special use road
311	HELL CREEK	2.37	2		ALT C - Convert road open to all vehicles to licensed vehicles only road
311	HELL CREEK	1.55	2	DEAD END ROAD FROM 311.A	ALT B - Close and rehabilitate road open to all vehicles ALT C - Convert road open to all vehicles to licensed vehicles only road
311.A	HELL CREEK SPUR	0.65	2		ALT C - Convert road open to all vehicles to licensed vehicles only road
311.A	HELL CREEK SPUR	0.19	2	DEADEND ROAD	ALT B - Convert road open to all vehicles to 50" or less OHV trail ALT C - Convert road open to all vehicles to licensed vehicles only road
311.A	HELL CREEK SPUR	0.20	2	DEADEND ROAD	ALT B & C - Close and rehabilitate road open to all vehicles
311.A	HELL CREEK SPUR	0.25	2	DEADEND ROAD	ALT B - Close and rehabilitate road open to all vehicles ALT C - Convert road open to all vehicles to licensed vehicles only road
312	FARRISH MEMORIAL	0.32	3		
312	FARRISH MEMORIAL	1.12	3	PRIMARILY ACCESS TO CARROL LAKES	ALT B & C – Convert road open to licensed vehicles to administrative/ special use road
312.A	CARROLL LAKES	0.35	3	PRIMARILY ACCESS TO CARROL LAKES	ALT B & C – Convert road open to licensed vehicles to administrative/ special use road
313	HAY CREEK EAST	1.60	2		ALT C - Convert road open to all vehicles to licensed vehicles only road
314	ENSIGN GULCH	2.53	2	NONSYSTEM WATER ISSUES, POWERLINE MAINTENANCE, MIXED USE CONFLICT	ALT B - Convert road open to all vehicles to licensed vehicles only road
314.A	SKID	0.33	2	NONSYSTEM WATER ISSUES, SOME POWERLINE MAINTENANCE	ALT B & C - Convert road open to all vehicles to non-motorized trail
314.B	ENSIGN RIDGE	0.22	2	NONSYSTEM WATER ISSUES, DEAD END ROUTE	ALT B & C - Close and rehabilitate road open to all vehicles

ROAD NUMBER - NFSR	ROAD NAME	ROAD LENGTH (MILES)	OBJ. MAINTENANCE LEVEL	NOTES	PROPOSED ALTERNATIVE ACTIONS
315	BEAVER CREEK S. H.	2.70	3	PART OF ROUTE IS L2 RD, PROXIMITY TO WATER, NONSYSTEM WATER ISSUES	ALT B - Convert road open to all vehicles to licensed vehicles only road
318	POWERLINE EAST	4.01	2	POWERLINE MAINTENANCE	ALT B - Convert road open to all vehicles to licensed vehicles only road
319	POWERLINE SOUTH	0.85	2	POWERLINE MAINTENANCE	ALT B & C - Convert road open to all vehicles to non-motorized trail
319	POWERLINE SOUTH	0.45			ALT B - Designate Administrative/special use road also as non-motorized system trail
319	POWERLINE SOUTH	0.82			ALT B - Convert road open to all vehicles to administrative/ special use and non-motorized system trail ALT C - Convert road open to all vehicles to Administrative /special use road
320	MOUNT HERMAN	1.54	3	PRIMARY ACCESS RD	ALT B - Convert level 3 road to level 2 road (remains open to licensed vehicles)
320	MOUNT HERMAN	10.30	3	PRIMARY ACCESS RD	ALT B - Convert level 3 road to level 2 road (remains open to licensed vehicles)
320.A	HERMAN SPUR 1 NORTH	0.31	2	MAJOR DISPERSED SHOOTING, CAMPING	ALT B & C - Convert road open to all vehicles to licensed vehicles only road
320.B	HERMAN SPUR 2 NORTH	0.38	2	MAJOR DISPERSED SHOOTING, CAMPING	ALT B & C - Convert road open to all vehicles to licensed vehicles only road
320.C	HERMAN SPUR 3 SOUTH	0.68	2	MAJOR DISPERSED SHOOTING, CAMPING	ALT B & C - Convert road open to all vehicles to licensed vehicles only road
320.D	MOUNT HERMAN SPUR NOF	0.24	2	MAJOR DISPERSED SHOOTING, CAMPING	ALT B & C - Convert road open to all vehicles to licensed vehicles only road
322	BALANCED ROCK	7.53	2	PALMER WATERSHED ACCESS IS FROM EAST	ALT B - Convert road open to all vehicles to licensed vehicles only road
322.A	LIMBAUGH	1.79	1	CURRENTLY CLOSED FOR RESTORATION AND DANGEROUS ROAD CONDITIONS, GOOD ROUTE CONNECTIONS, NONSYSTEM WATER ISSUES, IMPORTANT PALMER SOURCE WATERSHED	ALT B - Convert road open to all vehicles to licensed vehicles only road ALT C - Convert road open to all vehicles to administrative/ special use and non-motorized system trail
323	WINDING STAIRS	1.17	2	NONSYSTEM WATER ISSUES, POPULAR FOR 4X4, GOOD ROUTE CONNECTIONS, MAINTENANCE BY USAFA/SUP, XMAS TREES	ALT C - Close and rehabilitate road open to all vehicles
324.A	COUNTY LINE	0.25	2	MAINTENANCE BY USAFA/SUP?	ALT B & C - Close and rehabilitate road open to all vehicles
324.A	COUNTY LINE	0.24	2	MAINTENANCE BY USAFA/SUP?	
