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Glade Run Recreation Area
Recreation and Travel Management Plan

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It is the mission of the Bureau of Land Management to sustain the health, diversity, and productivity of the public lands for the use and enjoyment of present and future generations.

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LIST OF ACRONYMS

4WD	Four Wheel Drive
A*	Alternative A or Allocation, depending on position
ACEC	Area of Critical Environmental Concern
APD	Application for Permit to Drill
ATV	All-Terrain Vehicle
B*	Alternative B
BA***	Badlands
BLM	Bureau of Land Management
BMP	Best Management Practice
BR***	Blancot-Fruitland Association
BT***	Blancot-Notal Association
C*	Alternative C
CA*	Common to All Alternatives
CAA*	Common to All Action Alternatives
CFR	Code of Federal Regulations
CMA	Cooperative Management Agreement
COA	Conditions of Approval
COF	City of Farmington
CR	County Road
CSU	Controlled Surface Use
EA	Environmental Assessment
EIS	Environmental Impact Statement
EPA	Environmental Protection Agency
ERMA	Extensive Recreation Management Area
ESA	Endangered Species Act of 1973
FA	Farb-Persayo Rock Outcrop
FFO	Farmington Field Office
FLPMA	Federal Land Policy and Management Act of 1976
FR	Federal Register
G*	Goal
GIS	Geographic Information System
GLO	General Land Office
GRRA	Glade Run Recreation Area
GRTS	Glade Run Trail System
GY***	Gypsiorthids-Badland-Stumble Complex
HA***	Haplargids-Blackston-Torriorthents Complex
ID	Interdisciplinary
IL	Integrated List
IM	Instructional Memoranda
IR	Integrated Report
KML	Keyhole Markup Language
MA*	Management Action
NA*	No Action Alternatives
NMAC	New Mexico Administrative Code
NAGPRA	Native American Graves Protection and Repatriation Act
NATRC	North American Trail Ride Conference
NCSS	National Cooperative Soil Survey
NEPA	National Environmental Policy Act of 1969
NM	New Mexico

* Indicates a management code (Section 2.1)
** Indicates a transportation code (Section 2.1.3)
*** Indicates a soil survey code (Section 3.1)

NMAC	New Mexico Administrative Code
NMCRIS	New Mexico Cultural Resource Information Service
NMDA	New Mexico Department of Agriculture
NMDGF	New Mexico Department of Game and Fish
NMED	New Mexico Environment Department
NMOHV	New Mexico Off-Highway Vehicle
NMSA	New Mexico Statute Annotated
NMSLO	New Mexico State Land Office
NOI	Notice of Intent
NPDES	National Pollutant Discharge Elimination System
NPS	National Park Service
NRCS	National Resource Conservation Service
NRHP	National Register of Historic Places
NRRSM	Natural Resource Recreation Setting Matrix
NTL	Notice to Lessees
NTSA	National Trail Systems Act
O*	Objective
OHV	Off-highway Vehicle
ORV	Off-road Vehicle
OSNHT	Old Spanish National Historic Trail
PA	Programmatic Agreement
PFYC	Potential Fossil Yield Classification
PILT	Payment in Lieu of Taxes
P.L.	Public Law
POD	Plan of Development
PRMP/FEIS	Proposed Resource Management Plan/Final Environmental Impact Statement
PTRL**	Trail Database, indicates a Trailhead
R&PP	Recreation & Public Purposes Act of 1926
R&TMP	Recreation and Travel Management Plan
RAMP	Recreational Management Plan
RAR	Road Apple Rally
RMP	Resource Management Plan
RMP/ROD	Resource Management Plan/Record of Decision
RMPA	Resource Management Plan Amendment
RMZ	Recreation Management Zone
ROW	Right-of-way
ROS	Recreation Opportunity Spectrum
SDA	Specially Designated Area
SHPO	State Historic Preservation Office
SJBEC	San Juan Basin Energy Connect
SJC	San Juan County
SMA	Special Management Area
SMS	Special Management Species
SOC	Species of Concern
SRMA	Special Recreation Management Area
SRP	Special Recreation Permit
SSPS	Special Status Plant Species
SW***	Stumble-Fruitland Association
SWReGAP	Southwest Regional GAP Analysis Project
T**	Transportation Database

* Indicates a management code (Section 2.1)
** Indicates a transportation code (Section 2.1.3)
*** Indicates a soil survey code (Section 3.1

T&E	Threatened & Endangered
TCP	Traditional Cultural Property
THPO	Tribal Historic Preservation Office
TMO	Trail Management Objectives
TMP	Travel Management Plan
TRL**	Trails Database
USACE	United States Army Corps of Engineers
USC	United States Code
USDA	United States Department of Agriculture
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
UTV	Utility-terrain Vehicle
VRM	Visual Resource Management
WSS	Web Soil Survey

* Indicates a management code (Section 2.1)
** Indicates a transportation code (Section 2.1.3)
*** Indicates a soil survey code (Section 3.1)

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1. PURPOSE AND NEED FOR ACTION

1.1. Introduction

One of the Bureau of Land Management's (BLM's) greatest management challenges is providing reasonable and varied transportation routes for access to public lands, making areas available for a wide variety of both motorized and non-motorized recreational activities, and developing recreation infrastructure to support visitors' experiences when utilizing public lands. The various landscapes, user interests, equipment options, weather conditions, transportation infrastructure, recreation facilities, and resource constraints all must be considered through recreation and travel management planning.

Management of recreation resources has, historically, been random and reactionary, pursing recreation activities when and where it occurred, with little planning and forethought to long-term goals and objectives. The current management trend is to try to fully address recreation and visitor services through benefits-based management. This style of management focuses on outcomes to attempt to encompass all elements of the recreation program, including recreation setting, activities, programs, and visitors' services, thus providing an overall framework to guide the recreation and visitor services program.

Comprehensive travel management is the proactive management of public access, natural resources, and regulatory needs to ensure that all aspects of road and trail system planning and management are considered. This includes route planning, inventory and evaluation, innovative partnerships, user education, mapping, monitoring, and signing. Comprehensive travel management planning should address all resource use aspects, such as recreational, traditional, casual, agricultural, commercial, and educational, and accompanying modes and conditions of travel on public lands, not just motorized or off-highway vehicle (OHV) activities (BLM 2005).Though historically focused on motor vehicle use, comprehensive travel management encompasses all forms of transportation including travel by mechanized vehicles such as bicycles, as well as the numerous forms of motorized vehicles from two-wheeled (motorcycles) and four-wheeled vehicles [all-terrain vehicles (ATVs)] to cars and trucks.

The term off-road vehicle (ORV) is an outdated term that has the same meaning as OHV, which is currently in use. ORV is defined in 43 CFR 8340.0-5(a) as "any motorized vehicle capable of or designated for, travel on or immediately over land, water, or other natural terrain." This definition has been revised using the term OHV in the *National Management Strategy for Motorized Off-Highway Vehicle Use on Public Lands*, finalized by the BLM in January 2001 (BLM 2001). A *National Mountain Bicycling Strategic Action Plan* (BLM 2002) guides mechanized transport (e.g., mountain bikes, wagons) planning and use. The intent of these National Strategies was to update and revitalize management of OHV and mountain bicycle use on BLM-managed lands. These National Strategies provide guidance and recommendations to accomplish those purposes.

Through this document, the BLM analyzes the actions necessary to implement a Recreation and Travel Management Plan (R&TMP) for the Glade Run Recreation Area (GRRA) that fulfills existing and emerging recreation demands. The R&TMP will address site-specific actions needed to manage the urban interface pressures on public land near the City of Farmington (COF) and communities of Flora Vista and La Plata. The R&TMP addresses development and management of motorized and non-motorized trail systems, development to accommodate dispersed trail-based recreation needs, and analysis of other trail-based infrastructure. Each alternative has been crafted to accomplish the recreation goals for the GRRA in a different way.

The goal of the R&TMP is to develop an adaptive management framework that supports both current and future recreation needs in the GRRA, while ensuring protection of resources and the continuation of other uses. Specifically, this plan intends to provide for a variety of motorized and non-motorized experiences taking into account other users of the area including private land owners. The R&TMP identifies a system of roads, primitive roads, and trails and outlines facilities to be developed in support of recreation. It also details visitor management objectives and plan implementation actions. The scope of this environmental assessment (EA) is limited to the effects of recreation activities within the GRRA.

1.2. Background

The GRRA (Figure 1) is located on the northern edge of the rapidly urbanizing COF in the BLM Farmington Field Office (FFO). Its proximity to Farmington and other communities makes it a convenient place for local residents to pursue a recreation experience after work, on weekends, or when higher elevation recreation areas are still covered in snow. The area receives approximately 30,000 to 35,000 user days each year and holds three to five major recreation events throughout the year. As the population grows, so does the demand for recreational opportunities. Visitors practice a variety of recreation activities including mountain biking, motorcycling, OHV use (e.g., ATVs, utility-terrain vehicles [UTVs], and side-by-side riding), 4-wheeling (4WD), rope-based rock climbing, camping, running, hiking, and horseback riding. In addition to recreation interests, the area has other resource values and activities that must be considered when contemplating management actions. These include livestock grazing, cultural resources, wildlife habitat, sensitive species habitat, right-of-way corridors, and mineral leases.

Many local residents use the roads and trails in this area regularly for a variety of recreation pursuits. Concerns arising from this recreation use including impacts to soil and vegetation from user-created trails, impacts to cultural sites, impacts to wildlife from concentrated recreational use and habitat fragmentation. Additionally, as urban development encroaches upon public lands, city based recreation pressures can negatively impact natural and cultural resources, as well as other authorized uses, such as grazing and oil and gas activities.

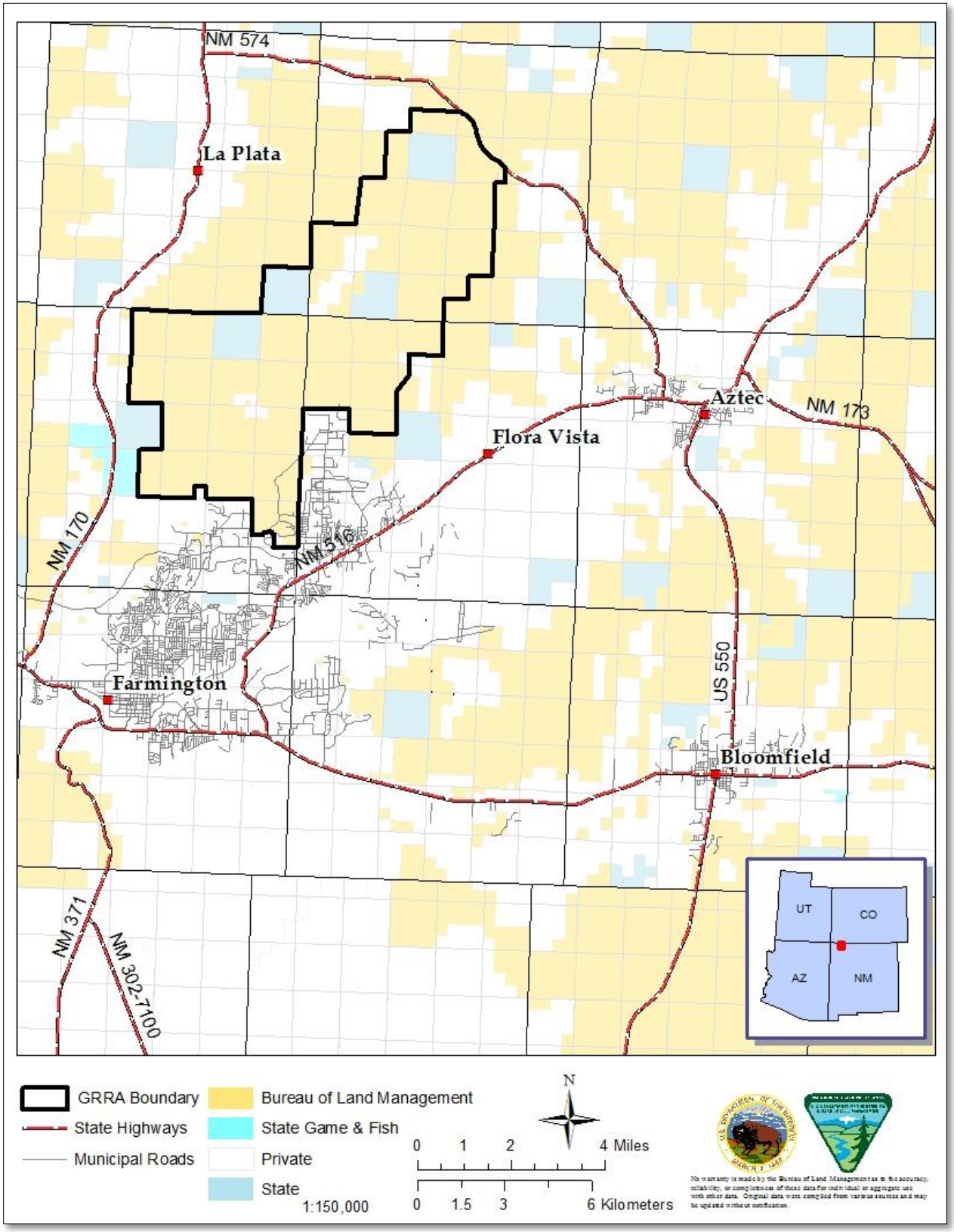
In addition to the GRRA being utilized for recreation, it is completely leased for oil and gas (O&G) development. This has resulted in the development of over 641, predominately gas, well pads. Development of well pads also includes the construction of pipeline right-of-ways and access roads. These types of development add to the transportation network in the GRRA and increase the overall access of the area to members of the public.

The 2003 Farmington Resource Management Plan (RMP) provides general guidelines for managing recreation in this area. The Glade Run Trail System (GRTS, BLM 1996) Recreation Area Management Plan (RAMP) serves as the current management plan for the GRRA and was a result of extensive public participation over a two-year period. Due to the increase in use, new policies, and new recreation equipment (e.g., side-by-sides, UTVs) since the establishment of the 1996 GRTS RAMP, new management direction is necessary. This new management direction is essential for BLM to be more responsive to both the visitors and the land, to critical areas requiring intensive management to protect the more visible and popular resources, to establish a publicly beneficial transportation network, to provide public information and assess visitor needs, and to provide facilities to accommodate public use of the area. This management plan will emphasize recreation use in concert with other resource programs. The alternatives presented in this document analyze a variety of actions to achieve and maintain this outcome. The proposed action is the agency preferred alternative which would meet the desired outcome for future recreation use in the planning area while balancing the management goals of other programs.

1.2.1. Planning Area Location

The GRRA is located in northern San Juan County (SJC), New Mexico (NM) just north of the COF. The area comprises approximately 21,500 acres, of which 17,900 acres are managed by the BLM. The entire area is located within the La Plata Travel Management Unit as identified in the 2003 Farmington RMP. In addition to the BLM acreage, the planning area includes private land in-holdings and sections of state land. Its primary access points are Piñon Hills Boulevard (from the south), Hood Mesa Trail (from the southeast), New Mexico Highway 574 (from the north), and County Road 3536 (from the east).

Figure 1. Glade Run Recreation Area (GRRA)



1.3. Purpose and Need for Action

The purpose of the Resource Management Plan Amendment (RMPA) GRRA R&TMP is to provide comprehensive guidance and direction towards providing sustainable recreation activities, and to maintain or improve the condition of unique cultural and natural resources while creating an environment to promote the health and safety of visitors. To this end, the plan will:

- Identify an appropriate system of roads and trails in the GRRA, as per guidance in the 2003 Farmington RMP, which strives to meet the needs of the local communities.
- Provide high quality recreation opportunities and experiences in the GRRA at developed and undeveloped recreation sites by maintaining existing amenities and by providing new recreation facilities as appropriate for recreation use and resource protection.
- Implement a travel management program that discourages the creation of new routes and reduces the number of duplicate and redundant routes while allowing for adaptive management of designated routes.
- Establish route selection criteria for determining current route designations and future changes to the roads and trails system.

The need for BLM to prepare the GRRA R&TMP is to meet its regulatory obligations as stated in the 2003 Farmington RMP to develop Travel Management Plans (TMPs) for each travel management unit and to reassess recreation management plans as new regulation, policy, and uses are identified.

The most recent management plan for the GRRA was written in 1996 (BLM 1996) and is out of conformance with current decision documents and national/state policies. Public demand for recreational uses is on the rise, use conflict is increasing, ecosystem health is affected, and public safety is of concern. Given the desired future conditions for recreation and other resources located within the planning area, a holistic management framework is needed to respond to increased use, to ensure that the objectives of the GRRA are met, and to protect valuable cultural and natural resources.

1.4. Decision to be Made

The BLM will decide whether or not to implement the GRRA R&TMP.

Decisions that would amend the 2003 Farmington RMP include:

- Adoption of route selection criteria for future route designations for off-highway vehicles (OHV) use.
- Designation of the GRRA a Special Recreation Management Area (SRMA).
- Boundary amendments to OHV area designations (i.e., open, limited, and closed area designations).
- Amendments to the GRRA boundary, as described in each alternative developed below.
- Identify lands available to future R&PP leasing.
- Identifying lands for potential future disposal through the R&PP leasing process.

1.5. Conformance with Applicable Land Use Plan(s)

Land use plans are the main mechanism for guiding BLM's activities to achieve the mission and goals outlined in the BLM's Strategic Plan (BLM 2000). BLM currently manages the GRRA under the September 2003 *Farmington Field Office Resource Management Plan and Record of Decision (RMP/ROD),* as updated in December 2003.

All action alternatives for the GRRA R&TMP are in conformance with the Farmington RMP/ROD with regard to recreation management planning actions. For the GRRA, the RMP/ROD offers a mix of recreational opportunities that attempt to meet a wide variety of recreation demands, while reducing conflict among recreation uses, natural resources, cultural resources, and traditional public land uses (page C-113). Development of the recreation management plan component of the GRRA R&TMP is in conformance with the Farmington RMP/ROD. Specifically, the RMP states, "Review, revise, and implement recreation area management plan as needed" (page C-114). These types of implementation level decisions could be appealed following protocol outlined in 43 CFR Part 4 and Form 1842-1.

Some decisions for the TMP component of the GRRA R&TMP are not in conformance with the 2003 Farmington RMP/ROD. Amendments to any OHV area designation, boundary changes to the GRRA as a whole, and the identification of lands as available for either R&PP leasing or potential disposal would amend the 2003 ROD/RMP. In addition, the adoption of route selection criteria, though identified as necessary within the 2003 ROD/RMP, and the formal naming of the GRRA as an SRMA would also amend the 2003 Farmington ROD/RMP. These types of amendment level decisions could be protested following protocol outlined in 43 CFR 1610.5-2.

1.6. Relationship to Statutes, Regulations or Other Plans

BLM's planning process is governed by *Federal Land Policy and Management Act of 1976* (FLPMA) (43 USC 1711) and 43 Code of Federal Regulations (CFR) 1600, which governs the administrative review process for most of BLM's decisions. Land use plans ensure that BLM-managed lands are managed in accordance with the intent of Congress as stated in FLPMA and under the principles of multiple use and sustained yield. As required by FLPMA, public lands must be managed in a manner that protects the quality of scientific, scenic, historical, ecological, environmental, air and atmospheric, water resource, and archaeological values; that, where appropriate, preserves and protects certain public lands in their natural condition and provides food and habitat for fish and wildlife and domestic animals; and that provides for outdoor recreation and human occupancy and use by encouraging collaboration and public participation throughout the planning process. In addition, lands must be managed to help meet the nation's needs for domestic sources of minerals, food, timber, and fiber from public lands.

In addition to FLPMA, this R&TMP would be in compliance with the following relevant statutes, regulations and authorities:

- ***National Environmental Policy Act of 1969,* commonly known as NEPA,** encourages environmental protection and informed decision-making by mandating that every Federal agency prepare a detailed statement of effect of "major Federal actions significantly affecting the quality of the human environment," establishing the need for agencies to consider alternatives to those actions, requiring the use of an interdisciplinary process in developing alternatives and analyzing environmental effects, requiring that each agencies consult with and obtain comments of any Federal agency which has jurisdiction by law or special expertise with respect to any environmental impact involved, and requiring that detailed statements and comments and views of the appropriate Federal, State, tribal and local agencies be made available to the public (BLM 2008b).
- **The *Federal Water Pollution Control Act*, commonly known as the Clean Water Act (codified at 40 CFR Part 112)**, protects surface water resources from pollution. Under Section 402 of the Clean Water Act (as amended), the U.S. Environmental Protection Agency (EPA), was directed to develop a phased approach to regulate storm water discharges under the National Pollutant Discharge Elimination System (NPDES) program. Land disturbing activities may require permit coverage through a NPDES storm water discharge, depending on the acreage disturbed. Additionally, a U.S. Army Corps of Engineers (USACE) Section 404 permits for the discharge of dredge and fill materials may also be required. Necessary permits and approvals may be required prior to any disturbance activities.
- ***Endangered Species Act of 1973 (ESA), Section 7,*** requires all federal departments and agencies to conserve threatened, endangered, critical and sensitive species and the habitats on which they depend, and to consult with the U.S. Fish and Wildlife Service (USFWS) on all actions authorized, funded, or carried out by the agency to ensure that the action will not likely jeopardize the continued existence of any threatened and endangered (T&E) species or adversely modify critical habitat. Consultation with the USFWS, as required by Section 7 of the ESA, was conducted as part of the Farmington Proposed Resource Management Plan/Final Environmental Impact Statement (PRMP/FEIS; Consultation No. 2-22-01-I-389) to address cumulative effects of RMP implementation. The consultation is summarized in Appendix M of the PRMP/FEIS. FFO staff reviewed the action alternatives and determined their proposed action would be in compliance with threatened and endangered species management guidelines outlined in the September 2002 Biological Assessment (Consultation No. 2-22-01-I-389). No further consultation with the USFWS is required.
- ***Clean Air Act of 1970**:* The Clean Air Act of 1970 (amended 1990) is the comprehensive federal law that regulates air emissions from area, stationary, and mobile sources. Through this law, the EPA is

authorized to establish National Ambient Air Quality Standards to protect public health and the environment. Air sheds throughout the United States have been classified as Class I (most restrictive, generally reserved for national parks and designated wilderness areas), Class II (for areas where the deterioration normally accompanying moderate, well-controlled growth would be permitted. The 2003 Farmington RMP classifies the entire field office under Class II and Class III (areas where industrial deterioration would generally be allowed). None of the alternatives proposed would result in the deterioration of the air shed from Class II to Class III.

- ***Recreation and Public Purposes (R&PP) Act of 1954, as amended***, authorizes the sale or lease of public lands for recreational or public purposes to State and local governments and to qualified nonprofit organizations. Uses must be designed to provide services or facilities for the benefit of the public in connection with, but not limited to public health, safety, or welfare. Authorizations are made under the R&PP Act (43 U.S.C. 869 *et seq.)* and rules under Parts 2740 and 2912 of Title 43 of the Code of Federal Regulations.
- ***Executive Order 12898 of 1994*: *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*** requires federal agencies to ensure that proposed projects under their jurisdictions do not cause a disproportionate environmental impact that would affect any group of people because of a lack of political or economic strength. Environmental justice requires "the fair treatment of people of all races, cultures, incomes, and educational levels with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies".
- ***The Programmatic Agreement (PA) executed by the BLM, the Advisory Council on Historic Preservation, and the National Conference of State Historic Preservation Officers (SHPOs)*** on February 9, 2012, allows the BLM to develop state level protocols as an alternative to 36 CFR Part 800, the Advisory Council's government-wide regulations for complying with the National Historic Preservation Act. Such protocols would serve as the procedural basis for BLM managers to meet their responsibilities under Sections 106, 110(f) and 111(a) of the National Historic Preservation Act.
- ***Executive Order 11593*** states that federal agencies shall, among other things, administer the cultural properties under their control in a spirit of stewardship and trusteeship for future generations, and initiate measures necessary to direct their policies, plans and programs in such a way that federally owned sites, structures, and objects of historical, architectural or archaeological significance are preserved, restored and maintained for the inspiration and benefit of the people.
- ***Executive Order 13175*** mandates federal agencies to consult and coordinate with Native American Tribal Governments.
- ***Executive Order 13007*** requires federal agencies to accommodate access to and ceremonial use of Indian sacred sites and avoid adverse effects to the physical integrity of sacred sites.
- ***Archaeological Resource Protection Act*** prohibits the unauthorized excavation removal, or damage of archaeological resources on federal and Indian lands.
- ***American Indian Religious Freedom Act*** acknowledges the rights of Native Americans to practice traditional religions.
- ***Native American Graves Protection and Repatriation Act (NAGPRA)*** requires federal agencies to repatriate to Native American tribes' sacred objects, funerary items, and items of cultural patrimony. NAGPRA also regulates excavation of human remain and associated items and provides for a minimum 30-day stop work order on ground disturbing activities that cause inadvertent discovery.
- ***The General Mining Laws*** of the United States provide for the disposal of locatable minerals such as gold and silver from public land (30 USC 21-54). *The General Leasing Laws* provide for the disposal of leasable minerals such as oil, coal and phosphate (30 USC 71 *et seq*). *The Materials Act of 1947* provides for disposal of salable minerals (43 USC 601 *et seq*). None of the alternatives would prohibit travel as authorized by these laws.
- ***BLM Land Use Planning Handbook* (H-1601-1**), the planning handbook not only provides general guidance for RMP processes, but also for what decisions are in the realm of implementation-level planning.
- ***The National Trails System Act (*March 30, 2009; Public Law [P.L.] 90-543, as amended through P.L. 111-11)** protects national system of recreation, scenic and historic trails and prescribes the methods by which additional components may be added to the system.

- ***Executive Order 11644 (Use of Off-Road Vehicles on the Public Lands),*** Feb. 9, 1972 (87 FR 2877), to establish policies and provide for procedures to control and direct the use of Off-Highway Vehicles on Federal lands so as to (1) protect the resources of those lands, (2) promote the safety of all users of those lands, and (3) minimize conflicts among the various uses of those lands.
- ***Executive Order 11989 (Off-Road Vehicles on Public Lands)***, May 24, 1977 (42 FR 26959), amending the previous order. This amendment strengthened protection of the lands by authorizing agency heads to (1) close areas or trails to OHVs causing considerable adverse effects and (2) designated lands as closed to OHVs unless the lands or trails are specifically designated as open to them.
- ***BLM Travel and Transportation Manual (MS-1626)*** provides detailed policy, direction, and guidance to establish a comprehensive program for travel and transportation planning within the BLM's planning process.
- ***BLM Travel and Transportation Handbook (H-8342)*** provides specific guidance for preparing, amending, revising, maintaining, implementing, monitoring, and evaluating BLM land use and travel management plans. It provides further guidance related to the objectives, authorities, responsibilities, and policy considerations outlined in Manual Section 1626, Travel and Transportation Management. The material in this Handbook replaces the previous guidance issued in Appendix C, section II. D of the Land Use Planning Handbook (H-1601-1).

This planning effort is also in conformance with the following instruction memorandums (IMs) and national strategies:

- National Management Strategy for Motorized Off-Highway Vehicle Use on Public Lands, January 2001
- National Mountain Bicycling Strategic Action Plan, November 2002
- National Scenic and Historic Trails Strategy and Work Plan
- BLM Instruction Memorandum 2008-174, Road Maintenance Agreements
- BLM Instruction Memorandum 2008-091, Guidance for Signing When Implementing Comprehensive Travel and Transportation Management Planning
- BLM Instruction Memorandum 2012-067, Clarification of Cultural Resource Considerations for Off-highway Vehicle (OHV) Designation and Travel Management.

1.7. Scoping and Issues

Planning issues are topics where there are substantial, often mutually exclusive, differences in opinion as to how a resource or use should be managed. They reflect trade-offs associated with different land management strategies. Planning issues were used to help develop alternatives for management of the GRRA R&TMP.

The planning issues for the GRRA R&TMP resulted from concerns expressed during internal and external scoping. Preliminary planning issues were presented for public review and comment in the July 2011 Federal Register (FR) Notice of Intent (NOI; 76 FR 41819), which initiated a 30-day comment period for the GRRA R&TMP. BLM solicited public comments through scoping meetings held on September 15, 2009, and August 25, 2011. In addition, a website[1] was created to provide information about the planning process and solicit comments. The scoping activities and concerns expressed by the public were briefly summarized in the *Scoping Report: Resource Management Plan Amendment for the Glade Run Recreation Area and Travel Management Plan and Associated Environmental Assessment* (BLM, 2011d).

During the scoping period, the BLM received approximately 514 comment letters. Public comments addressed a variety of issues and concerns regarding recreation and resources, as well as management considerations. The BLM contacted local, state, and federal agencies including USFWS, New Mexico Department of Game and Fish (NMDGF), New Mexico State Land Office (NMSLO), San Juan County, and New Mexico Historical Preservation Division. BLM also contacted four Native American tribes to initiate consultation and solicit information about issues of concern for this planning effort.

[1] www.blm.gov/nm/gladerunplan

Scoping revealed that the GRRA is utilized by the public for a variety of recreational purposes, including:

- OHV driving and rock crawling
- Hiking and cross country trail running
- Mountain bicycling
- Equestrian activities
- Camping
- Permitted events
- Target Shooting

All comments and concerns expressed during the scoping process were considered in the development of the planning issues for the GRRA R&TMP. Several key planning issues were identified during the scoping process that were incorporated in the planning process and that were addressed in the development of alternatives for the EA. These issues include:

- Areas available for motorized and non-motorized recreation
- Recreation management, including facilities
- Route designation
- Information, education, and outreach
- R&PP Act of 1954, as amended in 1988, leases

Each planning issue is identified below including a summary of the major concerns regarding that issue expressed during scoping. A series of planning questions was developed for each issue to help characterize the major components of the issue; the answer to each question varies by one or more alternatives. Finally, to help the reader quickly identify how each issue is addressed throughout the alternatives, a list of the key differences between alternatives is presented.

1.7.1. Issues Addressed

Issue 1: Areas for Motorized and Non-Motorized Recreation

Concerns Expressed During Scoping

- Retain opportunities for motorized recreation
- Increase opportunities for motorized recreation
- Retain areas open to motorized activities
- Expand the area open to motorized activities
- Reduce the area open to motorized activities
- Provide a fair allocation for non-motorized recreation
- Do not change OHV designations
- Do not separate motorized and non-motorized activities
- Separate motorized and non-motorized activities
- Separate motorized and non-motorized activities at Glade (Chokecherry) Wash
- Manage the Northeast portion of the Glade for motorized use
- Manage the West Glade for motorized use
- Manage the East Glade for non-motorized use
- Create a non-motorized area
- Manage a non-motorized area sufficient to accommodate bike riders, equestrian, and hikers
- Reduce or eliminate OHV use in areas for Brack's cactus and Aztec gilia

Planning Questions

- What areas will be available for motorized recreation?
- What areas will be available for non-motorized recreation?
- Will motorized and non-motorized recreational activities be separated?

Key Differences Between Alternatives

- Number of acres with open, limited, and closed motorized travel designations

- Size of recreation management zones (RMZs)

Issue 2: Recreation Management

Concerns Expressed During Scoping

- Expand the boundary of the GRRA SRMA
- Allow all recreational activities
- Preserve and enhance areas for quiet recreation
- Provide for unique motorized recreation experiences
- Provide opportunities for geocaching
- Develop facilities such as restrooms, picnic areas, and trash cans
- Develop an equestrian facility near Farmington Lake including a trailhead, campground, hitching post, parking lot, and restrooms
- Install barriers to protect single-track routes
- Fencing will not benefit everyone
- Use a variety of tools and techniques for recreation management including signage and trail-management devices
- Address Special Recreation Permits (SRPs)
- Encourage the Road Apple Rally (RAR) and XTERRA competition events
- Provide for management of the Old Spanish National Historic Trail (OSNHT)

Planning Questions

- What will be the boundary of the GRRA SRMA?
- What recreational activities will be managed for in the GRRA SRMA?
- What recreational facilities will be developed?
- What management tools and techniques will be used?
- How will SRPs be managed?
- How will the OSNHT be managed?

Key Differences Between Alternatives

- Size of the GRRA SRMA
- Types of recreational opportunities available
- Types and locations of recreational facilities
- Proposal of user fees
- Management of SRPs
- Management of the OSNHT

Issue 3: Route Designation

Concerns Expressed During Scoping

- Designate routes
- Do not limit trails to any use
- Do not limit motorized trails to specific types of vehicles
- Keep rock crawling trails open to all users
- 4x4 trails should be open to all uses
- Keep all existing routes open to motorized use
- Designate more trails to motorized vehicle use
- Previously limited routes should be opened to OHVs
- Develop the ATV/UTV loop trail
- OHVs, ATVs, and motorcycles should use the same routes
- Motorized trails should be open to single track users
- OHVs should not be allowed on single track routes
- Motorcycles, bicycles, equestrians, and pedestrians should use the same routes

- Motorized and non-motorized users should not use the same routes
- Bicycles and motorized vehicles should not use the same routes
- The east glade trails are on the only trails close to Farmington with off-road bicycle friendly trails
- Bicycles should not have more designated routes than motorized vehicles
- Designate equestrian trails that will not be open to mountain bikes
- Designate equestrian trails that will not be open to motorized vehicles
- Keep the Road Apple Rally (RAR) trail open to bicycles
- Do not designate any routes for bicycle use only
- Bicycles and equestrians should not share the same routes
- Hikers and mountain bikes should be separated on the Anasazi and Kinsey portions of the RAR trail
- Designate trails only open to pedestrian
- Equestrians and pedestrians should not be limited to routes
- Routes must be closed, decommissioned, and removed from the landscape
- Provide for future route development

Planning Questions

- What routes will be available for 4x4 activities?
- What routes will be available for rock crawling?
- What routes will be available for OHV activities?
- What routes will be available for mechanized use?
- What routes will be available for equestrians?
- What routes will be available for pedestrians?

Key Differences Between Alternatives

- Number of miles available for 4x4 activities
- Number of miles available for rock crawling
- Number of miles available for OHV activities
- Number of miles available for mechanized (bicycle) use
- Number of miles available for equestrians
- Number of miles available for pedestrians

Issue 4: Information, Education, and Outreach

Concerns Expressed During Scoping

- Increase education
- Educate the community and area users to be respectful of the trails and landscape
- Increase signage
- Develop kiosks
- Install master map boards in kiosks
- Target information and signage towards youth
- Provide signs identifying area boundaries
- Provide signs with rules and consequences
- Provide trail markers
- Provide information on trail markers including the purpose of the trail, difficulty rating, direction of travel, speed limits, difficulties and hazards, and trail crossings
- Develop quality maps
- Develop brochures
- Develop an education program with the New Mexico Off-Highway Vehicle (NMOHV) Board's Stewardship Program to distribute maps, information, and education
- Work with the North American Trail Ride Conference (NATRC) for signage and equestrian trail creation
- Formalize partnership with the NMSLO and Velo de Animas to develop and maintain a sustainable non-motorized multi-use trail system

- Partner with the Boy Scouts for trail development and improvements
- Partner with OHV and jeep/rock-crawling clubs in the area to adopt and maintain routes
- Form a “friends of” group to enlist volunteer stewards to monitor trail use
- Promote the area for all uses
- Promote the area

Planning Questions
- What education efforts will be undertaken?
- What signage will be developed?
- What information will be included on trail markers?
- What maps will be developed?
- What brochures will be developed?
- What partnerships will be encouraged?
- How will the area be promoted?

Key Differences Between Alternatives
- Focus on education efforts
- Focus on partnerships
- Role of law enforcement
- Promotion of the area

Issue 5: Recreation and Public Purposes Act (R&PP) Leases

Concerns Expressed During Scoping
- Approve the COF’s request for a 980-acre R&PP lease
- Deny the COF’s request for a 980-acre R&PP lease

Planning Question
- Will the COF’s request for an R&PP lease be approved and, if so, under what terms and conditions?

Key Differences Between Alternatives
- Approval of the COF’s request for an R&PP lease
- Size of the R&PP lease
- Terms and conditions of the R&PP lease

1.7.2. Issues Considered but Not Further Analyzed

A number of comments were submitted regarding issues and concerns that are not addressed in the GRRA R&TMP because they are beyond the scope of the plan. Comments on these items are valuable and appreciated, even though they will not be directly addressed in the plan. These comments will be considered, where appropriate, when decisions are made on other implementation plans, proposed projects, or day-to-day management.

Management of the Piñon Mesa Recreation Area

Several commenters suggested managing the Piñon Mesa Recreation Area for non-motorized recreation. The GRRA R&TMP only addresses management within the GRRA. Management for the Piñon Mesa Recreation Area is not being revisited at this time. Management for the Piñon Mesa Recreation Area will continue to follow the prescriptions outlined in the 2003 Farmington RMP/ROD.

Development of a Shooting Area

Several commenters suggested creating shooting areas within the GRRA. During the 1996 GRTS planning effort it was determined, through extensive public outreach and commentary, that the GRRA was not suitable for recreational shooting activities due to the intensive recreation use in the area. In

addition to public comment, consultation was made with various special entities and organizations including the Federal Fishing, Hunting, and Shooting Sports Roundtable. Upon completion of the 1996 GRTS, supplementary rules were developed. These supplementary rules prohibit the discharge of firearms within the boundary of the GRRA (as identified in 1996), except for licensed hunters of game birds (with shotguns only) during season on identified lands (62 FR 49524-49525). During the 2003 RMP/ROD development, these supplementary rules regarding recreational shooting within the GRRA were carried forward in their entirety. Due to the continued high recreational use of the GRRA, shooting is still not considered to be a compatible and safe use within the area. As such, this planning document is carrying forward the supplementary rules, as published, from the 1996 GRTS and the 2003 RMP/ROD.

User Fees

Several commenters suggested implementing a Recreation Use Permit (RUP) that would establish user fees for the GRRA. In order to implement an RUP a recreation area must meet a threshold for development (43 CFR 2933). This threshold is related to the amount of investment in infrastructure the area has received. The GRRA does not currently meet this threshold. If the threshold is ever met, a business plan will be created for the GRRA and RUP needs will be addressed.