324.B	COUNTY LINE	2.25	2	MAINTENANCE BY USAFA/SUP?	ALT B - Close and rehabilitate road open to all vehicles
325	SAYLOR PARK	1.09	2	MAINTENANCE BY USAFA/SUP, NONSYSTEM ROUTES	
325	SAYLOR PARK	0.38			ALT B & C - Close and rehabilitate road open to all vehicles
327	GOVE CREEK	2.88	2	XMAS TREE, CAMPSITES, SUP WITH AT&T UNDERGROUND PHONE LINE	ALT B - Close and rehabilitate road open to all vehicles
332.CA	LINDA SPUR	0.29	2		ALT B - Convert road open to all vehicles to 50" or less OHV trail ALT C - Close and rehabilitate road open to all vehicles
332.CA	LINDA SPUR	0.32	2		ALT B & C - Close and rehabilitate road open to all vehicles
332.D	CONNECTOR	0.36	2		ALT C - Close and rehabilitate road open to all vehicles
335	RED ROCKS	0.53	3		ALT B - Convert road open to all vehicles to licensed vehicles only road ALT C - Convert road open to all vehicles to Administrative /special use road
335.A	RED ROCKS SPUR	0.36	3	SUP PRIVATE	ALT B - Convert road open to all vehicles to licensed vehicles only road ALT C - Convert road open to all vehicles to Administrative /special use road
336.A	SHOOTING	0.49			ALT B & C - Close and rehabilitate administrative/ special use / level 1 road
338.DA	COLORADO CG MIDDLE	0.33	4		ALT B & C - Convert road open to all vehicles to licensed vehicles only road
338.DB	COLORADO CG NORTH	0.09	4		ALT B & C - Convert road open to all vehicles to licensed vehicles only road
338.E	MANITOU PG	0.38	4		ALT B & C - Convert road open to all vehicles to licensed vehicles only road
338.EA	MANITOU PG NORTH	0.35	4		ALT B & C - Convert road open to all vehicles to licensed vehicles only road
344	FLAKE	2.99	2	MEF, LIMITED QUARRY ACCESS - PRIMARY ACCESS IS FROM 348, ROUTE HAS BEEN WIDENED IN SECTIONS, POPULAR 4X4 ROUTE	ALT B & C - Convert road open to all vehicles to full size trail open to all OHVs
344.B	344.B	0.10	2	MEF, CAMPSITES, FIRE OBSERVATION POINT	ALT B & C - Convert road open to all vehicles to full size trail open to all OHVs
345	LOWER JOHNS GULCH	2.20	3	MEF, SUP PRIVATE MAINTENANCE	ALT B & C - Convert road open to all vehicles to Seasonal Designation - open to licensed vehicles from Oct 1 to Nov 30
346	HOTEL GULCH LOWER	1.00	3	MEF, ELK SEVERE WINTER HAB	ALT B - Convert road open to all vehicles to Seasonal Designation - open to licensed vehicles from April 2 – Nov 30 ALT C - Convert road open to all vehicles to Seasonal Designation - open to licensed vehicles from Oct 1 to Nov 30
346	HOTEL GULCH UPPER	3.70	2	MEF, FLAMMULATED OWL STUDY AREA	ALT B - Convert road open to all vehicles to Seasonal Designation - open to licensed vehicles from April 2 – Nov 30 ALT C - Convert road open to all vehicles to Seasonal Designation - open to licensed vehicles from Oct 1 to Nov 30
346.B	HOTEL SPUR EAST - LOWEF	0.25	2	MEF, ONLY LOWER PROTION IS OPEN	ALT B & C - Convert road open to all vehicles to Administrative /special use road
347	MISSOURI GULCH - UPPER	3.71	2	MEF, MSO CRITICAL HAB, EMERG ACCESS FOR RIDGEWOOD SUBDIV, MIXED USE	ALT B & C - Convert road open to all vehicles to Administrative /special use road