Special Recreation Permit (SRP) Process

A suggestion was made to reduce the SRP application process by reducing the amount and types of paperwork required when applying for an SRP and reducing the amount of time required for an SRP application to be submitted (i.e., complete applications must be in 180 days prior to proposed use). While there is leeway for the FFO to determine what paperwork is necessary to be submitted as part of an SRP application package, it has been determined that the current paperwork is the minimum needed to perform an accurate review of an SRP application. Additionally, the time frame associated with new applications is set according to 43 CFR 2932.22 (a). The FFO does not have authority change the submission time frame associated with SRP applications.

SRP Fees

A suggestion was made to revise the process for determining fees for SRPs. All fees associated with commercial use, competitive use, and organized group activities or events are established by the BLM Director, updated every three years based on the Implicit Price Deflator Index, and published in the FR (43 CFR 2932.31). The FFO does not have the authority to determine, set, or change these fees.

Hunting Regulations

One commenter requested clarification of hunting regulations for the GRRA. New Mexico Department of Game and Fish (NMDGF) is the primary regulator of hunting use throughout NM Hunting regulations are published by NMDGF each spring or fall season that direct if restrictions are placed on public lands for specific species or during specific times. BLM does not have the authority to regulate or manage hunting.

Air Quality

Standards for air quality are set by the Environmental Protection Agency in collaboration with the State of New Mexico. The state enforces state and federal air quality regulations on all public and private lands within the planning area. Air quality in the planning area was analyzed in the 2003 PRMP/FEIS utilizing information from the Air Quality Modeling Analysis Technical Report: Revision to the BLM Farmington Resource Management Plan and Amendment of the Rio Puerco Resource Management Plan (Science Applications International Corporation/BLM 2002).

In 2011, an Air Resources Technical Report for BLM Oil and Gas Development in New Mexico, Kansas, Oklahoma, and Texas (herein referred to as Air Resources Technical Report; USDI/BLM 2011b) was developed to incorporate the latest available air quality data, and information about regulatory changes that have occurred since the 2002 report. The Air Resources Technical Report was subsequently updated in 2013 (USDI/BLM 2013c) and includes the latest available data and information as well as new scientific data that is relevant to air quality and climate change. The 2013 Air Resource Technical Report breaks

the source components of air quality down into three (3) subcategories, one of which is transportation, however, this subcategory includes all forms of transportation including air, train, and ship travel across the United States and is not exclusive to NM or the Four Corners region.

The FFO is currently in attainment with all federal and state standards. The impact to overall air quality from vehicular traffic in the planning area would be slight and not measurable. Accordingly, there would be no anticipated impacts to air quality as a result of this planning effort and air quality will not be discussed further in this planning document. Additional general information on air quality in the area is contained in Chapter 3 of the Farmington PRMP/FEIS and the references Air Quality Technical Reports.

Noise

A few comments expressed concerns about noise within the GRRA from uses other than recreation as well as recreation based noises. Currently the FFO has a Notice to Lessees (NTL) that manages sound generated by O&G production and association transportation in noise sensitive areas such as SDAs (NTL-04-2-FFO). All current and future oil and gas production operations and facilities must be in compliance with this NTL.

Noise associated with recreation activities is regulated by NMDGF through the New Mexico Administrative Code (NMAC 18.15.3). Any changes to recreation based noise in the planning area would be the result of increased visitation and associated motorized use. The planning area is already currently heavily used for motorized recreation. There is no indication that developing a recreation and travel plan for this area would substantively increase or decrease the visitation by motorized recreationists. Fluctuations in visitation are much more likely to be affected by economic factors outside the control or scope of this planning effort. Accordingly, there would not be anticipated impacts to noise as a result of this planning effort.

Recreational noise should be referred to the local law enforcement agency for enforcement. Noise, either recreation based or otherwise, will not be considered as a separate resource further in this planning document. However, any potential noise impacts of the proposed plan on wildlife, recreationists or adjacent residents will be assessed in these respective resource sections.

Visual Resource Management

Two commenters requested that Visual Resource Management (VRM) be analyzed in Chapter 3. VRM in the FFO is currently being revised under an RMPA that may result in changes to the management classes currently found within the planning area of the GRRA. Alternatives for VRM and the impacts of those alternatives are analyzed in the VRM RMPA EA (DOI-BLM-NM-F010-2013-0047). VRM decisions will not be made as part of this planning effort. Management decisions outlined in the VRM RMPA will be applied as appropriate to the GRRA when the VRM RMPA EA is completed. Currently the planning area is being managed as VRM III. Current recreational use is consistent with that management designation and the basic types and impacts of recreational use on visual resources would not be changed by the planning alternatives and are within the scope of the analysis disclosed in the VRM RMP EA. Accordingly, visual resources will not be discussed further in this planning document.

Area of Critical Environmental Concern (ACEC) Boundaries

A request was made to adjust the boundaries of the East Side Rincon ACEC and River Tracts ACEC during this planning process. Changes to ACEC boundaries and/or management prescriptions must be identified in a FR notice. The FFO did not identify ACEC boundary or management changes in the NOI for the RMPA, and as such, changes to these areas are outside the scope of the planning process. In addition, proposed changes to the boundary of the GRRA would have a minimal effect on only the River Tract ACEC #11, potentially affecting less than 5 acres of lands located on top of a cliff that is disassociated from the delineated riparian area.

Riparian Areas

Several comments expressed concerns that the Route Comparison Table shows some routes may impact designated riparian areas (La Plata River Tracts, under the River Tracts ACEC designation) and therefore needed additional consideration. Further review of these routes shows that all routes documented in the Route Comparison Table as potentially impacting riparian areas follows the management prescriptions in the 2003 Farmington PRMP/FEIS for the River Tracts ACECs as outline below:

> "Off road vehicles limited to roads (designated maintained country roads, designated unmaintained county roads, and active oilfield access roads).

All routes identified for recreation use are limited to designated routes as defined above. No trails or other routes are proposed through any action alternative that would be inconsistent with the management prescriptions for River Tract ACECs. As no routes are proposed that would be inconsistent with the River Tract ACEC management prescriptions analyzed in the 2003 PRMP/FEIS, any potential impacts to these riparian areas are within the scope of impacts disclosed in that PRMP/FEIS. Accordingly, impacts to riparian areas will not be analyzed further in this document.

Leasable, Salable, and Locatable Minerals

A comment expressed a concern that management prescription GRRA-CA-MA-11 and GRRA-CA-MA-12 (Chapter 2.3.1) presented in this planning document would restrict leasable, salable, and locatable mineral access and leasing within the GRRA. This management prescription has been carried forward as part of this planning effort from the 2003 PRMP/FEIS. Analysis on the impacts this management prescription may have on leasable, salable, and locatable minerals is included in the 2003 PRMP/FEIS. As no new management prescriptions are considered in this planning effort that would cause a change to leasable, salable, or locatable mineral development or access in the GRRA, these issues will not be considered further.

Oil and Gas Leasing

Several comments expressed concern that management prescriptions (Chapter 2.3) presented in this planning document would further restrict oil and gas activities, access and development within the GRRA. All management prescriptions presented in Chapter 2 are consistent with current existing plans and their impacts are within the scope of the impacts analyzed in the NEPA documentation for those plans (Chapter 4, 2003 PRMP/FEIS). For those listed as part of the No Action Alternative (i.e., GRRA-NA-MA-); these management prescriptions were analyzed in the 1996 GRTS RAMP and carried forward as part of this planning effort.. This planning effort acknowledges all valid existing rights and takes into consideration all leases that were issued with standard terms and conditions. Within the GRRA, all federal oil and gas minerals are leased under standard terms and conditions. As no new management prescriptions are presented in this planning effort and no new leases can be issued at this time, there would no changes oil and gas development or access in the GRRA. Accordingly, oil and gas leasing will not be considered further.

Law Enforcement

Several commenters requested increasing law enforcement presence in the GRRA and one commenter requested decreasing law enforcement presence. The mission of the FFO law enforcement program is to serve the public by:

- Protecting public lands, including the GRRA, from unauthorized uses that damage or abuse those lands;
- Safeguarding the lives and property of the visiting public;
- Assist the recreating public with information on opportunities, permitting, access and land status; and
- Respond to public complaints.

FFO law enforcement officers enforce federal laws and regulations, patrolling the GRRA as well as other public lands. Officers are tasked with a variety of services, including educating the public on rules and

regulations, providing reasonable levels of security at recreation sites, preventing theft of and damage to biological and cultural resources, assisting in emergency response situations – search and rescue, fire, enforcing the rules and regulations by issuing warnings and citations, and, if necessary, by making arrests, and assisting local agencies, such as the sheriff's departments, with tasks such as stolen property identification.

The proposed actions and related clarifications of policy and regulations described in the action alternatives would be a significant help to law enforcement. The GRRA R&TMP clarifies area designations, route designations, signage that will be placed on routes and at staging/parking areas. The addition of looped trails and expansion of mountain bike and motorized opportunities would provide opportunities to meet the public demand. The result will be fewer illegal user created trails. Recreation and travel maps would help visitors orient themselves to the area and reduce the risk of getting lost and needing rescue services. However, direction regarding law enforcement staffing or priorities is determined on a district wide level and is handled administratively. It is not a planning level decision and, consequently, is outside the scope of this planning process.

Temporary or Emergency Closures

Multiple requests were made to close the GRRA using the temporary or emergency closure procedure (43 CFR 8364). Guidance provided in IM 2013-035, Requirements for Processing and Approving Temporary Public Land Closure and Restriction Orders, urges managers to take corrective actions to prevent activities from causing "considerable adverse effects" prior to initiating a temporary closure or restriction order. This corrective action includes conducting NEPA analysis and developing plans to manage an area. This planning effort is considered a reasonable corrective action and as such requests to close the area are not considered further.

Woodcutting

Several comments stated concerns related to illegal firewood gathering and requested that firewood be addressed further in this planning effort. The GRRA is currently closed to firewood cutting and vegetation gathering/removal per the 2003 RMP/ROD. Additionally, firewood and other woodland products are managed following procedures outlined in the Woodlands Standard Operating Plan (October 19, 2010) and firewood permit brochure 'How to Use Your Firewood Permit' (BLM/NM/GI-06-15-5320). No new management prescriptions are proposed; therefore no further consideration will be given to further manage firewood gathering in this planning effort.

RS2447

One commenter questioned if there were any RS2447 roads within the planning area. To date, no RS2477 claims have been made on any roads within the planning area. No further consideration will be made for RS2477 roads.

1.7.3. Alternatives Submitted during Public Scoping

Velo de Animas, an organization that promotes mountain biking in the Farmington area, submitted an alternative to develop a non-motorized recreation area on the east side of the GRRA. After careful review, elements of this alternative were incorporated into management common to all action alternatives and the management for RMZ 1 under Alternatives A and C. The following elements of the submitted alternative were determined to be outside the scope of the R&TMP:

- **Use of the Glade Wash as a natural buffer zone between the motorized and non-motorized users –** The mountain bike community has expressed that they do not use sandy washes. In order to allow this area to continue to be used by recreational activities that utilize sandy washes, the RMZ 1 boundary was set at the edge of the mountain bike trail system.
- **Providing access to the West Glade via County Road (CR) 3536 –** CR 3536 terminates at private property, which does not allow for access to the Glade Wash.

- **Issuing an R&PP lease to the COF for the entire East Glade area –** The COF has not submitted an application for an R&PP lease in this area. BLM cannot consider an R&PP lease until it has received an application.

BLM considered a public-suggested alternative to close all routes in the travel management planning area to motorized vehicle use, or to close all routes except for the mainline BLM system roads. This alternative would not meet the variety of access needs that have been identified, and would not be consistent with the OHV management objective in the RMP to "provide a range of recreational opportunities for the different recreational groups, while ensuring resource protection and reducing conflicts between other public land users and permit holders" (BLM 2003b, page 2-15). This alternative would not fulfill the purpose and need for the TMP; therefore no further analysis of this alternative is necessary.

Conversely, the BLM considered a public-suggested alternative to designate all routes in the travel management planning area to motorized vehicle use. This alternative would not meet the variety of recreation needs that have been identified, and would not be consistent with the OHV management objective in the RMP to "provide a range of recreational opportunities for the different recreational groups, while ensuring resource protection and reducing conflicts between other public land users and permit holders" (BLM 2003b, pages 2-15). This alternative would not fulfill the purpose and need for the TMP; therefore no further analysis of this alternative is necessary.

La Plata TMP

Multiple requests were made to utilize the La Plata TMP as the travel plan for the GRRA. Within the La Plata TMP document it states multiple times that the plan does not cover routes (roads, two-track roads, and trails) located within an SDA, of which the GRRA is one (pg.4, 6, and 7). Therefore the La Plata TMP does not apply to lands located inside the GRRA and will not be considered further in this planning document.

1.8. Planning Criteria and Constraints

Planning criteria guide the development of the R&TMP, ensure it is tailored to the identified issues, and deter unnecessary data collection and analysis. Planning criteria also streamline the plan's preparation; establish standards, rules, and measures to be used; guide and direct the resolution of issues through the planning process; and indicate factors and data that must be considered in making decisions.

The following general planning criteria were considered in developing the GRRA R&TMP:

- The R&TMP will define implementation decisions for lands managed by BLM located within the planning area (i.e., GRRA).
- The activity-level plans will be developed concurrently with the proposed land use-level decisions in the RMPA to the extent possible.
- The R&TMP will be completed in compliance with FLPMA, the National Environmental Policy Act of 1969 (NEPA), and all other relevant federal law, Executive Orders, and management policies of the BLM.
- The RT&MP will be consistent to the maximum extent possible with the plans and management programs of local government, BLM travel and recreation guidance, and Federal and State laws and regulations. The planning process will be coordinated with other Federal agencies, where appropriate.
- Resource protection will be considered across the broader landscape, not just within administrative boundaries, as appropriate.
- The R&TMP will acknowledge valid existing rights within the planning area.
- The R&TMP will establish implementation actions and guidance for managing recreational activities in order to maintain existing natural landscapes and cultural resources while providing for the enjoyment and safety of the visiting public.
- Where existing planning decisions are still valid, those decisions may be incorporated in the R&TMP.
- The planning process will rely on available inventories of the lands and resources as well as data gathered during the planning process to reach sound management decisions. Geographic Information

Systems (GIS) will be used to the extent practicable. Decisions requiring additional inventories will be deferred until such time as the inventories can be conducted.

- Public involvement will be based on the principles of collaborative planning described in the BLM Land Use Planning Handbook (H-1601-1).
- The route evaluation process will be conducted in a systematic standardized manner, consider routes individually and collectively, and provide a clear reasoning for route recommendations and decisions in a route-by-route data record.
- Consultation with Native American tribes, SHPO, and USFWS will be conducted, as needed, throughout the plan.

2. ALTERNATIVES

2.1. How to Read this Chapter

2.1.1. Document Structure

Chapter 2 presents alternative management direction for the GRRA. The majority of the chapter contains sections detailing the goals, objectives, allocations, and management actions for each alternative. Topics are presented within four sections, each tied to specific locations. Goals, objectives, allocations, and management actions discussed under GRRA would apply to the entire planning area, regardless of alternative selected. Goals, objectives, allocations, and management actions discussed under RMZ 1 would apply only to that RMZ. Goals, objectives, allocations, and management actions discussed under RMZ 2 would apply that RMZ. Goals, objectives, allocations, and management actions discussed under RMZ 3 would apply only to RMZ 3. It is important to note that the boundaries of these areas may change by alternative. The boundary will be identified under the *Allocation* heading for each alternative. Management would only apply to that boundary for that alternative.

Goals, objectives, allocations, and management actions are identified by section and organized under the following headings:

- **Management Common to the No Action Alternative and All Action Alternatives** – This heading contains goals, objectives, allocations, and management actions that apply to every alternative.
- **Management Specific to the No Action Alternative** – This heading contains goals, objectives, allocations, and management actions specific to the No Action Alternative as carried forward from the 1996 GRTS plan and up-dated by the 2003 RMP.
- **Management Common to the Action Alternatives** – This heading contains goals, objectives, allocations, and management actions that apply to all of the action alternatives, but not to the No Action Alternative.
- **Management Specific to Alternative A** – This heading contains goals, objectives, allocations, and management actions that apply to Alternative A and that are not common to all of the action alternatives.
- **Management Specific to Alternative B** – This heading contains goals, objectives, allocations, and management actions that apply to Alternative B and that are not common to all of the action alternatives.
- **Management Specific to Alternative C** – This heading contains goals, objectives, allocations, and management actions that apply to Alternative C and that are not common to all of the action alternatives.

These headings only appear when the alternative contains management relevant to the specific location. For example, the No Action Alternative did not designate RMZs; thus, the headings *Management Common to the No Action Alternative and All Action Alternatives* and *Management Specific to the No Action Alternative* do not appear under the discussion for each RMZ.

In order to understand the complete suite of all management for a specific action alternative, the reader is encouraged to first read the following guidance:

- *Management Common to the No Action Alternative and All Action Alternatives;*
- *Management Common to All Action Alternatives;*
- Management guidance specific to each alternative for the GRRA SRMA; and finally,
- Management guidance specific to each alternative for each RMZ.

The intent of any reference in the alternatives to regulations or policy is that BLM would follow regulations or policies in place at the time implementation actions are taken.

Each goal, objective, allocation, and management action is assigned a reference code to facilitate public comment by giving the public the ability to target their comments to specific items without repeating entire

phrases or struggling with page and paragraph numbers. Codes are broken into four components for easy identification of the section, alternative, decision type, and order of appearance in the document.

The first component of the reference code is to reference the section. The codes and their corresponding sections are identified in Table 1. The information is presented in the order in which is appears in this chapter.

Table 1. Section Codes

Code	Section
GRRA	Glade Run Recreation Area (GRRA)
RMZ1	Recreation Management Zone (RMZ) 1
RMZ2	Recreation Management Zone (RMZ) 2
RMZ3	Recreation Management Zone (RMZ) 3

The second component of the reference code identifies the alternative under which the item appears. The codes and their corresponding alternatives are identified in Table 2. This information is presented in the order in which it appears in Chapter 2. These headings only appear in Chapter 2 when there are items in those categories.

Table 2. Alternative Codes

Code	Alternative
CA	Management Common to the No Action Alternative and All Action Alternatives
NA	Management Specific to the No Action Alternative
CAA	Management Common to All Action Alternatives
A	Management Specific to Alternative A
B	Management Specific to Alternative B
C	Management Specific to Alternative C

The third component of the code identifies the decision type. The codes and their corresponding decision type are identified in Table 3.

Table 3. Decision Type Codes

Code	Decision Type
G	Goal
O	Objective
A	Allocation
MA	Management Action

The fourth component of the code identifies the order in which the item appears within a section, alternative, and decision type. Sequential numbering is used for this code.

Acreages used in the alternatives are approximate and serve for comparison and analytic purposes only. Data from GIS have been used in developing acreage calculations and are rounded to the nearest hundred acres or the nearest half mile. Readers should not infer that they reflect exact measurements or precise calculations.

2.1.2. Recreation Management Plans

The following sections address several elements of the Recreation and Visitor Services Program. They are intended to provide further explanation of the management processes, prescriptions, and desired outcomes as they relate to the decisions presented in the management alternatives for recreation (Chapter 2) and the information provided in the affected environment (Chapter 3).

Recreation Management Areas

Through the land use planning process, portions of the planning area are allocated as Special Recreation Management Areas (SRMAs), Extensive Recreation Management Areas (ERMAs), and undesignated areas or areas not managed for recreation. The primary difference between an SRMA and an ERMA is the amount or level of management that is required to maintain the primary recreation settings and opportunities and if the primary recreation is structured or unstructured (IM2011-004, BLM 2011).

Special Recreation Management Areas (SRMAs)

SRMAs are areas that have a significant identifiable customer demand for structured recreation. The rationale for identifying an SRMA is that the area has to have an identifiable recreation-tourism market demand requiring structured (i.e., planned) recreation management that targets a particular activity to produce specific recreation experiences and desired outcomes. The use of the term significant implies that a specific type of outcome is being sought, including desired experiences and benefits and excluding undesired negative outcomes that are associated with specific recreation. The use of the term structured implies that the BLM and partners intend to produce this predetermined specific set of recreation opportunity outcomes.

SRMAs are identified when the BLM and partners are able to:

- Identify recreation-tourism markets (market niche),
- Identify activities, experiences, and outcome opportunities,
- Maintain or improve the natural resource recreation setting character (i.e., physical, social, and operational),
- Perform necessary implementation actions.

<u>Recreation Management Zones (RMZs)</u>
SRMAs are further subdivided into more specific units known as RMZs. RMZs are similar to SRMAs in that they address a very specific recreation audience and are managed for structured recreation. However, they are not identified as individual SRMAs because they have the same recreation-tourism market as the SRMA they are located in. There are four defining characteristics that are required for identifying an RMZ within an SRMA:

- RMZs serve a different recreation niche within the primary recreation market;
- RMZs produce a different set of recreation opportunities and facilitate the attainment of different experience and benefit outcomes (to individuals, households and communities, economies, and the environment);
- RMZs have distinctive recreation setting character; and
- RMZs require a different set of recreation provider actions to meet the strategically targeted primary recreation market demand.

Extensive Recreation Management Areas (ERMAs)

ERMAs are administrative units where recreation management is only one of several management objectives and where a lower commitment of resources is required to provide extensive and unstructured types of recreation.

The identification of an ERMA does not mean that the expenditure of substantial time and funding is unwarranted when circumstances require it. For example, because of the proliferation of urban areas next to public lands, the BLM may need to implement actions that mitigate undesired activities, such as impacts on vegetation caused by the proliferation of user-created trails on the BLM lands next to these highly populated urban areas. In such instances, the BLM may apply a physical setting that favors appropriate activities but may not target a specific set of structured recreation outcomes such as would be associated with a SRMA designation. To carry out such management actions, the BLM may need assistance from participating partners and may have to prioritize ERMA implementation actions to protect resource values and to resolve conflicts. Because this document is not proposing ERMAs, this allocation will not be discussed further.

Undesignated Areas

Areas not managed for recreation are those that have intrinsic recreational value (i.e., open space), but have no specific recreation management needs or future desired outcomes. These are also areas, where recreational use may be incompatible with other land uses, such as industrialized oil fields. The management associated with these areas is restricted to custodial actions. The custodial management concept is that the BLM will use the minimum of implementation actions necessary to proactively respond to stewardship needs associated with recreation-tourism activities. Unless specifically prohibited, recreation activities can and do occur in areas that are not specifically managed for recreation.

Because this document is not proposing undesignated areas, this allocation will not be discussed further.

Natural Resource Recreation Setting Matrix (NRRSM)

NRRSM is the primary tool used to describe and manage the recreation setting of an area, in order to aid management in achieving the desired benefits and outcomes. The NRRSM is a reinvention of the Recreation Opportunity Spectrum (ROS) historically used to provide managers with guidance to ensure that recreation is provided for a wide range of users.

The BLM approach to NRRSM applies criteria to a land area's physical, social, and operational parameters to describe the conditions that define a land area's capability and suitability for providing a particular range of recreation opportunities. For example, some recreationists seek an undeveloped setting, emphasizing solitude and self-reliance, while others seek an experience with more comfort, security, and social opportunities.

The physical, social, and operational elements themselves are further divided to allow a fuller description of the setting, including the ability to map these characteristics, thereby removing some of the subjective and qualitative nature of the categorization (Table 4).

Table 4. NRRSM Elements and Subdivisions

Element	Subdivisions
Physical	Remoteness
	Naturalness
	Visitor Facilities
Social	Contacts with Others
	Group Size
	Evidence of Use
Operational	Access
	Visitor Services
	Management Controls

Like ROS, the NRRSM describes a range of settings, from primitive to urban, along a spectrum for the physical, social, and operational elements of an environment. Although the full spectrum of settings exists, for convenience, each area is assigned to one of six classifications:

- **Primitive** - An essentially unmodified natural environment of fairly large size, with minimal evidence of others and very low interaction among users. Extremely high probability of isolation, independence, tranquility, and closeness to nature. Areas are essentially free from evidence of human-induced restrictions and controls, and motorized and mechanized uses are not permitted.
- **Backcountry** - A predominantly natural or natural-appearing environment of moderate to large size. Opportunities to experience isolation, independence, and tranquility exist to some degree. Interaction between users is low, with some evidence of other users. On-site controls and restrictions are minimal and subtle. Motorized use is not permitted.
- **Middle Country** - A natural-appearing environment of moderate to large size. Low concentration of users with evidence of other users. Few opportunities to experience isolation and independence. On-site controls and restrictions are minimal and subtle. Motorized use is permitted.

- **Front Country** - Predominantly natural-appearing environments with moderate evidence of the sights and sounds of man. Interaction among users is moderate with evidence of other users prevalent. Visible resource modification and use that generally harmonize with the natural environment. Conventional motorized use is provided for in facilities construction and design.
- **Rural** - A substantially modified natural environment. Resource modification and use are visible and needed to protect resources from intensive use. Sights and sounds of humans are readily evident, and user interaction is moderate to high. Facilities are provided for special activities and are designed for large numbers of people and intensified motorized use, including parking.
- **Urban** - A substantially urbanized environment with natural-appearing elements, visible renewable resource modification and use. Large numbers of users, with sights and sounds of humans predominate. Facilities available for highly intensified motor use and parking.

Using the Natural Resource Recreation Setting Matrix (NRRSM)

The NRRSM has two functions. First it allows classification of the existing recreation conditions of an area, its intrinsic and current recreational value; second it allows for a desired future condition to be prescribed. This essentially translates into the recreational objective for an area.

Within SRMAs, the NRRSM is used as the primary tool or describing and allocating the current and desired recreation setting in order to achieve the beneficial outcomes sought. The NRRSM is used to describe and prescribe at the RMZ level.

A NRRSM has been developed for the GRRA specific to each of the settings presented in the planning area. Those matrices are displayed in Table 10 (RMZ 1), Table 13 (RMZ 2), and Table 20 (RMZ 3).

Table 5 through Table 7 represent the description (table cells outlined in **bold**) of the existing setting and the No Action Alternative, as described in Chapter 2 and the affected environment in Chapter 3, respectively. The desired setting (table cells completely shaded) as described in Chapter 2 for all RMZs considered across all action alternatives.

The NRRSM for the GRRA shows the this area falls into a middle/rural classification for the physical setting which indicated that there are frequently used roads in the area (oil & gas access roads), the area is close to highways and municipal roads and the visual characteristic of the landscape is considerably altered by industrial facilities throughout the area and residential development along the perimeter. Current recreation facilities are of a primitive nature, not well defined and lacking visitor information. The desired future condition is to maintain the rural setting for both remoteness (distance from frequently used roads) and naturalness but to increase the level of facility development to a front country classification. This means that additional facilities will be assessed for development in areas that are frequented by visitors.

The NRRSM for the GRRA shows this area falls into a back/middle country classification for the social setting. This indicated that while the area supports frequent visitation, only occasional encounters with other visitors occur. Overall, group sizes encountered are relatively small but the sound of people can be regularly heard. Current evidence of recreational use shows that there are areas of vegetation removal and soil compaction (play areas and along routes), but in general these area are small. The desired future condition is to maintain the smaller group sizes but allow for the increase frequency of encounters at developed areas, along routes and to decrease the evidence of recreation use throughout the area.

The NRRSM for the GRRA shows this area falls into the back/middle/front country classifications for the operational setting. This indicated that the area supports a wide variety of recreation activities and opportunities, has a greater level of rules and regulations, routes and areas may have restrictions or limitations associated with them but that there is little informational material available to the public (e.g., on-ground personnel, maps, and information kiosks). The desired future condition is to maintain the current variety of recreational activities and level of restrictions but increasing the amount and type of information about the GRRA available to the public to a front country level.

Table 5. Physical Settings: Qualities of the Landscape

Classification	Remoteness	Naturalness	Visitor Facilities
Primitive	More than ½ mile from either mechanized or motorized routes.	Undisturbed natural landscape.	No structures. Foot/horse and water trails only.
Back Country	More than ½ mile from any motorized route/use area, but within ½ mile of mechanized routes.	Natural landscape with any modifications in harmony with surroundings and not visually obvious or evident (e.g. stock ponds, trails).	Developed trails made mostly of native materials such as log bridges and carved wooden signs. Structures are rare and isolated.
Middle Country	On or near motorized routes, but at least ½ mile from all improved roads, though they may be in sight.	Natural appearing landscape, except for obvious motorized routes.	Maintained and marked trails, simple trailhead developments and information kiosks.
Front Country	On or near improved roads, but at least ½ mile from highways.	Landscape partially modified by roads/trails, utilities lines, etc., but none overpower natural landscape features	Rustic facilities such as campsites, restrooms, trailheads, and interpretive displays.
Rural	Within ½ mile of paved/primary roads and highways.	Character of the natural landscape considerably modified (agriculture, residential or industrial).	Modern facilities such as campgrounds, group shelters, boat launches, and occasional exhibits.
Urban	Within ½ mile of streets and roads within municipalities and along highways.	Urbanized developments dominate landscape.	Elaborate full-service facilities such as laundry, restaurants, and groceries.

Table 6. Social Settings: Qualities Associated with Use

Classification	Contacts with Groups	Group Size (average other than your own)	Evidence of use
Primitive	Fewer than 3 encounters/day at camp sites and fewer than 6 encounters/day on travel routes.	Fewer than or equal to 3 people per group.	No alteration of the natural terrain. Footprints only observed. Sounds of people rare.
Back Country	3-6 encounters/day off travel routes (e.g., staging areas) and 7-15 encounters/day on travel routes.	4-6 people per group.	Areas of alteration uncommon. Little surface vegetation wear observed. Sounds of people infrequent.
Middle Country	7-14 encounters/day off travel routes (e.g., staging areas) and 15-29 encounters/ day on travel routes.	7-12 people per group.	Small areas of alteration. Surface vegetation showing wear with some bare soils. Sounds of people occasionally heard.
Front Country	15-29 encounters/day off travel routes (e.g., campgrounds) and 30 or more encounters/day on travel routes.	13-25 people per group.	Small areas of alteration prevalent. Surface vegetation gone with compacted soils observed. Sounds of people regularly heard.
Rural	People seem to be generally everywhere.	26-50 people per group.	A few large areas of alteration. Surface vegetation absent with hardened soils. Sounds of people frequently heard.
Urban	Busy place with other people constantly in view.	Greater than 50 people per group.	Large areas of alteration prevalent. Some erosion. Constantly hear people.

Table 7. Operational Settings: Conditions Created by Management Controls over Recreation Use

Classification	Access (types of travel allowed)	Visitor Services	Management Controls
Primitive	Non-motorized and non-mechanized travel only (e.g., equestrian and pedestrian).	No maps or brochures available on-site. Staff rarely present to provide on-site assistance.	No on-site posting/signing of visitor regulations, interpretive information or ethics. Few use restrictions.
Back Country	Mountain bikes and perhaps other mechanized use, some trail based motorized use.	Basic maps, staff infrequently present (e.g. seasonally, high use periods) to provide on-site assistance.	Basic user regulations at key access points. Minimum use restrictions.
Middle Country	Four-wheel drives, all-terrain vehicles, dirt bikes, or snowmobiles in addition to non-motorized, mechanized use.	Area brochures and maps, staff occasionally (e.g. most weekends) present to provide on-site assistance.	Some regulatory and ethics signing. Moderate use restrictions. (e.g. camping, human waste).
Front Country	Two-wheel drive vehicles predominant, but also four wheel drives and non-motorized, mechanized use.	Information materials describe recreation areas & activities, staff periodically present (e.g. weekdays & weekends).	Rules, regulations and ethics clearly posted. Use restrictions, limitations and/or closures.
Rural	Ordinary highway auto and truck traffic is characteristic.	Information described to the left, plus experience and benefit descriptions, staff regularly present (e.g. almost daily).	Regulations strict and ethics prominent. Use may be limited by permit, reservation, etc.
Urban	Wide variety of street vehicles and highway traffic is ever-present.	Information described to the left, plus regularly scheduled on-site outdoor demonstrations and clinics.	Enforcement in addition to rules to reduce conflicts, hazards, and resource damage.

2.1.3. Travel Management Plans (TMP)

Comprehensive travel management planning should address all resource use aspects, such as recreational, traditional, casual, industrial, commercial, and educational, and accompanying modes and conditions of travel on public lands, not just motorized or off-highway vehicle (OHV) activities. Traditionally, the BLM's travel management program focused primarily on motor vehicle use. Within the framework of travel planning, this program has expanded to encompass all forms of travel, including travel by foot, horseback and other livestock, and mechanized vehicles (such as bicycles).

There is considerable overlap of travel management and other BLM uses on public lands. For example, many users of public lands are there for recreation. For visitors, a route system may serve as either a route to a destination or as the recreation location itself. For destination recreation, vehicle routes are the means to get to a starting point to engage in the activity, such as a parking area, trailhead, or undeveloped camping locations. The route itself also can serve as the focus of the activity, (e.g., pleasure driving, four-wheel vehicle driving, motorcycling, all-terrain vehicle [ATV; see definition below] riding, biking, horseback riding, hiking, snowmobiling, and cross-country skiing). To reduce the duplication of narrative between recreation based travel management and the other forms of travel management, this R&TMP focuses on addressing public travel and access concerns; discussion of how other resource programs will be incorporated as needed to further explain a decision or use allocation.

For the purpose of land use planning travel planning can be considered as two basic components, the designation of OHV area allocations and the designation of individual routes. OHV area designations represent the land use planning level decisions and can only be modified though a land use plan

amendment or revision. The route designations are considered implementation level actions and occur in unison with many site-specific actions and projects. Route designations are presented in this R&TMP to establish a baseline upon which subsequent site specific activities can work from. The travel network resulting from the route designations should be viewed as dynamic with changes and modifications occurring with new authorizations throughout the life of the plan.

OHV Area Designations

The CFRs requires BLM to designate all public lands as open, limited or closed for OHV use. These designations are made in land use plans or in plan amendments. Additionally, the primary criteria for route designations are established in the land use planning process (43 CFR Part 8340) as well as through the Travel and Transportation Management Handbook (H-8342). Supplementary route designation criteria is further developed through and interdisciplinary process.

The 2003 Farmington RMP designated BLM-managed land as open, limited (limited to existing roads and trails or limited to designated roads and trails), or closed to OHV use. Definitions of these designations are as follows:

- **Open** – The BLM designates areas as "open" for intensive OHV use where there are no compelling resource protection needs, use conflicts, or public safety issues to warrant limiting cross-country travel. However, motor vehicles may not be operated in a manner causing or likely to cause significant, undue damage to or disturbance of the soil, wildlife, wildlife habitat improvements, cultural or vegetative resources or other authorized uses of the public lands (See 43 CFR 8341).
- **Limited** – The "limited" designation is used in areas where OHV use must be restricted to meet specific resource management objectives. In the current guidance context, this means limited to designated roads and trails, i.e., a route network designated by the BLM in its RMP or other planning document. These routes may also be limited to: (1) a time or season of use depending on the resources in the area (i.e., T&E species' habitat or nesting areas, crucial winter ranges, etc.); and/or (2) type or width of vehicle use (ATV, motorcycle, four-wheel vehicle, etc.).
- **Closed** – The BLM designates areas as "closed" if closure to vehicular use is necessary to protect resources, ensure visitor safety, or reduce resource or use conflicts. Access by means other than motor vehicle access is generally allowed unless otherwise prohibited. The authorized officer may allow OHV use on a case-by-case basis or for emergencies.

OHV area designations identified by alternative for each RMZ would replace any OHV area designations identified in the 2003 Farmington RMP. This includes the replacement of any terminology or definitions identified in the 2003 Farmington RMP with the most recent BLM policy (currently BLM Manual 1626 – Travel and Transportation).

BLM's designation of OHV use areas is guided by 43 CFR 8342.1, which states that designations shall be based on the protection of resources, the promotion of the safety of all users of public lands, and the minimization of land use conflicts. Designation criteria are defined in 43 CFR 8342.1:

- [Designated] areas and [designated] trails shall be located in a manner to minimize impacts to physical resources (soils, watershed, vegetation, air, and other resources) and to prevent impairment of wilderness suitability;
- [Designated] areas and [designated] trails shall be located to minimize harassment of wildlife or significant disruption of wildlife habitats. Special attention will be given to protect endangered or threatened species and their habitats;
- [Designated] areas and [designated] trails shall be located to minimize conflicts between off-road vehicle use and other existing or proposed recreation uses, and to ensure the compatibility of such uses with existing conditions in populated area; and
- [Designated] areas and [designated] trails shall not be located in officially designated wilderness areas or primitive areas, and shall be located in natural areas only if the authorized officer determines that off-road vehicle use in such locations will not adversely affect their natural, esthetic, scenic, or other values for which established.

The current national guidance for the OHV limited category designation has changed. Designating open, limited, and closed areas for OHV use continues to be mandated, but under the limited category only the "limited to designated roads and trails" sub-category is recommended. The designation of the sub-category "existing roads and trails" is no longer a recommended option. Eliminating the "existing roads and trails" sub-category prevents confusion and enforcement problems concerning new unauthorized routes being created and then used by the public because they are then "existing". By policy, (MS-1626), BLM discourages of the use of the "limited to existing" category.

Through the 2003 Farmington RMP, BLM-managed lands were designated as open; limited to maintained roads and designated routes and trails; or closed to OHV use (BLM 2003, pg. 2-15). However, very few of the designated routes have been specified for a particular use (i.e., motorized, mechanized, or non-motorized) essentially limiting travel to existing routes.

Route Designation

In 2006, the BLM issued IM No. 2006-173, which established policy for the use of terms and definitions associated with the management of transportation-related linear features. It also set a data standard and a method for storing electronic transportation asset data. According to the memorandum, all transportation assets are defined as roads, primitive roads, and trails.

Mode of travel refers to the mechanisms used to move across the land. It is broadly defined in three categories, those that use motors, those using some mechanical method and those reliant only the movements of the human (or animal) bodies. Examples include:

- **Non-mechanized Travel** – Cross-country skiing, snowshoeing, horseback riding, pack animal driving, hiking, boating, hang-gliding, paragliding, and ballooning.
- **Mechanized Travel** – Mountain bikes and specialized equipment such as mountain skateboards.
- **Motorized Travel** – Standard passenger vehicles on maintained roads and OHVs on primitive roads and trails. OHVs include off-road motorcycles, ATVs, jeeps, specialized 4x4 trucks, and snowmobiles.