347.C	MARK	1.02	2	MSO CRITICAL HAB, MIXED USE	ALT B & C - Convert road open to all vehicles to full size trail open to all OHVs
347.E	CHICKEN	0.62	2	MSO CRITICAL HAB, NONSYSTEM WATER & WETLAND ISSUES	ALT B & C - Convert road open to all vehicles to Administrative /special use road

ROAD NUMBER - NFSR	ROAD NAME	ROAD LENGTH (MILES)	OBJ. MAINTENANCE LEVEL	NOTES	PROPOSED ALTERNATIVE ACTIONS
348	LONG HOLLOW	4.51	2	MAIN ACCESS TO RAINBOW FALLS OHV AREA, MAJOR MIXED USE ISSUES, MAJOR DISPERSED CAMPING ISSUES, ACCESS TO RAMPART RANGE RD, ACTIVE QUARRY SUP, MSO CRITICAL HAB, PMJ HAB, ELK SEVERE WINTER HAB, ROAD CUPPING, UPPER PORTION WINTER CLOSURE, LOWER PORTION IS IN MEF	ALT B - Camping and campfires allowed only in designated sites
348	LONG HOLLOW	2.27	2	MAIN ACCESS TO RAINBOW FALLS OHV AREA, MAJOR MIXED USE ISSUES, MAJOR DISPERSED CAMPING ISSUES, ACCESS TO RAMPART RANGE RD, ACTIVE QUARRY SUP, MSO CRITICAL HAB, PMJ HAB, ELK SEVERE WINTER HAB, ROAD CUPPING, UPPER PORTION WINTER CLOSURE, LOWER PORTION IS IN MEF	ALT B - Camping and campfires allowed only in designated sites
348.B	OVERLOOK	0.84	2	MSO HAB, POPULAR 4X4, STEEP CLIMBS	ALT B & C - Convert road open to all vehicles to full size trail open to all OHVs
348.C	AROUND HILL	0.90	2	MSO HAB,	ALT B - Convert road open to all vehicles to full size trail open to all OHVs ALT C - Close and rehabilitate road open to all vehicles
348.D	LOOKOUT	0.15	2	MSO HAB,	ALT B & C - Convert road open to all vehicles to 50" or less OHV trail
348.E	HILL TOP	0.29	2	MSO HAB, CAMPSITES	ALT B & C - Convert road open to all vehicles to 50" or less OHV trail
348.F	STEVE'S PET PEEVE	0.54	2	MSO HAB, CAMPSITES, NONSYSTEM WATER AND VEG ISSUES	ALT B & C - Close and rehabilitate road open to all vehicles
348.G	348.G	0.25	2	MSO HAB, LARGE CAMPSITE	ALT B - Camping and campfires allowed only in designated sites
349	DRURY MEF	0.71	2	MSO HAB, PMJ HAB, MEF, GRAZING ALLOTMENTS	ALT B & C - Close and rehabilitate road open to all vehicles
350	RAINBOW FALLS	0.46	3	MAINTAINED BY DOUGLAS COUNTY SCHEDULE A, ACCESS MULTIPLE PRIVATE, DISPERSED CAMPING, MIXED USE, MSO & PMJ HAB, PARTIALLY IN MEF	ALT B & C - Convert road open to all vehicles to licensed vehicles only road. ALT C - Camping and campfires allowed only in designated sites
350	RAINBOW FALLS	0.49	3	MAINTAINED BY DOUGLAS COUNTY SCHEDULE A, ACCESS MULTIPLE PRIVATE, DISPERSED CAMPING, MIXED USE, MSO & PMJ HAB, PARTIALLY IN MEF	ALT B & C - Camping and campfires allowed only in designated sites ALT C - Convert road open to all vehicles to licensed vehicles only road
350	RAINBOW FALLS	1.07	3	MAINTAINED BY DOUGLAS COUNTY SCHEDULE A, ACCESS MULTIPLE PRIVATE, DISPERSED CAMPING, MIXED USE, MSO & PMJ HAB, PARTIALLY IN MEF	ALT B & C - Camping and campfires allowed only in designated sites
350.B	QUARRY	1.03	2	MSO HAB, LARGE CAMPSITE, NONSYSTEM WATER ISSUES, OLD QUARRY	ALT B & C - Convert road open to all vehicles to full size trail open to all OHVs
350.B	QUARRY	0.04	2	MSO HAB, LARGE CAMPSITE, NONSYSTEM WATER ISSUES, OLD QUARRY	ALT B & C - Convert road open to all vehicles to full size trail open to all OHVs