A four-wheel drive vehicle (also called 4x4 or 4WD) is a passenger vehicle or light truck having power available to all wheels. A UTV (or side by side) is a motorized vehicle designed for off-highway use and capable of maneuvering over uneven terrain, designed with side by side seats, seatbelts, steering wheel, four or more low pressure tires, and a Rollover Protection System. An ATV is a wheeled vehicle other than a snowmobile, which is defined as having a wheelbase and chassis of sixty-five (65) inches in width or less, steered with handlebars, generally having a dry weight of 800 pounds or less, three or more low-pressure tires, and a seat designed to be straddled by the operator. A motorcycle is defined as a motorized vehicle with two tires and with a seat designed to be straddled by the operator. Many of these routes are designed more for the off-highway type of motorcycles.

The BLM transportation system is divided into three main categories; roads, primitive roads, and trails:

- **Roads** – Linear routes which are declared a road by the owner, managed for use by low clearance vehicles having four or more wheels, and maintained for regular and continuous use.
- **Primitive Roads** – Linear routes managed for use by 4WD or high-clearance vehicles. These routes do not normally meet any BLM road design standards. Primitive Roads account for the majority of the transportation system in the FFO.
- **Trails** – Linear routes managed for human-powered, stock, or OHV forms of transportation or for historical or heritage values. Trails are not generally managed for use by 4WD or high-clearance vehicles.

To further refine a routes importance and access function, the BLM has defined functional classes that are assigned to each route. The functional classifications are determined according to guidance in *BLM Manual 9113 Roads* and the *BLM Gold Book Standards*. Functional class is defined by collector roads, local roads, and resource roads:

- **Collector Roads –** These roads are the highest standard of BLM road. They provide primary access to large blocks of land and connect with or are extensions of a public road system. Collector roads accommodate mixed traffic and serve many uses. They generally receive the highest volume of traffic

within the BLM road system. User cost, safety, comfort, and travel time are primary road management considerations. Collector roads usually require application of the highest standards used by BLM. As a result, they have the potential for creating substantial environmental impacts and often require complex mitigation procedures.

- **Local Roads** – These roads normally serve a smaller area than collector roads and connect to collector roads or public road systems. Local roads receive lower volumes, carry fewer traffic types, and generally serve fewer users. User cost, comfort, and travel time are secondary to construction and maintenance cost considerations.
- **Resource Roads** – These roads are usually spur roads that provide point access and connect to local or collector roads. They carry very low volume and accommodate only one or two types of uses. Use restrictions are applied to prevent conflicts between users needing the road and users attracted to the road. The location and design of these roads are governed by environmental compatibility and minimizing BLM costs, with minimal consideration for user cost, comfort, or travel time.

A route inventory was conducted by BLM in the GRRA beginning in 2005 and ending in 2006. In 2010, an effort was made to determine the accuracy of the inventory by digitizing linear disturbances visible from 2009 aerial photography. Field checks on the digitized routes were done during the summer of 2011 and were aimed at verifying route alignment, type of visible use and the native material of the trail tread. The existing transportation system in the GRRA planning area is comprised of several county roads, four municipal roads, and about 200 miles of existing roads and trails. These routes comprising approximately 1,000 route features. It is the approximately 200 miles of open roads and trails that represent the baseline management condition and serve as the starting point for analysis in this document (Figure 2).

All routes were reviewed and up-dated to meet the national roads or trails data standards. As part of this process, a unique identifying number was assigned to each route based on the route type (Table 8). Unique identifying numbers beginning with T are associated with the road database and can be found in that standard. Unique identifying numbers begin with TRL or PTRL refer to a trail or a trailhead and can be found in the national trail standard.

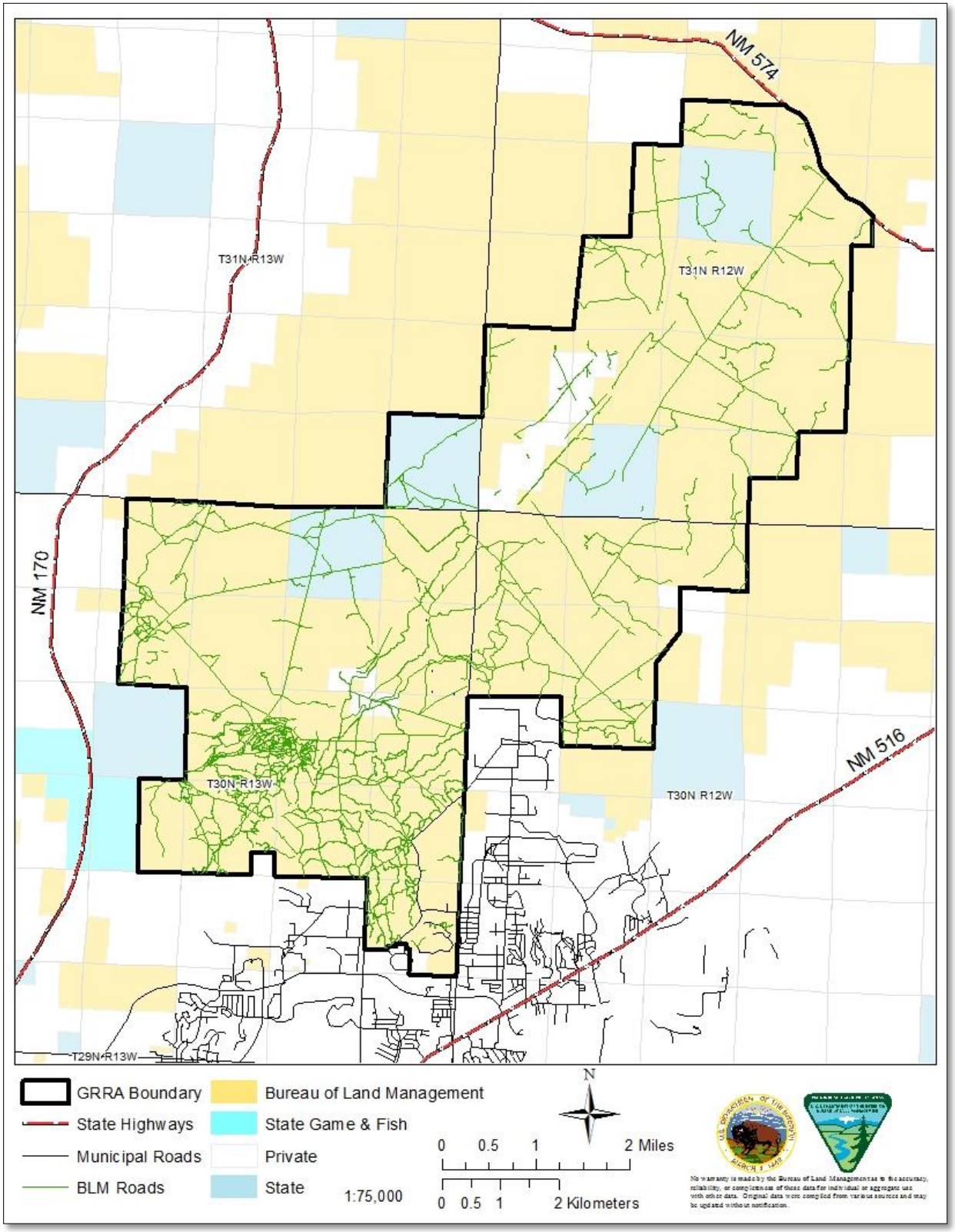
Table 8. Description of Route Unique Identifying Numbers

Beginning Code of Unique Identifying Number	Type of Feature	Associated Database	National Data Standard
T	Road, primitive road, or trail	Transportation	Roads NDS
TRL	Trail	Trails	Trails NDS
PTRL	Trailhead	Trails	Trails NDS

A route evaluation form (Appendix A) was developed following current inventory and travel and transportation management guidance (Technical Reference 9113-1 and Handbook 8342-1, respectively) and relevant CFRs.

The routes evaluation process was conducted with the BLM Interdisciplinary (ID) Team which is composed of BLM specialists from all resources. OHV and non-motorized user organizations and other interested user groups and individuals submitted comments during meetings and associated comment periods, providing additional information of the use and need for particular routes. The evaluation identifies goals and objectives for each route and addresses multiple use and resource protection concerns relating to recreation access and travel management. Route evaluations were conducted using the route evaluation form (Appendix A) with input and review by the ID Team. Route designations were made using both minimization criteria (CFR) and FFO-specific criteria based on existing information and knowledge of other resources. Incomplete information with regard to route authorizations (e.g., rights-of-way or routes authorized through an Application for Permit to Drill [APD]/Sundry notice) may result in errors in designations. Route systems were developed for each alternative, based on this evaluation process and taking into account public comments, and are presented in this plan under each alternative.

Figure 2. Route Inventory for the GRRA



Route designations are implementation level decisions that may be altered by activity-level planning and site-specific NEPA analysis. The R&TMP provides the parameters in which these alterations to the travel network may occur and the criteria to be used when making them. Route designations will change and evolve through activity-level planning over the life of the R&TMP.

Route nomenclature is consistent with current BLM guidance (BLM Road and Trails Terminology Report), utilizing the terms “road,” formerly called a two-wheel drive road; “primitive road,” formerly called 4WD road and 4WD technical road; and “trail,” formerly called ATV route or restricted access. This language replaces the nomenclature used in the 2003 Farmington RMP.

Route Maintenance

Maintenance intensity classes help direct maintenance work needs based on route importance, route conditions, access objectives, or resource conditions on adjacent lands. Maintenance intensity is broken down into six classes:

- **Level 0** – Existing routes that will no longer be maintained and no longer be declared a route. Routes identified as Level 0 are identified for removal from the transportation system entirely.
- **Level** 1 – Routes require minimum (low intensity) maintenance to protect adjacent lands and resource values. These roads may be impassable for extended periods of time
- **Level 2** – Routes with minimum maintenance. Typically a seasonal road that provides limited passage of traffic for most of the year.
- **Level** 3 – Routes require more moderate maintenance or are maintained as needed due to low volume use (such as seasonal or year-round for commercial, recreation, or administrative access). Maintenance intensities may not provide year-round access but are intended to provide resources appropriate to maintain a usable route for most of the year.
- **Level 4** – Routes require scheduled maintenance, though not necessarily every year. It is a standard road that manages a medium volume of traffic, also considered a local road.
- **Level 5** – Routes require high (maximum) maintenance due to year-round needs, high-volume traffic, or significant use. Level 5 designations may also include routes identified through management objectives are requiring high intensities of maintenance or to be maintained open on a year-round basis.

2.2. Summary and Comparison of Alternatives

2.2.1. Summary of Alternatives Considered for Detailed Analysis

The following alternatives were considered for detailed analysis.

No Action Alternative

The No Action Alternative describes the management conditions prescribed in the 1996 GTRS RAMP, as amended by the 2003 Farmington RMP. BLM would incorporate current BLM policy into management practices but no designation, facilities, or other changes would be made. All methods of motorized travel would be allowed only on existing roads and trails with no specific route designations.

Alternative A (Preferred Alternative)

This alternative provides for a balance between current recreation activities (i.e., OHV and non-motorized) and resource protection. The management goals identified for each RMZ would guide how recreation would be managed now and in the future and would guide the design of specific project plans. This alternative uses the most current inventory map as the basis for designating a system of roads and trails, and provides route-specific designation. Under this alternative, about 40% of routes identified as authorized or existing routes in the inventory map would be designated as open or limited to specific types of OHV use. Motorized travel would be allowed only on these designated roads and trails. In addition, boundary changes for the GRRA as a whole and the open area, specifically, are identified.

Alternative B

This alternative emphasizes OHV recreation opportunities over other resources within the planning area. The goals identified in each RMZ would guide recreation and travel management within the GRRA as well as the design of specific project plans. The proposed management actions would provide for more extensive OHV based recreation opportunity. Under this alternative, approximately 69% of routes identified as authorized or existing routes in the inventory map would be designated as open or limited. A small percentage of routes would be designated as limited to protect identified resources (i.e., sensitive status species). Additionally, there would be substantial changes to the GRRA boundary as a whole as well as the open area.

Alternative C

This alternative would emphasize non-motorized recreation. The goals identified in each RMZ would guide recreation and travel management within the GRRA as well as the design of specific project plans. Under this alternative, about 38% of routes identified as authorized or existing routes in the inventory map would be designated as limited to OHV travel. OHVs would be allowed only on these designated roads and trails. In addition, no boundary adjustments would be made to the GRRA boundary as a whole. The open area would be re-designated as a limited to designated OHV area and there would be established a closed to OHV area in the northeast portion of the planning area.

2.2.2. Comparison of Alternatives

Table 9 provides a summary of the primary differences between the four alternatives. Differences between the wording in the main text of Chapter 2 and the wording in the summary table should not be construed to confine or redefine the management contained within alternatives. Some wording was modified to be more concise in the summary table.

Table 9. Summary Comparison of Alternatives

	No Action Alternative	Alternative A (Preferred Alternative)	Alternative B	Alternative C
GRRA (acres[1])				
SRMA Designation	No	Yes	Yes	Yes
GRRA Size	21,500[2]	26,500	31,800	21,100
RMZ 1 Area Size	0	6,100	0	6,400
RMZ 2 Area Size	0	17,000	27,300	14,700
RMZ 3 Area Size	0	3,300	4,500	0
New City of Farmington R&PP Lease	0	980	0	700
Existing City of Farmington R&PP Lease List for Disposal	0	500	0	500
OHV Area Designations (acres)				
Open to Cross-Country Motorized Vehicle Use	3,800	3,300	4,500	0
Motorized Use Limited to Designated Routes	17,700	23,100	27,300	14,700
Closed to Motorized Vehicle Use	0	0	0	6,400
Route Designations (miles)				
Open	196	104	193	0
Limited	0	0.6	1	75
Closed	0	90	84	97
Permitted Use Only	0	36	3	20
Administrative Use Only	0	1.5	0.5	1
Trail Designations (miles)				
4WD	0	22	22	21
ATV	0	54	62	35
Motorcycle	38	50	78	26
Bicycle	38	28	0	38
Equestrian	0	3	3	3

[1] Acres may not add due to rounding.

[2] The acreage of the GRTS was originally identified as 27,400 in the 1995 GRTS EA. The 2003 Farmington RMP carried forward this acreage on page 2-1, but then reduced it to 17,935 surface acres and 18,796 subsurface acres on page C-113. GIS data indicates the total acreage of the area intended to be managed as the GRRA in the 2003 RMP is 21,500.

2.3. GRRA

2.3.1. Management Common to the No Action Alternative and All Action Alternatives

Goal

See goals specific to the No Action Alternative and common to all action alternatives.

Objective

See objectives specific to the No Action Alternative and each action alternative.

Allocations

Recreation

GRRA-CA-A- 1. The GRRA will be designated as an SRMA.

Mineral Development

GRRA-CA-A- 2. Manage new oil and gas leases under controlled surface use (CSU) constraint.

Livestock Grazing

GRRA-CA-A- 3. The GRRA will be available for livestock grazing.

Management Actions

Recreation

GRRA-CA-MA- 1. No oil and gas or ROW construction, drilling, completion, plugging, seismic exploration, and work-over activity allowed when they would interfere with authorized recreation events.

GRRA-CA-MA- 2. Pets must be under control at all times.

Upland Vegetation

GRRA-CA-MA- 3. Prohibit forest product removal including, but not limited to, wood products, firewood, cutting of fence posts, Pinion nut gathering, collection of wildlings, or any commercial uses with the exception of the following:

- Scientific collection of plant specimens, seeds and/or plant parts as permitted on a case-by-case basis;
- Administrative collection or vegetation removal;
- Removal of plant materials for traditional, religious, and/or cultural uses as permitted on a case-by-case basis;
- Small amounts of hand collected dead and downed wood for immediate use in campfires with valid camping permit. Wood collected for this purpose may not be removed from the area. Campers are encouraged to bring their own firewood as dead and down firewood are limited.

GRRA-CA-MA- 4. Vegetation treatments or rehabilitation must support enhancing recreation experiences, rangeland health, and strive to meet the desired future condition as outlined in the NRRSM (Table 5 through Table 7).

Cultural Resources

GRRA-CA-MA- 5. Any portion of the GRRA may be fenced and closed at any time to protect archaeological sites. Protection may also, but is not limited to, include trail re-routing, to be determined on a case-by-case basis.

Mineral Development

GRRA-CA-MA- 6. Limited development of leasable and salable with site-specific management constraints that protect the integrity of the trail system and other recreational activities in the GRRA and provide for safety of users. No construction or maintenance activity allowed when it would interfere with authorized recreation events.

GRRA-CA-MA- 7. Limited development of locatable with site-specific management constraints that protect the integrity of the trail system and other recreational activities in the GRRA and provide for safety of users. No construction or maintenance activity allowed when it would interfere with authorized recreation events.

Livestock Grazing

GRRA-CA-MA- 8. If a grazing permit is relinquished or terminated, it would not be renewed.

2.3.2. Management Specific to the No Action Alternative

Goals

GRRA-NA-G- 1. Manage the recreation area to accommodate a large variety of recreational uses and outdoor recreational experiences.

GRRA-NA-G- 2. Coordinate management efforts with multiple users and regulatory groups.

Objectives

GRRA-NA-O- 1. The GRTS will be managed to maintain a range of trail recreation opportunities. Management will be geared toward individuals and small groups; large groups and competitions will be allowed under the controls of SRPs. This overall objective will require:

- Maintaining diversity in trail surface, terrain, physical challenge, and trail uses.
- Removing or reducing risks not inherent in trail recreation.
- Coordinating with the COF's parks and recreation, open space, and transportation planning.

Allocations

Recreation

GRRA-NA-A- 1. Manage 21,500[2] acres as the GRTS (Figure 3).

Transportation and Travel

GRRA-NA-A- 2. Approximately 3,800 acres designated as Open OHV area (Figure 3).

GRRA-NA-A- 3. OHV limited to maintained roads, designated trails, routes, ways, and areas on 17,700[3] acres. (Figure 3).

Land Tenure

GRRA-NA-A- 4. Acquire easements and non-BLM inholdings.

Land Use Authorizations

GRRA-NA-A- 5. Manage as a ROW avoidance area:

- ROWs granted on a case-by-case basis with management constraints that protect the integrity of the trail system and other recreational activities in the SDA and provide for the safety of users.

Management Actions

Recreation

GRRA-NA-MA- 1. Apply rural ROS objectives.

GRRA-NA-MA- 2. Review/revise/implement recreation area management plan as needed.

GRRA-NA-MA- 3. Overnight camping prohibited without a permit.