352	TROUT CREEK RANCH	0.38	3	MAINTAINED BY DOUGLAS COUNTY SCHEDULE A, ACCESS MULTIPLE PRIVATE, MSO CRITICAL HAB, MIXED USE	ALT B & C - Convert road open to all vehicles to licensed vehicles only road
352.A	CEMETERY	0.21	2	ACCESS PRIVATE & CEMETERY, MSO CRITICAL HAB	ALT B & C - Convert road open to all vehicles to Administrative /special use road
352.B	PIT	0.10	2	ACCESS TO OLD QUARRY, DISPERSED SHOOTING, MSO CRITICAL HAB	ALT B & C - Convert road open to all vehicles to licensed vehicles only road
352.B	PIT	0.08	2	ACCESS TO OLD QUARRY, DISPERSED SHOOTING, MSO CRITICAL HAB	ALT B & C - Convert road open to all vehicles to Administrative /special use road
353.B	FIRE CACHE	0.08			ALT B & C - Convert road open to all vehicles to licensed vehicles only road
902		0.05	2	CAMPSITE	ALT B - Camping and campfires allowed only in designated sites
903		0.16	2	MSO CRITICAL HAB, CAMPSITE	ALT B & C - Camping and campfires allowed only in designated sites
904		0.03	2	MSO & PMJ, CRITICAL HAB, CAMPSITE	ALT C - Camping and campfires allowed only in designated sites
905		0.06	2	MSO CRITICAL HAB, MEF, CAMPSITE	ALT B & C - Camping and campfires allowed only in designated sites
906		0.06	2	MSO & PMJ, CRITICAL HAB, CAMPSITE	ALT B & C - Camping and campfires allowed only in designated sites
907		0.02	2	MSO CRITICAL HAB, MEF, CAMPSITE DELINEATED	ALT B & C - Camping and campfires allowed only in designated sites
908		0.25	2	MSO CRITICAL HAB, CAMPSITE	ALT B - Camping and campfires allowed only in designated sites
910		0.05	2	MSO & PMJ CRITICAL HAB, MEF, CAMPSITE	ALT B & C - Camping and campfires allowed only in designated sites
911		0.08	2	MSO CRITICAL HAB, MEF, CAMPSITE	ALT B - Close and rehabilitate road open to all vehicles ALT C - Closed road open to all vehicles
912		0.09	2	MSO CRITICAL HAB, CAMPSITE	ALT B & C - Close and rehabilitate road open to all vehicles
915		0.06	2	MSO CRITICAL HAB, CAMPSITE	ALT B & C - Close and rehabilitate road open to all vehicles
919		0.11	2	CAMPSITE	ALT B & C - Convert road open to all vehicles to licensed vehicles only road
920		0.18	2	CAMPSITE	ALT B & C - Convert road open to all vehicles to licensed vehicles only road
921		0.16	2	MSO CRITICAL HAB,MULTIPLE CAMPSITES	ALT B & C - Convert road open to all vehicles to licensed vehicles only road
922		0.04	2	CAMPSITE	ALT B & C - Convert road open to all vehicles to licensed vehicles only road
923		0.07	2	CAMPSITE	ALT B & C - Convert road open to all vehicles to licensed vehicles only road
924		0.32	2	CAMPSITE	ALT B & C - Convert road open to all vehicles to licensed vehicles only road
925		0.19	2	MULTIPLE CAMPSITES	ALT B & C - Convert road open to all vehicles to licensed vehicles only road
926		0.34	2	MEF, CAMPSITE	ALT B & C - Close and rehabilitate road open to all vehicles
927		0.10	2	MEF, CAMPSITE	ALT B & C - Close and rehabilitate road open to all vehicles
928		0.05	2	CAMPSITE	ALT B & C - Convert road open to all vehicles to licensed vehicles only road

ROAD NUMBER - NFSR	ROAD NAME	ROAD LENGTH (MILES)	OBJ. MAINTENANCE LEVEL	NOTES	PROPOSED ALTERNATIVE ACTIONS
929		0.43	2	MULTIPLE CAMPSITES	ALT B & C - Convert road open to all vehicles to licensed vehicles only road
930		0.06	2	CAMPSITE	ALT B & C - Convert road open to all vehicles to licensed vehicles only road
931		0.16	2	MEF, CAMPSITE	ALT B & C - Close and rehabilitate road open to all vehicles
932		0.10	2	MEF, CAMPSITE	ALT B & C - Close and rehabilitate road open to all vehicles
933		0.91	2	MULTIPLE CAMPSITES	ALT B & C - Convert road open to all vehicles to licensed vehicles only road
934		0.08	2	CAMPSITE	ALT B & C - Convert road open to all vehicles to licensed vehicles only road
935		0.02	2	CAMPSITE	ALT B & C - Convert road open to all vehicles to licensed vehicles only road
936		0.17	2	CAMPSITE	ALT B & C - Convert road open to all vehicles to licensed vehicles only road
937		0.03	2	CAMPSITE	ALT B & C - Convert road open to all vehicles to licensed vehicles only road
938		0.21	2	MEF, CAMPSITE	ALT B & C - Close and rehabilitate road open to all vehicles
939		0.02	2	CAMPSITE	ALT B & C - Convert road open to all vehicles to licensed vehicles only road
940		0.19	2	MEF, CAMPSITE	ALT B & C - Close and rehabilitate road open to all vehicles
941		0.58	2	MULTIPLE CAMPSITES	ALT B & C - Convert road open to all vehicles to licensed vehicles only road
942		0.09	2	CAMPSITE	ALT B & C - Convert road open to all vehicles to licensed vehicles only road
943		0.39	2	MULTIPLE CAMPSITES	ALT B & C - Convert road open to all vehicles to licensed vehicles only road
944		0.09	2	MULTIPLE CAMPSITES	ALT B & C - Convert road open to all vehicles to licensed vehicles only road
945		0.15	2	CAMPSITE	ALT B & C - Convert road open to all vehicles to licensed vehicles only road
946		0.17	2	CAMPSITE	ALT B & C - Convert road open to all vehicles to licensed vehicles only road
947		0.11	2	CAMPSITE	ALT B & C - Convert road open to all vehicles to licensed vehicles only road
948		0.53	2	MULTIPLE CAMPSITES	ALT B & C - Convert road open to all vehicles to licensed vehicles only road
949		0.13	2	CAMPSITE	ALT B & C - Convert road open to all vehicles to licensed vehicles only road
950		0.05	2	CAMPSITE	ALT B & C - Convert road open to all vehicles to licensed vehicles only road
951		0.26	2	MULTIPLE CAMPSITES	ALT B & C - Convert road open to all vehicles to licensed vehicles only road
952		0.33	2	MULTIPLE CAMPSITES	ALT B & C - Convert road open to all vehicles to licensed vehicles only road
953		0.36	2	MULTIPLE CAMPSITES	ALT B & C - Convert road open to all vehicles to licensed vehicles only road
954		0.05	2	CAMPSITE	ALT B & C - Convert road open to all vehicles to licensed vehicles only road
955		0.12	2	CAMPSITE	ALT B & C - Convert road open to all vehicles to licensed vehicles only road
956		0.05	2	CAMPSITE	ALT B & C - Convert road open to all vehicles to licensed vehicles only road
957		0.19	2	MANY NONSYSTEM ROUTES, MAJOR 4X4 USE, HIGH COST TO CONTROL USE OFF ROUTE, MSO CRITICAL HAB	ALT B & C - Convert road open to all vehicles to licensed vehicles only road
987		0.05	2	CAMPSITE, MSO CRITICAL HAB	ALT B & C - Convert road open to all vehicles to licensed vehicles only road
988		0.03	2	CAMPSITE, MSO CRITICAL HAB	ALT B & C - Convert road open to all vehicles to licensed vehicles only road
OTHER EXISTING ADMIN ROADS?					