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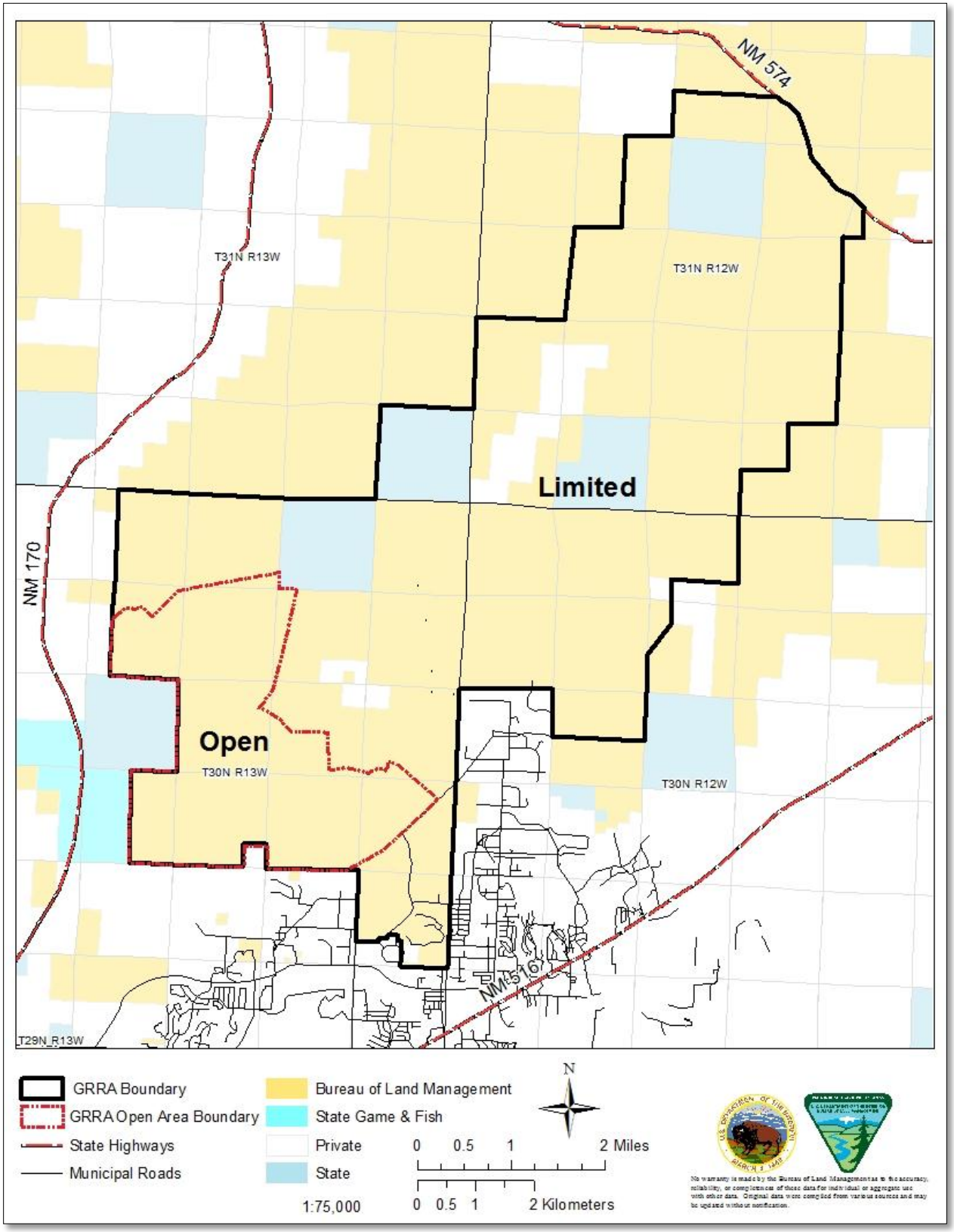
[2] The acreage of the GRTS was originally identified as 27,400 in the 1995 GRTS EA. The 2003 Farmington ROD/RMP carried forward this acreage on page 2-1 of the RMP, but then reduced it to 17,935 surface acres and 18,796 subsurface acres on page C-113. GIS data indicates the total acreage of the area intended to be managed as the Glade Run Recreation Area in the 2003 RMP is 21,500.

[3] The 2003 Farmington RMP identifies 15,134 acres as limited to maintained roads, designated trails, routes, ways, and areas. GIS data indicates the correct acreage is 17,700.

Figure 3. GRRA Boundary and OHV Area Designations in the No Action Alternative



GRRA-NA-MA- 4. Closed to shooting except for livestock permittees in defense of their livestock.

GRRA-NA-MA- 5. There will be no prohibition of "carrying" firearms.

GRRA-NA-MA- 6. BLM will coordinate shooting closure on both public and State Lands with New Mexico Game & Fish.

GRRA-NA-MA- 7. Recreational amenities will be rather limited. The following expected developments will require additional environmental clearances:

- If easements are acquired, the BLM will construct a primitive (undeveloped) parking area/trailhead near Foothills Blvd. and the present "Kinsey Trail".
- The COF may proceed with a developed trailhead/parking facility on their R&PP lease near the Anasazi Amphitheater.

Additional developments can be proposed through a supplementary Environmental Assessment.

GRRA-NA-MA- 8. Complete other administrative projects such as information displays and parking facilities.

GRRA-NA-MA- 9. The BLM will post GRTS entry signs at the locations indicated.

Transportation and Travel

GRRA-NA-MA- 10. Figure 4 shows routes currently existing within the GRTS.

GRRA-NA-MA- 11. Figure 5 shows trails designated within the GRTS.

GRRA-NA-MA- 12. The dispersed recreation areas that could be designated as open to cross-country travel would be further refined as OHV Management Unit plans are developed by FFO staff. Other site-specific screening criteria that could further restrict the potentially open areas will be applied during plan development, including avoidance of cultural resources, sensitive specific habitats, riparian areas, and proximity to residences.

GRRA-NA-MA- 13. Cross-country motorized vehicle use for administrative use is allowed unless specifically prohibited.

GRRA-NA-MA- 14. Cross-country motorized vehicle use for lease and permit holders is not allowed unless specifically authorized.

GRRA-NA-MA- 15. Cross-country motorized vehicle use is not allowed within ½ mile of any residence unless on a maintained road or a designated trail or route.

GRRA-NA-MA- 16. Cross-country motorized vehicle use for camping is allowed within 300 feet of roads by the most direct route, after site selection by non-motorized means.

GRRA-NA-MA- 17. Cross-country motorized vehicle use in dry washes is allowed unless specifically prohibited for protection of other resources.

GRRA-NA-MA- 18. Cross-country motorized vehicle use for game retrieval is allowed by the most direct route unless specifically prohibited.

GRRA-NA-MA- 19. Cross-country motorized vehicle use for access by persons with disabilities is allowed per provisions of the Rehabilitation Act.

GRRA-NA-MA- 20. Dry washes on public land will be considered routes open to travel by any vehicle not wider than the un-vegetated wash bottom.

Figure 4. BLM Inventoried Roads within the GRRA

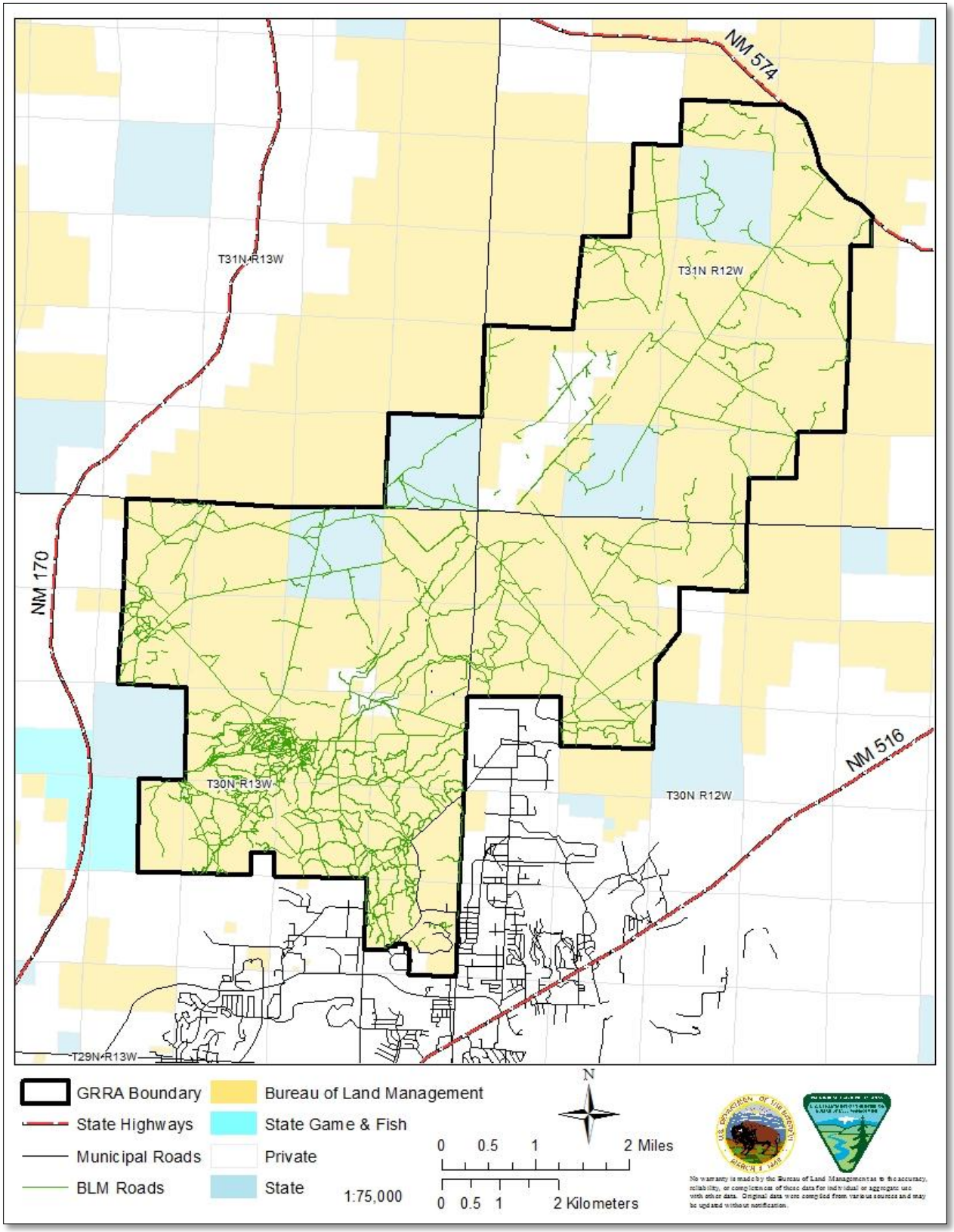
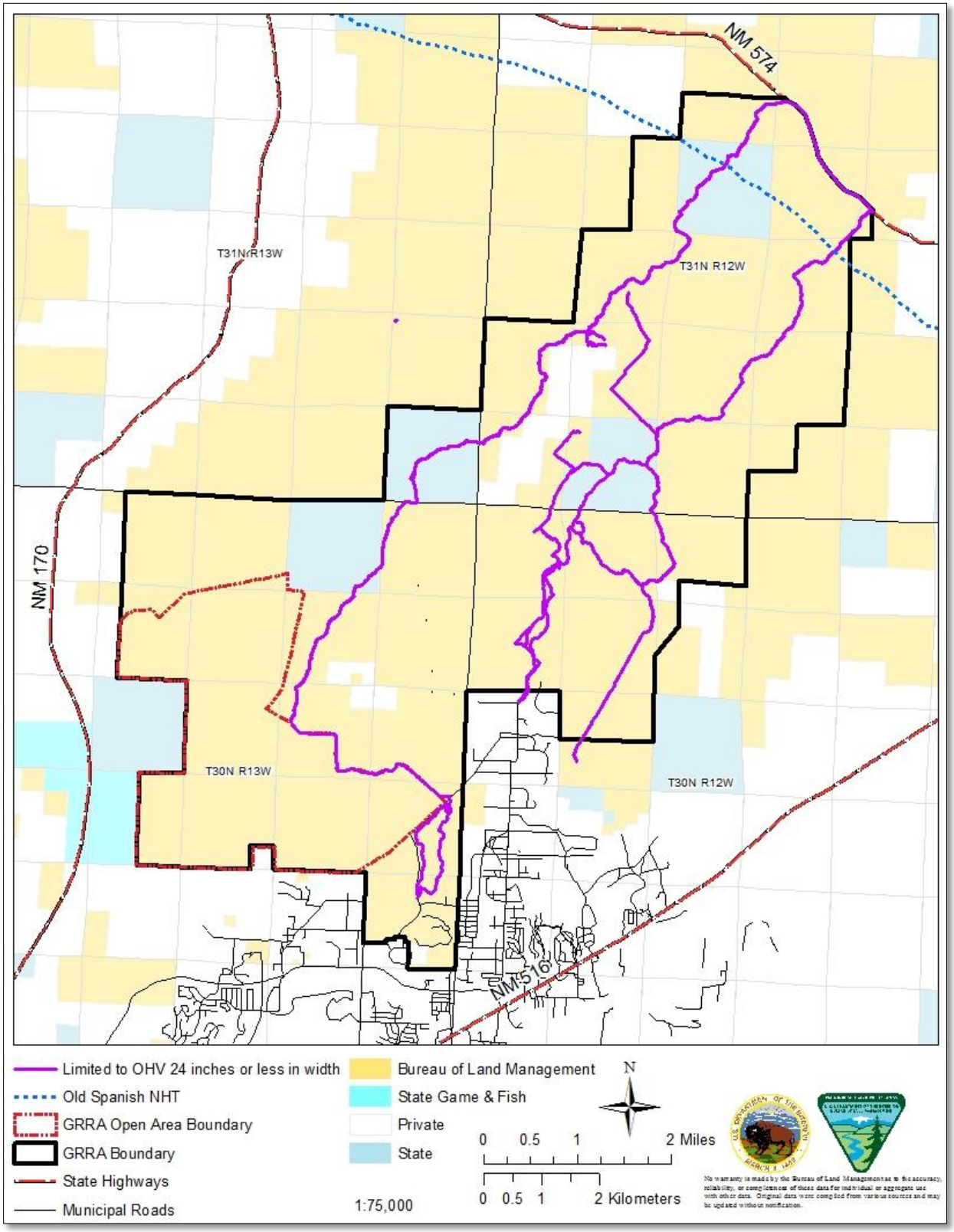


Figure 5. Designated Trails in the GRRA



GRRA-NA-MA- 21. To be suitable for cross-country travel, the land must meet the following criteria:

- BLM surface
- Outside an SDA
- Outside a designated disposal area

GRRA-NA-MA- 22. Acres that met the above criteria were determined to be the least susceptible to damage from cross-country travel by applying the additional criteria below:

- Slopes greater than 30 percent
- South-facing slopes steeper than 15 percent
- Seasonal high water table
- Depth to bedrock less than 20 inches
- Highly erodible by wind or water

GRRA-NA-MA- 23. Cross-country motorized vehicle use for emergency use is allowed.

GRRA-NA-MA- 24. New trails may be designated in the Glade Run Recreation Area based on inventory and public demand after appropriate environmental analysis.

GRRA-NA-MA- 25. Within the Limited Area, vehicles (including mountain bikes) are restricted to designated trails by width. Travel on single-track trails will be prohibited to any vehicle with more than two wheels.

GRRA-NA-MA- 26. An archery trail will be established in the "Limited" area. Vehicles will be limited to the parking area and along the trail to set up and take down targets.

GRRA-NA-MA- 27. Vehicles will be permitted off designated routes at the "Archery Trail" for parking and placement of targets.

GRRA-NA-MA- 28. Trails may be designated "one-way." All such trails will be adequately signed.

GRRA-NA-MA- 29. Having the right of way does not absolve a user from the responsibility of avoiding a collision. All trail users crossing roads will yield to road traffic.

GRRA-NA-MA- 30. Throughout the trails of the SDA, users are expected to travel slowly enough to avoid collisions with on-coming recreationists.

GRRA-NA-MA- 31. The BLM will sign the boundary between the "Open" and “Limited" portions of the GRTS (Figure 3).

GRRA-NA-MA- 32. The BLM will sign all single-track and some two-track and bladed routes for finding users' locations, planning and determining routes, and visitors' safety.

GRRA-NA-MA- 33. Not all designated trails will necessarily be signed.

GRRA-NA-MA- 34. No new activity allowed for a distance of 150 feet from either side of the designated trail system. Exceptions granted on a case-by-case basis as determined by environmental review.

Upland Vegetation

GRRA-NA-MA- 35. All reclamation activity in the SDA will use only native species seeds/plants unless approved.

GRRA-NA-MA- 36. The sections of trail, now re-routed, that formerly crossed private property will be rehabilitated and signed closed at the expense of the BLM with the assistance in labor of user groups.

Special Status Species

GRRA-NA-MA- 37. Any portion of the Glade special management area (SMA) may be fenced and closed at any time to protect Aztec gilia populations (or other threatened or endangered species). Protection may also include trail re-routing, to be determined on a case-by-case basis.

Mineral Development

GRRA-NA-MA- 38. Limited development of minerals with site-specific management constraints that protect the integrity of the trail system and other recreational activities in the SDA and provide for the safety of users.

GRRA-NA-MA- 39. Conditions of Approval (COAs) will be applied to APDs as appropriate. The current COAs are identified below; however, these COAs are subject to modification as new situations or information arises:

- The proposed project lies within the GRRA which is managed for OHV, equestrian, mountain bike and other recreational use on designated trails, routes, and areas. The BLM Outdoor Recreation Planner will be notified seven days prior to any construction, drilling, completion, plugging, seismic exploration or work over activity.
- No construction, drilling, completion, or work-over activities are allowed during BLM-authorized recreation events. The operator or right-of-way agent will contact the recreation staff at [505-564-7600] at least 72 hours prior to these activities for a current listing of recreation event dates and times.
- That portion of construction crossing the recreation trail will be constructed as quickly as possible (within one day) and the trail re-established. No vegetation or other debris will be left on the recreation trail. The trail section will be reshaped, compacted, and hardened to its original condition and alignment. Warning signs will be removed after final reclamation is complete.
- Native, weed-free seed mix will be required for reclamation of disturbed areas.
- Recreation trails will be signed with warning signs where construction activity crosses the trail. The warning signs will be posted prior to the start of construction in both directions along the trail at least 200 feet from the construction zone. Signs must be easily visible by trail users.
- Any BLM sign including carsonite trail markers, which are damaged or removed during the construction or operation of a well location, road, or right-of-way, will be replaced by the company at their expense.
- This action is in a designated noise sensitive area and subject to the final BLM noise Notice to Noise receptor points will be used on single tracks trails and developed facilities to help facilitate any noise mitigation that may be required.
- Lessee: The operator will provide a gas analysis to the FFO within 7 days if hydrogen sulfide is encountered in the gas stream.

GRRA-NA-MA- 40. Proposed locations of wells or pipelines may be moved to accommodate recreational uses.

GRRA-NA-MA- 41. No construction, drilling, completion, plugging, seismic exploration, and work over activity allowed when they would interfere with authorized recreation events.

Land Tenure

GRRA-NA-MA- 42. Easements will be sought from the State of New Mexico for multiple-use, single-track trail (i.e., motorcycles, mountain bikes, horse, foot). BLM will reroute trails on public land if these easements are unobtainable.

GRRA-NA-MA- 43. The BLM will work with the COF to gain easements through Sec. 18 from the end of Foothills Blvd. as access for a primitive (undeveloped) parking lot and trailhead.

GRRA-NA-MA- 44. The following areas will be available for R&PP lease:

- T. 31 N., R. 12 W., Sections 9, 10, and 34.

GRRA-NA-MA- 45. Not available for disposal unless doing so would enhance trail recreation opportunities.