310	????	1.05	?		ALT B & C - New non-motorized trail
310.A	????	0.41			ALT B & C - New non-motorized trail
338.C		0.32			ALT B & C - Convert road open to all vehicles to licensed vehicles only road
338.D		0.84			ALT B & C - Convert road open to all vehicles to licensed vehicles only road
OHV TRAILS					
630	FERN SOUTH	0.90	TC3	DEADEND, SEVERE SOIL EROSION, MOTORIZED TRAIL (50" OR LESS), POWERLINE CORRIDOR, MSO CRITICAL HAB, MEF	ALT B & C - Close and rehabilitate 50" or less OHV trail
NON-MOTORIZED TRAILS					
721		2.42			ALT B - New road open to all vehicles. Camping and campfires allowed only in designated sites ALT C - Convert non-motorized trail to non-motorized trail/licensed vehicles only road
721		0.80			ALT B - Convert non-motorized trail to 50" or less OHV trail
724		0.33			ALT B - Close and rehabilitate non-motorized trail
PROPOSED NEW OHV ROUTES					
OHV1		1.57			ALT B - New 50" or less OHV trail
OHV2		0.18			ALT B - New 50" or less OHV trail
OHV3		1.55			ALT B & C - New 50" or less OHV trail
OHV4		0.55			ALT B - New 50" or less OHV trail
OHV5		1.55			ALT B - New 50" or less OHV trail
OHV6		0.63			ALT B & C - New 50" or less OHV trail
OHV7		0.60			ALT B - New 50" or less OHV trail
OHV8		0.28			ALT B & C - New 50" or less OHV trail
OHV9		0.25			ALT B & C - New 50" or less OHV trail
OHV10		1.78			ALT B - New 50" or less OHV trail
OHV11		1.48			ALT B - New 50" or less OHV trail
OHV12		4.81			ALT B - New 50" or less OHV trail
OHV13		0.61			ALT B - New 50" or less OHV trail
OHV14		0.55			ALT B - New 50" or less OHV trail
OHV15		0.21			ALT B & C - New Motorcycles only trail
OHV16		1.51			ALT B & C - New Motorcycles only trail
OHV17		3.91			ALT B & C - New Motorcycles only trail
OHV18		1.88			ALT B & C - New Motorcycles only trail
OHV19		2.05			ALT B - New 50" or less OHV trail
PROPOSED NEW ROADS					
RD1		0.11			ALT B - Camping and campfires allowed only in designated sites ALT B & C - New road open to all vehicles
RD2		0.20			ALT B & C - New road open to all vehicles
RD3		0.14			ALT B & C - New road open to all vehicles
RD4		0.02			ALT B & C - New road open to all vehicles
RD5		0.09			ALT B & C - New road open to all vehicles
RD6		0.07			ALT B & C - New road open to all vehicles

ROAD NUMBER - NFSR	ROAD NAME	ROAD LENGTH (MILES)	OBJ. MAINTENANCE LEVEL	NOTES	PROPOSED ALTERNATIVE ACTIONS
RD7		0.17			ALT B & C - New licensed vehicles only road
RD8		1.15			ALT B - New road open to all vehicles. Camping and campfires allowed only in designated sites
RD9		0.18			ALT B & C - New licensed vehicles only road
RD10		0.19			ALT B & C - New licensed vehicles only road
RD11		0.20			ALT B & C - New licensed vehicles only road
RD12		0.14			ALT B & C - New licensed vehicles only road
RD13		0.07			ALT B & C - New licensed vehicles only road
RD14		0.30			ALT B - New licensed vehicles only road
RD15		0.07			ALT B - New licensed vehicles only road
RD16		0.10			ALT B - New licensed vehicles only road
RD17		0.15			ALT B - New licensed vehicles only road
RD18		0.14			ALT B - New licensed vehicles only road
RD19		0.11			ALT B - New licensed vehicles only road
RD20		0.11			ALT B & C - New licensed vehicles only road
RD21		0.19			ALT B - New licensed vehicles only road
RD22		0.41			ALT B - New licensed vehicles only road ALT C - New road open to all vehicles
RD23		0.05			ALT B - New licensed vehicles only road ALT C - New road open to all vehicles
RD24		0.26			ALT B - New licensed vehicles only road ALT C - New road open to all vehicles
RD25		0.15			ALT B - New licensed vehicles only road ALT C - New road open to all vehicles
RD26		0.24			ALT B - New road open to all vehicles. Camping and campfires allowed only in designated sites ALT C - New licensed vehicles only road
RD27		0.08			ALT B - New licensed vehicles only road ALT C - New road open to all vehicles
RD28		0.04			ALT B - New licensed vehicles only road ALT C - New road open to all vehicles
RD29		0.11			ALT B - New licensed vehicles only road ALT C - New road open to all vehicles
RD30		0.11			ALT B - New licensed vehicles only road ALT C - New road open to all vehicles
RD31		0.04			ALT B - New licensed vehicles only road ALT C - New road open to all vehicles
RD32		0.06			ALT B - New licensed vehicles only road ALT C - New road open to all vehicles
RD33		0.11			ALT B & C - New administrative/special use road
RD34		0.16			ALT B & C - New road open to all vehicles
RD35		0.53			ALT B & C - New administrative/special use road
RD36		0.47			ALT B & C - New administrative/special use road
RD37		0.18			ALT B & C - New administrative/special use road
RD38		0.23			ALT B & C - New administrative/special use road
RD39		0.13			ALT B & C - New administrative/special use road
RD40		0.04			ALT B & C - New administrative/special use road
RD41		0.31			ALT B & C - New administrative/special use road
RD42		0.19			ALT B & C - New administrative/special use road
RD43		0.12			ALT B & C - New road open to all vehicles
RD44		0.06			ALT B & C - New road open to all vehicles
RD45		0.21			ALT B & C - New road open to all vehicles
RD46		0.09			ALT B - New licensed vehicles only road
RD47		0.07			ALT B & C - New licensed vehicles only road
PROPOSED NEW NON-MOTORIZED TRAILS					
TR1		0.39			ALT B - New non-motorized trail
TR2		1.16			ALT B & C - New non-motorized trail
TR3		0.16			ALT C - New non-motorized trail
TR4		0.40			ALT B - New non-motorized trail
TR6		1.15			ALT C - New non-motorized trail
TR7		1.50			ALT B & C - New non-motorized trail
TR8		0.15			ALT B & C - New non-motorized trail
TR9		0.10			ALT B & C - New non-motorized trail
TR10		5.01			ALT C- New non-motorized trail
TR11		0.48			ALT B & C - New non-motorized trail
TR12		0.17			ALT B - New non-motorized trail

Appendix C:
List of Threatened, Endangered, Proposed, or Candidate Species

Appendix C. Regional Forester's Sensitive Species on the Pike and San Isabel National Forests that were analyzed for the South Rampart Travel Management EA. Excerpted from: US Forest Service. 2011, March. Rocky Mountain Region endangered, threatened, proposed, and sensitive species; updated to reflect current ESA listing status and the revised (June 2009) sensitive species list. Regional Office, Golden, Colorado. Available at http://fsweb.r2.fs.fed.us/rr/R2_TES_Site_2007/sensitive.html#ss1.

Note: Analysis was conducted using the RFSS list current at the time (June 2009). A new RFSS list was issued in May 2011, but was not used for analysis according to the exception provided in FSM 2672.11, paragraph 7.

Common Name	Scientific Name	General Habitat	Considered in detail?	Rationale
Amphibians				
Boreal toad	*Anaxyrus boreas*	Wetlands, ponds, and riparian areas. Usually between 8,000 and 12,000 feet elevation.	No	Project area outside the known range of the species.
Northern leopard frog	*Lithobates pipiens*	Wetlands, ponds, and riparian areas. Found in CO up to 11,000 feet elevation	Yes	
Birds				
Northern goshawk	*Accipiter gentilis*	Mature forest generalist. Commonly nest in mature Douglas-fir, ponderosa pine, lodgepole pine, or aspen.	Yes	
Boreal owl	*Aegolius funereus*	Mature spruce/fir and mixed conifer forested areas with preference for wet situations (bogs or streams) for foraging.	No	Project area outside the known range of the species.
Grasshopper sparrow	*Ammodramus savannarum*	In Colorado, almost exclusively prefer prairie grasslands that contain some degree of shrubs or tall plants (e.g., rabbitbrush or sandsage).	No	No suitable habitats; no documented sightings.
Sage sparrow	*Amphispiza bellii*	Dependent on relatively large stands of sagebrush. May occur as a migrant in mountain parks and on the eastern plains near the foothills.	No	No suitable habitats; no documented sightings.
American bittern	*Botaurus lentiginosus*	Summer resident of eastern plains and mountain parks. Inhabits larger (> 5 ac) wetlands with tall (2 to 3 ft) emergent vegetation (e.g., cattail, bulrush).	No	Limited marginal habitat; unlikely to occur in project area.
Gunnison sage-grouse	*Centrocercus minimus*	Uses a variety of habitats throughout the year, but the primary component necessary is sagebrush.	No	No suitable habitats; no documented sightings.
Mountain plover	*Charadrius montanus*	Inhabits flat, open, arid habitats with very short vegetation.	No	No suitable habitats; no documented sightings.
Black tern	*Chlidonias niger*	Associated with hemi-marsh wetland (50:50 open water to emergent vegetation) in large (> 12 ac)	No	No suitable habitats; no documented sightings.

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		wetland complexes in the plains and mountain parks.		
Northern harrier	*Circus cyaneus*	Typically inhabits grasslands, croplands, wetlands, and mountain sagebrush; foraging over tall, thick cover. Occasionally found in alpine tundra.	No	Limited marginal habitat; unlikely to occur in project area.
Olive-sided flycatcher	*Contopus cooperi*	Mature spruce-fir or mixed-conifer forests with a preference for the ecotone of natural openings, stream edges, wildfire areas with standing dead trees.	Yes	
Black swift	*Cypseloides niger*	Nests only on sheer cliffs near or behind waterfalls or in dripping caves.	No	No suitable habitats; no documented sightings.