GRRA-NA-MA- 46. Private and state land within the GRTS will receive a high priority for exchange. These exchanges will be pursued only on a voluntary basis. BLM can offer exchanges only on fair market value. The priority of exchanges within the Glade SMA boundary is based on how critical the parcel is to the recreational activities in the area and the likelihood of completing the exchange. The priority is:

- Brown Spring
- Private parcels on the Glade arroyo, from southwest to northeast
- Private parcels in SW corner
- State in SW corner
- Remaining private parcels north of Farmington Lake
- Remaining State sections

GRRA-NA-MA- 47. On-site signing, off-site education, and recreational maps for distribution will be necessary for full enjoyment and protection of the GRTS.

GRRA-NA-MA- 48. The BLM will produce simple maps for recreational use in the GRTS. Under a Cooperative Management Agreements (CMA), local user groups may develop their own maps for distribution or sale.

GRRA-NA-MA- 49. Current maps of designated routes will be maintained by the BLM for public distribution.

Livestock Grazing

GRRA-NA-MA- 50. Water developments and vegetation treatments planned in the Glade area will receive higher priority.

GRRA-NA-MA- 51. From November 1 to June 1 (the GRTS grazing season of use), trailheads and key access points will be signed to alert recreationists to the presence of livestock on the range and call attention to proper behavior around grazing animals in the area.

GRRA-NA-MA- 52. Where trails cross fence lines, cattle guards, and gates will be installed at the expense of the BLM with the assistance in labor of user groups.

Public Outreach and Education

GRRA-NA-MA- 53. The BLM will promote "adopt-a-section" by users' groups or others.

GRRA-NA-MA- 54. An extensive volunteer effort will be coordinated with individuals and various users' clubs to aid in resource protection and monitoring. Training of these volunteers will include emphasis on personal safety and liability concerns.

GRRA-NA-MA- 55. The BLM will continue to coordinate with local law enforcement agencies to develop and present educational programs at area schools that emphasize, among other features, proper use of the GRTS.

GRRA-NA-MA- 56. The BLM will pursue CMAs with users' groups for more detailed assistance in on-site improvements, maintenance, rehabilitation, and management of particular portions of the GRTS.

GRRA-NA-MA- 57. An "ad hoc" committee of GRTS users of similar composition to that used in the formulation of this plan will be consulted on major additional actions within the GRTS and be asked to participate in monitoring the implementation of this RAMP.

GRRA-NA-MA- 58. Users' clubs may pursue CMAs with private landowners.

GRRA-NA-MA- 59. There will be coordination between BLM Ranger and various users' clubs on an extensive volunteer patrol effort. In addition, coordination between the BLM Ranger and oilfield personnel/grazing permittees will be worked out.

GRRA-NA-MA- 60. The possibility exists for the use of COF mountain bike patrols and increased enforcement on their R&PP section (Anasazi Amphitheater area).

GRRA-NA-MA- 61. The BLM will pursue a CMA with county sheriff (including posse). The BLM will continue to coordinate with area law enforcement and San Juan County to help control dumping in the GRTS.

GRRA-NA-MA- 62. The BLM will coordinate with San Juan County Regional Medical Center and AirCare 1 to establish safe helicopter landing zones for emergency evacuations within the GRTS.

2.3.3. Management Common to All Action Alternatives

Goals

GRRA-CAA-G- 1. Provide for quality recreation opportunities to a variety of users.

GRRA-CAA-G- 2. Adaptively manage recreational opportunities offered within the Glade Run Recreation Area for enhanced use, enjoyment, and safety of present and future generations.

GRRA-CAA-G- 3. Manage recreation use in a manner that mitigates impacts on the ecological integrity of the planning area.

GRRA-CAA-G- 4. Provide opportunities for a range of motorized and non-motorized access and recreation experiences on public lands while protecting sensitive resources.

Objectives

GRRA-CAA-O- 1. Create sustainable, satisfying and environmentally responsible recreation opportunities for users to realize mental and physical benefits.

GRRA-CAA-O- 2. Maintain and continue to provide for the current recreation mix of designated recreation for, motorized users, non-motorized users, campers, and day-users within the recreation area that meets current and future demand.

GRRA-CAA-O- 3. Increase recreation opportunities for a wide range of the visiting public.

GRRA-CAA-O- 4. Provide and monitor dispersed day-use activities and take management actions to prevent resource damage to the recreation setting.

Allocations

Land Use Authorizations

GRRA-CAA-A- 1. Manage the GRRA as a ROW avoidance area. ROWs would be allowed only if the:

- ROWs is located away from the trail system; or ROWs is located within or adjacent to other ROWs;
- ROWs provides for the safety of area users.

The following ROWs would not be allowed:

- Surface pipelines;
- Trenches left open overnight without mitigation such as fencing and warning signs posted at trail and/or road crossings.

Management Actions

Recreation

GRRA-CAA-MA- 1. Manage planning area by recreation niche using the RMZ designations discussed in Sections 2.4 through 2.6. RMZs may be adaptive in nature, incorporating new policies, rules or regulations.

GRRA-CAA-MA- 2. The discharge of firearms is prohibited with the exception of licensed hunters of game birds (with shotgun only) on identified lands (62 FR 49524-49525).

GRRA-CAA-MA- 3. Design all facilities (e.g., parking/staging, camping areas, restrooms) using the minimum tool necessary to meet the goals of the development while minimizing resource impacts.

GRRA-CAA-MA- 4. SRPs would be required for all commercial, competitive, vending operations, or group events and activities within the GRRA. Definitions for commercial, competitive, and organized

group events would follow the latest BLM policies. All SRPs must conform to BLM policy, currently BLM Manual 2930 Recreation Permits and Fees and BLM Handbook H-2930-1 Recreation Permit Administration Handbook.

GRRA-CAA-MA- 5. BLM will only give consideration to complete SRP applications that are submitted a minimum of 180 days prior to the planned event/activity and are in agreement with management goals in the planning area.

GRRA-CAA-MA- 6. All designated routes would be considered available for use during special recreation events.

GRRA-CAA-MA- 7. Typically, SRP events/activities would not have exclusive use of an area and would be managed to ensure continued public access and public safety during the event, however, exclusive use could be considered at the request of the applicant or if BLM is concerned for public health and/or safety.

GRRA-CAA-MA- 8. New routes may be proposed for use during a permitted SRP event but must be analyzed following procedures outlined in this document, the NEPA process, and all other relevant rules and regulations.

GRRA-CAA-MA- 9. New authorizations will be placed at a minimum distance of 150 feet from designated routes and trails to minimize site-specific impacts to route or trail integrity and recreational experiences.

GRRA-CAA-MA- 10. Develop designated camping locations and camping length of stay limits as needed for the following purposes:

- Protecting resources;
- Ensuring visitor safety;
- Improving recreation experiences;
- Increasing recreation opportunities.

GRRA-CAA-MA- 11. Camping allowed by permit only. Permits can be obtained from the FFO or online on the FFO website. All camping will follow BLM rules and regulations.

GRRA-CAA-MA- 12. Only certified weed free hay may be used within the GRRA.

GRRA-CAA-MA- 13. Glass is prohibited outside of a vehicle.

GRRA-CAA-MA- 14. Fences will be maintained by the responsible party (e.g., BLM, grazing permittee, leaseholder) as specified in the fence authorization.

GRRA-CAA-MA- 15. BLM will reassess fence concerns as necessary. If fencing issues continue along a portion of trail, the trails need and placement will be reassessed following the route evaluation form and other procedures.

Transportation and Travel

GRRA-CAA-MA- 16. The criteria used to determine the designation (open, limit, or closed) of a specific route, the range of limitations on a route including mode/type of vehicle, seasonal closures, etc., and maintenance level of a route includes, but is not limited to:

- Is the route compatible with objectives outlined in the RMP?
- Is the route compatible with objectives outlined in other management or implementation plans?
- What is the route used for? When is it used and by whom?
- Is the route adequate to provide access for all of its intended purposes?
- Does the routes provide access to existing rights, private land, or other agency lands (e.g., Forest Service, other BLM Field Offices, State of New Mexico, county, or city).
- Is the sole purpose of the route to access private property?
- Is the route necessary for emergency services?

- Does the route pose a threat to public safety?
- Do multiple or parallel routes access the same area? Are they used by different methods of transportation?
- Is the route naturally re-vegetating and no longer receiving use?
- Is the route necessary for authorized commercial activities, including energy development, livestock grazing, and recreation?
- Is the route impacting or does it present a threat to resource values (see questions below)? If so, does its purpose justify the impacts or potential threats to resources?
  - Could the route affect areas of cultural or religious concern for Native Americans?
  - Could the route adversely affect sites that may be eligible for the National Register of Historic Places?
  - Could the route affect known or high potential paleontological sites?
  - Could the route adversely affect Threatened or Endangered species or their habitat?
  - Could the route affect special management species (SMS) or their habitat?
  - Could the route have a potential to encourage harassment or disruption to wildlife?
  - Is the route causing soil active erosion?
  - Does the route traverse soils that are easily eroded or highly susceptible to damage?
  - Does the route go through a known infestation of noxious weeds or invasive species?

These route selection criteria are captured in the route evaluation form (Appendix A). This form and criteria will be applied to future travel planning efforts in the FFO. The authorized officer may adjust these criteria to reflect specific concerns in other travel planning units.

GRRA-CAA-MA- 17. All unidentified routes (e.g., user created routes) located within the GRRA will be considered closed.

GRRA-CAA-MA- 18. Routes are considered closed unless mapped or posted (signed) with an open or limited designation. All signage must be followed at all times. Because signs are at times vandalized or removed, the user is responsible for determining the correct mode of travel based on official maps. Official maps will be made available to the public.

GRRA-CAA-MA- 19. Motorized and mechanized travel onto public lands from adjacent private lands would be limited to the public access points and designated routes provided in the alternatives (that is, if there is not a designated route, motorized or mechanized access would not be permitted). User created or constructed trails would not be allowed off private lands onto public lands.

GRRA-CAA-MA- 20. OHV designations and route designations apply to all off-highway vehicles (OHVs), which include any motorized vehicle capable of, or designed for, travel on or immediately over land, water, or other natural terrain, excluding:

- Any non-amphibious registered motorboat:
- Any military, fire, emergency, or law enforcement vehicle while being used for emergency purposes;
- Any vehicle whose use is expressly authorized by the authorized office or otherwise officially approved;
- Vehicles in official use; and
- Any combat or combat support vehicle when used in times of national defense emergencies (43 CFR 8340-0-5(a)).

GRRA-CAA-MA- 21. All mechanized vehicles and/or contraptions are limited to designated routes outside of any designated Open Areas. No cross country travel is allowed.

GRRA-CAA-MA- 22. Where types of use (e.g., ATV, motorcycle, pedestrian) are limited, minimum restriction methods would be used. Methods of restriction might include, but are not limited to: signage, engineered physical restrictions such as bollards or boulders, or natural reclamation down to the prescribed width.

GRRA-CAA-MA- 23. All trails and re-routed portions of designated trails will follow the trail monitoring and maintenance plan (Appendix D).

GRRA-CAA-MA- 24. All future trails and re-routed portions of designated trails will meet the trail placement criteria (Appendix A).

GRRA-CAA-MA- 25. New proposals for routes or developments will follow procedures outlined in this document, the NEPA process, and all other rules and regulations.

GRRA-CAA-MA- 26. Construct of new routes will be done with the minimum construction techniques appropriate to the scale of the project.

GRRA-CAA-MA- 27. Re-routes, trail work, or ground disturbing maintenance/development will be required to meet all NEPA procedures including cultural and T&E species clearances.

GRRA-CAA-MA- 28. Maintenance and construction efforts for all routes could result in disturbance footprints beyond the final tread width, but would be limited to the minimum disturbance necessary to reasonably carry out these actions.

GRRA-CAA-MA- 29. Install or establish protective barriers as necessary to protect trails, resources, parking/staging areas, and facilities and to prevent travel in areas not designated for use. Barriers may include, but are not limited to, fences and gates. Barriers may be temporary or permanent, and may be made of any suitable material that would meet the goals of the project. The design and location of barriers will be based on site-conditions.

GRRA-CAA-MA- 30. Whenever the authorized officer determines that motorized use (43 CFR 8341.2), non-motorized, or non-mechanized use would cause or is causing considerable adverse effects on resources, the area or route designation may be amended, revised, revoked or other actions taken to reduce or remove the type of use causing the adverse effects.

GRRA-CAA-MA- 31. Routes determined to be providing access to illegal dump sites will be reassessed using the route evaluation form and appropriate mitigation measures taken including, but not limited to, re-locating the route, limiting use, or closure.

GRRA-CAA-MA- 32. All areas/routes identified as closed will be reclaimed.

GRRA-CAA-MA- 33. All areas/routes identified for reclamation or reduced to bare soil that result from implementation of the amendment would be reclaimed following existing field office policy. Currently, that policy is contained in the FFO Bare Soil Reclamation Procedure (February 5, 2013).

GRRA-CAA-MA- 34. Trail monitoring and maintenance will follow the guidance outlined in the Trail Monitoring and Maintenance Plan in Appendix D, unless otherwise provided for in this document.

GRRA-CAA-MA- 35. As trail evaluation and monitoring is completed (following guidelines in Appendix D), erosion associated with routes will be assessed and a monitoring plan may be developed, if needed, based on the methods outlined in *Technical Note 438 – Upland Soil Erosion Monitoring and Assessment: An Overview* (BLM 2011e).

GRRA-CAA-MA- 36. Cross-country motorized vehicle use for lease and permit holders is not allowed unless specifically authorized.

GRRA-CAA-MA- 37. New trails may be designated in the Glade Run Recreation Area based on inventory and public demand after appropriate environmental analysis.

GRRA-CAA-MA- 38. Trails may be designated "one-way." All such trails will be adequately signed.

GRRA-CAA-MA- 39. Having the right of way does not absolve a user from the responsibility of avoiding a collision. All trail users crossing roads will yield to road traffic.

Water Resources

GRRA-CAA-MA- 40. Any surface disturbing activity that impacts a U.S. Army Corps of Engineers jurisdictional waterway would require a Clean Water Act Section 404 permit.

Special Status Species

GRRA-CAA-MA- 41. Any portion of the GRRA may be fenced and closed at any time to protect Aztec gilia or Brack's cactus populations (or other threatened, endangered, or sensitive species). Protection may also include, but is not limited to, trail re-routing, to be determined on a case-by-case basis.

Cultural Resources

GRRA-CAA-MA- 42. Route designation will comply with Section 106 of the *National Historic Preservation Act*. Routes will be assessed for the presence of and potential for cultural resources. The extent of cultural surveys/identification efforts will be determined in consultation with the SHPO and may result in any combination of no survey, sampling, or full inventory.

Paleontological Resources

GRRA-CAA-MA- 43. If paleontological resources are discovered along a designated route, the route may be temporarily closed to allow for further assessment. Potential mitigation could include, but is not limited to, barriers, relocation, and/or closure of the route.

Mineral Development

GRRA-CAA-MA- 44. Valid existing rights will be recognized.

Land Tenure

GRRA-CAA-MA- 45. Seek to acquire lands within the GRRA boundary from willing landowners. Any proposed acquisitions will follow the BLM Acquisition Handbook (H-2100-1) and all applicable laws, regulations and policy requirements.

GRRA-CAA-MA- 46. Seek to acquire lands adjacent to the GRRA and over which the OSNHT crosses from willing land owners. Any proposed acquisitions will follow the BLM Acquisition Handbook (H-2100-1) and all applicable laws, regulations and policy requirements.

GRRA-CAA-MA- 47. Not available for disposal unless doing so would enhance trail recreation opportunities.

National Historic Trails

GRRA-CAA-MA- 48. Management of the Old Spanish National Historic Trail (OSNHT) will be consistent with the National Trails Act. At the completion of the joint BLM/NPS Comprehensive Old Spanish National Historic Trail Management Plan, this plan will be automatically amended to incorporate relevant management prescriptions.

Education and Outreach

GRRA-CAA-MA- 49. Partner with agencies distributing public information (e.g., NMDGF, visitor centers) to effectively communicate rules, regulations, and relevant natural and human history.

GRRA-CAA-MA- 50. Engage in collaborative land management by working in partnership with private and public entities, organizations, and recreational user groups.

GRRA-CAA-MA- 51. Implement the Sign Plan in Appendix A.

GRRA-CAA-MA- 52. Informational/directional signs would be installed where needed throughout the planning area, which could include kiosks on entry routes as appropriate. Signing for designated routes would be implemented by BLM over time and as funding allows.

GRRA-CAA-MA- 53. Available recreational opportunities would be publicized by utilizing technological advances in marketing (e.g., placing scan bar codes on trail markers, providing Keyhole Markup Language (KML) files on website for viewing trails in Google Earth, engaging in social media).

Monitoring

GRRA-CAA-MA- 54. Recreation monitoring will follow the guidance outlined in the Recreation Monitoring Plan in Appendix E.

GRRA-CAA-MA- 55. Implementation and monitoring are dependent on funding (internal or external) and specialists' capability to work with contractors and volunteers. All implementation and monitoring projects would require BLM oversight and administration.

GRRA-CAA-MA- 56. All monitoring and evaluation procedures and forms may be amended and/or updated as new information, procedures, and methods become available.

2.3.4. Management Specific to Alternative A (Preferred Alternative)

Goal

GRRA-A-G- 1. Provide for a balance between recreation activities and resource protection.

Allocations

Recreation

GRRA-A-A- 1. Manage 26,500 acres as the GRRA SRMA with three RMZs (Figure 6).

Land Tenure

GRRA-A-A- 2. Make available for disposal, approximately 980 acres located in T30N R12W portions of section 7 and T30N R13W portions of sections 12, 13, and 24 for the benefit of future R&PP leases (Figure 7). Disposal would only occur if the following conditions are met:

- Identified lands, or a portion of, are requested for a R&PP lease;
- R&PP lease must enhance recreation opportunities within the GRRA;
- Plan of development (POD) for the first R&PP lease must be fulfilled completely prior to an additional R&PP leases being granted;
- Lease area must been maintained in good management order for at least five (5) years prior to any additional legal action (patent, direct sale, etc.)
- Only those portions requested under an R&PP lease would be made available for disposal.

GRRA-A-A- 3. List for disposal, approximately 500 acres in T30N R12W section 25, currently encumbered with an R&PP lease to the COF (Figure 7). BLM withholds, in perpetuity, ownership and management of the RAR trail located in this area. The RAR trail ROW will be the entire length of the trail corridor and a minimum width of 15 feet on either side of the trail centerline.

Management Actions

Recreation

GRRA-A-MA- 1. Motorized group events and activities including more than 10 vehicles would require an SRP.

GRRA-A-MA- 2. Non-motorized group events and activities including more than 10 persons would require an SRP.

GRRA-A-MA- 3. SRPs will be evaluated on a first-come, first-served basis. Preference will be given to repeat events (annual events). Events will not overlap use days within the planning area (e.g., two events will not be held on the same day).

GRRA-A-MA- 4. Additional facilities may be developed based on identified area needs, public demand, location of appropriate site for proposed facilities, and based on funding and personnel availability. This includes camping areas, restrooms, and day-use developments such as picnic tables.

Migratory Birds

GRRA-A-MA- 5. Develop a monitoring plan for routes designated near documented nest sites for raptor species. This plan will address an impact threshold that could result in changes in route characteristics, limitations on route use (temporary seasonal timing restrictions), or closure of the route.

Land Tenure

GRRA-A-MA- 6. If an R&PP application is submitted, all applicable laws, regulations, and policies will be followed including any FLPMA or NEPA requirements.