American peregrine falcon	*Falco peregrinus anatum*	Cliff habitat with suitable ledges for nest construction; usually at least 200 feet high.	Yes	
Bald eagle	*Haliaeetus leucocephalus*	Typically uses large trees for roosting or nesting near open water (e.g., rivers, ponds, lakes, reservoirs). Found on the Pike NF during winter more than during summer. No known nests on the forest.	Yes	
White-tailed ptarmigan	*Lagopus leucurus*	Inhabits alpine tundra; may winter below treeline in areas with willows or alders near alpine habitats.	No	No suitable habitats; no documented sightings.
Loggerhead shrike	*Lanius ludovicianus*	Mainly an eastern plains or western shrubland species in Colorado; often in open habitats with sparse trees and shrubs for nesting in and foraging from.	No	No suitable habitats; no documented sightings.
Lewis's woodpecker	*Melanerpes lewis*	Open ponderosa pine forests, burned areas with snags and stumps, riparian and rural cottonwoods, and pinyon-juniper woodlands. Uses mast species (acorns, fruit, nuts) in winter.	Yes	
Long-billed curlew	*Numenius americanus*	Breed in shortgrass and mixed-grass prairies of the Great Plains, Great Basin, and intermountain areas of the western United States and southwestern Canada.	No	No suitable habitats; no documented sightings.
Flammulated owl	*Otus flammeolus*	Secondary cavity nester. Primarily associated with mature open ponderosa pine forests.	Yes	
American three-toed woodpecker	*Picoides dorsalis*	Primarily associated with spruce-fir forests; dependent upon bark beetle populations for food. Responsive to recently burned areas.	Yes	

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Purple martin	*Progne subis*	Breeds in old-growth aspen, sometimes ponderosa pine and Douglas fir, near open areas and water. In CO distribution appears to be limited to the western slope; occasional migrants in eastern plains.	No	Project area outside the known range of the species.
Brewer's sparrow	*Spizella breweri*	Typically associated with sagebrush, but may occasionally inhabit mountain shrub communities and willows. Migrants also in mountain parks and eastern plains.	No	Limited marginal habitat; unlikely to occur in project area.
Invertebrates				
Rocky Mountain capshell	*Acroloxus coloradensis*	Known in northern CO from a small number of lakes between 8,800 and 9,800 feet.	No	Project area outside the known range of the species.
Susan's purse making caddisfly	*Ochrotrichia susanae*	Caddisfly known only from the Arkansas watershed in Chaffee county.	No	Project area outside the known range of the species.
Hudsonian emerald	*Somatochlora hudsonica*	Cold (<68°F), well-aerated boggy pools in ponds, streams, lake margins; >5,000 feet elevation; shrubs or trees nearby for perches and shelter; good water quality.	No	No suitable habitats; no documented sightings.
Mammals				
American hognosed skunk	*Conepatus leuconotus*	Rare inhabitant of pinyon-juniper and mountain shrub communities. Canyons, rocky areas. Records from southeast CO (Baca, Custer, El Paso, and Fremont counties) at the northern limit of its distribution.	No	Project area outside the known range of the species.
Townsend's big-eared bat	*Corynorhinus townsendii*	Forages in semi-desert shrublands, pinyon-juniper woodlands and open montane forests. Roosts in caves, mines and mature forests.	Yes	
Gunnison's prairie dog (also a Candidate)	*Cynomys gunnisoni*	Occurs between approximately 6,000 feet and 12,000 feet in grasslands and shrublands. Colonies are now rare due to plague and past control efforts.	Yes	
North American wolverine	*Gulo gulo*	Rare inhabitant of alpine and subalpine habitats.	No	No suitable habitats; no documented sightings.
River otter	*Lontra canadensis*	Dependent on abundant fish or crustacean populations and streams or rivers with a minimum	No	Project area outside the known range of the species.

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		flow of approximately 10 cubic feet / second.		
American marten	*Martes americana*	Occupies high elevation forests, but may rarely occur in lower elevation montane forests. Mesic, mature to old-growth forest with moderate to high canopy cover and abundant structure at ground level are preferred.	No	Project area outside the known range of the species.
Fringed myotis	*Myotis thysanodes*	Uncommon associate of low elevation shrub, pinyon-juniper, or ponderosa forests, often where caves or mines exist (usually below 7,500 feet).	Yes	
Rocky Mountain bighorn sheep	*Ovis canadensis canadensis*	Open areas with grass and low shrubs, near escape terrain (rocky areas) and topographic relief.	Yes	