Figure 6. GRRA Boundary and RMZ Allocations in Alternative A

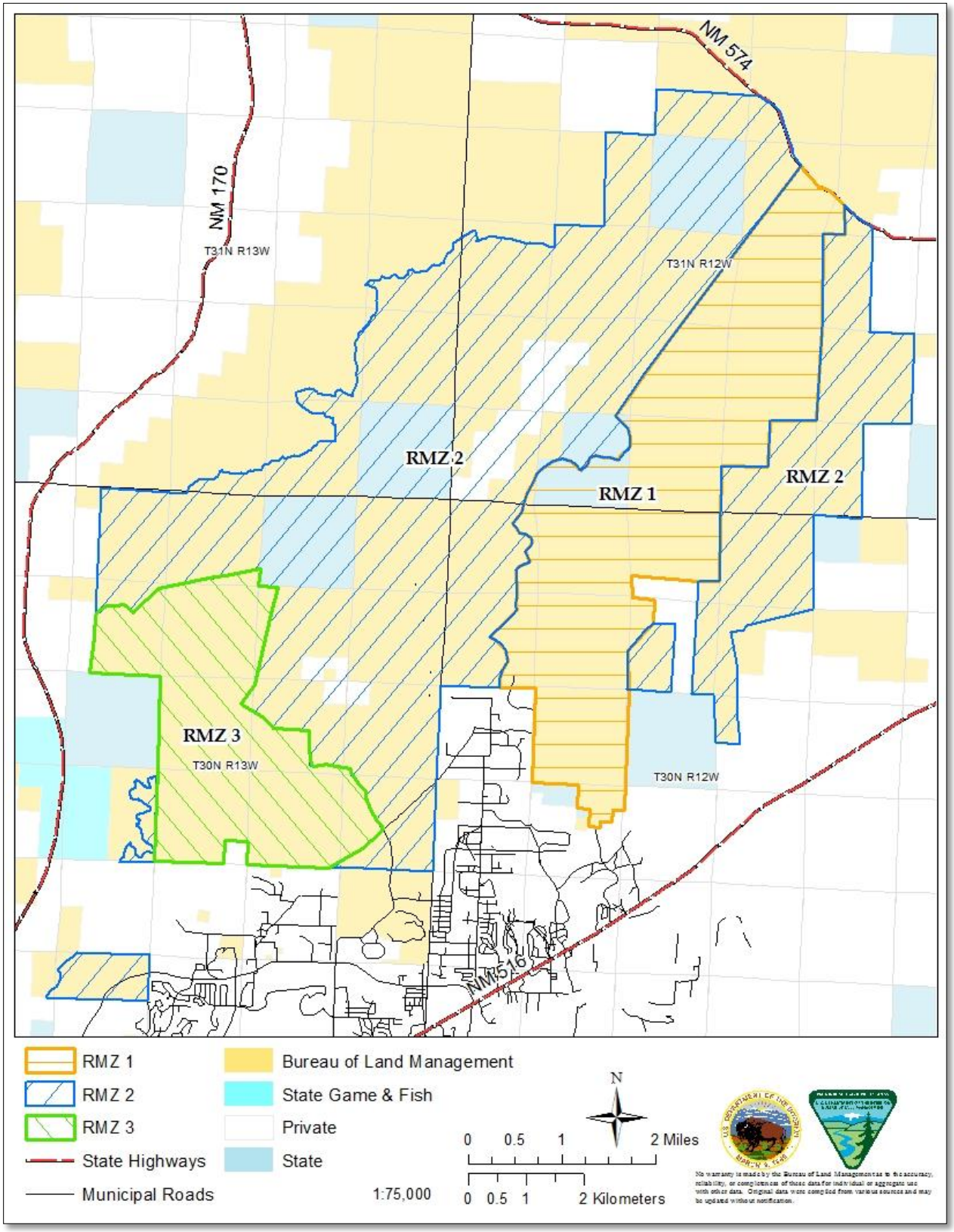
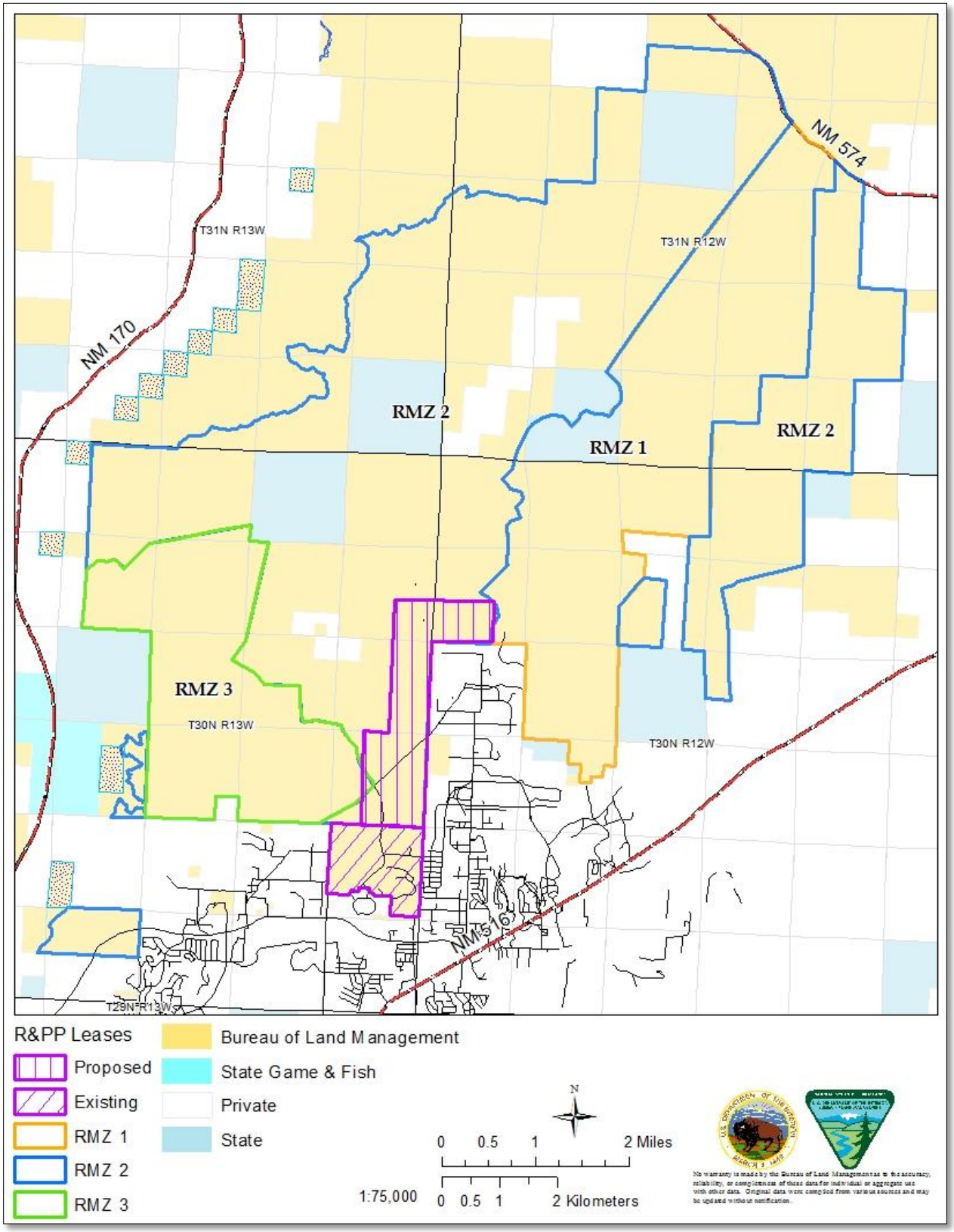


Figure 7. Proposed R&PP Lease Areas for Alternative A



GRRA-A-MA- 7. If an R&PP lease is granted under GRRA-A-A- 2, those acres will be excluded automatically from the boundary of the GRRA. Area designations made in other parts of this plan will automatically be modified to comply with these boundary adjustments.

GRRA-A-MA- 8. If an R&PP lease is granted under GRRA-A-A- 2, BLM retains complete ownership and management of all designated trails located in the affected acres. Trail ROWs will be the entire length of the route and a minimum width of 15 feet on either side of the trail centerline.

2.3.5. Management Specific to Alternative B

Goal

GRRA-B-G- 1. Provide for more extensive OHV-based recreation, maximizing the number, location, and types of routes open to OHV travel.

Allocation

Recreation

GRRA-B-A- 1. Manage 31,800 acres as the GRRA SRMA (Figure 8).

Management Actions

Recreation

GRRA-B-MA- 1. Motorized group events and activities utilizing designated routes and/or the open area and including more than 25 vehicles would require an SRP.

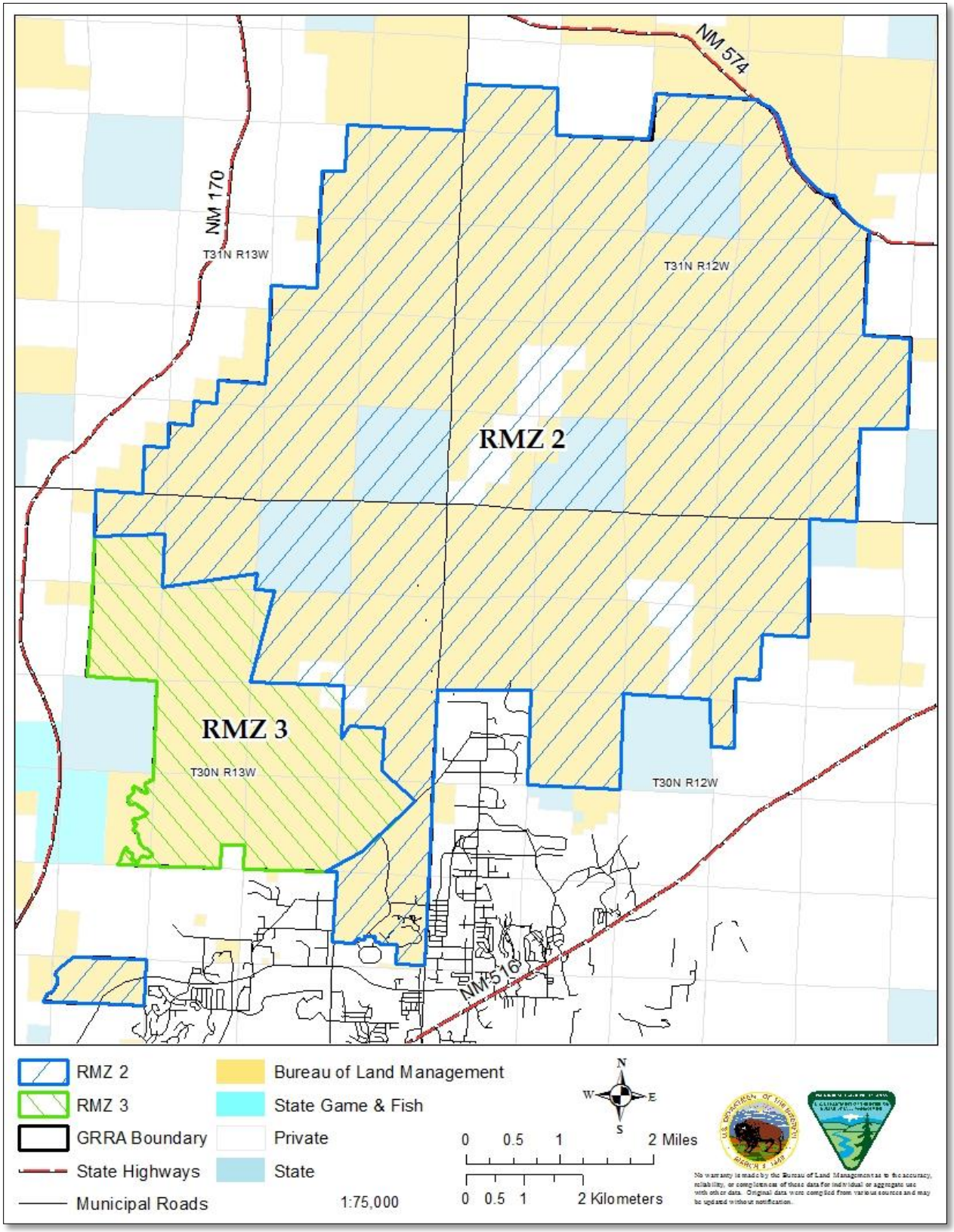
GRRA-B-MA- 2. Non-motorized group events and activities utilizing designated routes and/or the open area including more than 50 persons would require an SRP.

GRRA-B-MA- 3. Additional facilities may be developed based on identified area needs, public demand, location of appropriate site for proposed facilities, and based on funding and personnel availability. This includes camping areas, restrooms, and day-use developments such as picnic tables.

Migratory Birds

GRRA-B-MA- 4. Develop a monitoring plan for routes near documented nest sites for raptors. This plan will address impact thresholds that would result in changes to route characteristics, limitations on route use (temporary seasonal timing restrictions) or the closure of the routes.

Figure 8. GRRA Boundary and RMZ Allocations in Alternative B



2.3.6. Management Specific to Alternative C

Goal

GRRA-C-G- 1. Provide for more restrictive OHV trail recreation, limiting the number, location, and types of routes available for OHV travel.

Allocation

Recreation

GRRA-C-A- 1. Manage 21,100 acres as the GRRA SRMA (Figure 9).

Land Tenure

GRRA-C-A- 2. List for disposal, approximately 700 acres located in T30N R12W portions of sections 7, 8, 17 and T30N R13W portions of sections 12, 13, 24 (Figure 10) for the benefit of future R&PP leases. Disposal would only occur if the following conditions are met:

- Identified lands, or a portion of, are requested for a R&PP lease;
- R&PP lease must enhance recreation opportunities within the GRRA;
- POD for the first R&PP lease must be fulfilled completely prior to an additional R&PP leases being granted;
- Lease area must been maintained in good management order for at least five (5) years prior to any additional legal action (patent, direct sale, etc.)
- Only those portions requested under an R&PP lease would be made available for disposal.

Management Actions

Recreation

GRRA-C-MA- 1. Motorized group events and activities including more than 5 vehicles would require an SRP.

GRRA-C-MA- 2. Non-motorized group events and activities including more than 5 persons would require an SRP.

GRRA-C-MA- 3. Additional facilities may be developed based on identified area needs, public demand, location of appropriate site for proposed facilities, and based on funding and personnel availability. This includes camping areas, restrooms, and day-use developments such as picnic tables.

Land Tenure

GRRA-C-MA- 4. If an R&PP application is submitted, all applicable laws, regulations, and policies will be followed including any FLPMA or NEPA requirements.

GRRA-C-MA- 5. If an R&PP lease is granted under GRRA-C-A- 2, those acres will be excluded automatically from the boundary of the GRRA. Area designations made in other parts of this plan will automatically be modified to comply with these boundary adjustments.

GRRA-C-MA- 6. If an R&PP lease is granted under GRRA-C-A- 2, BLM retains complete ownership and management of all designated trails located in the affected acres. Trail ROWs will be the entire length of the route and a minimum width of 15 feet on either side of the trail centerline.

GRRA-C-MA- 7. In T30N R12W section 25, currently encumbered with a R&PP lease to the COF (Figure 10). BLM withholds, in perpetuity, ownership and management of the RAR trail located in this area. The RAR trail ROW will be the entire length of the trail corridor and a minimum width of 15 feet on either side of the trail centerline.

Figure 9. GRRA SRMA and RMZ Boundaries in Alternative C

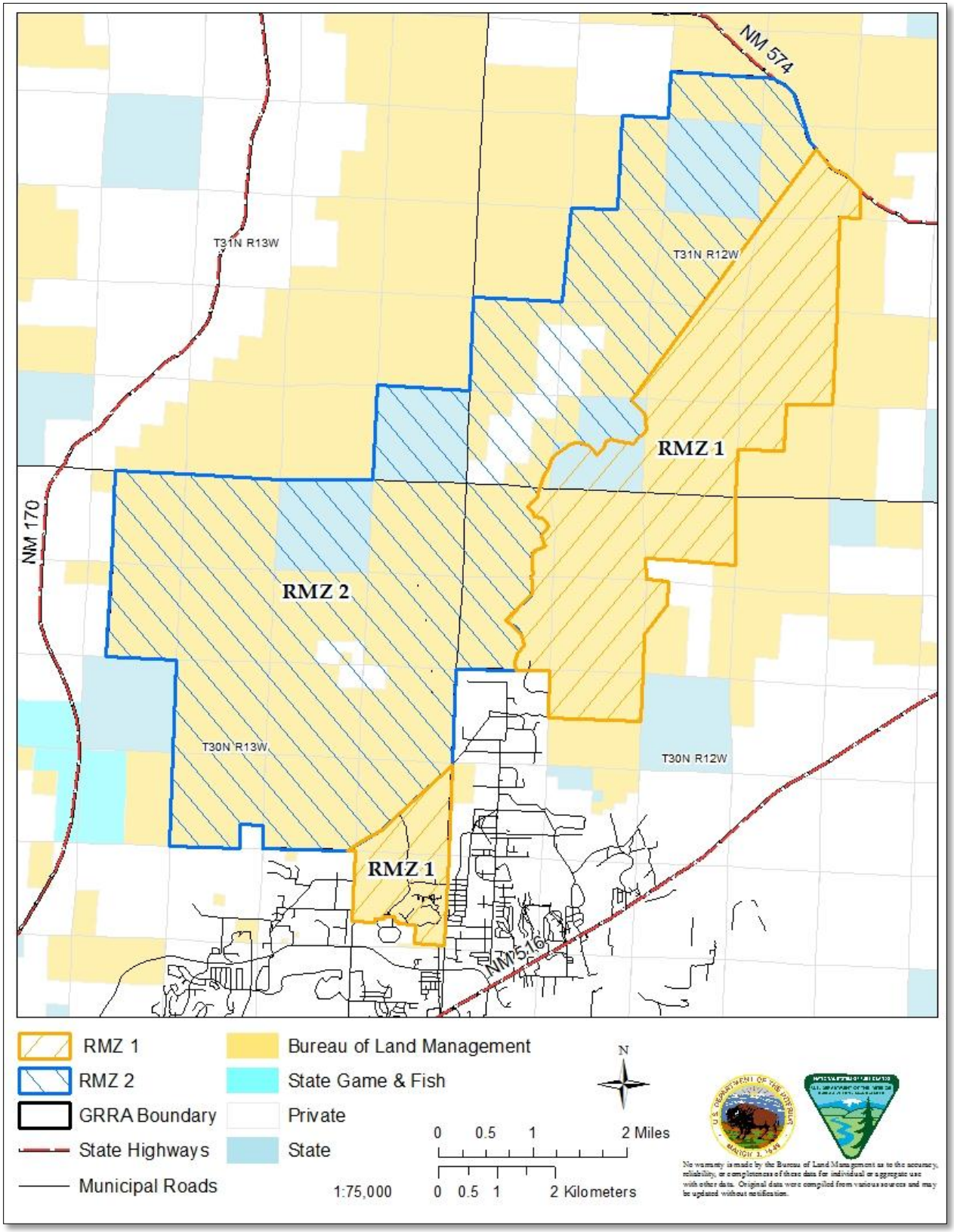
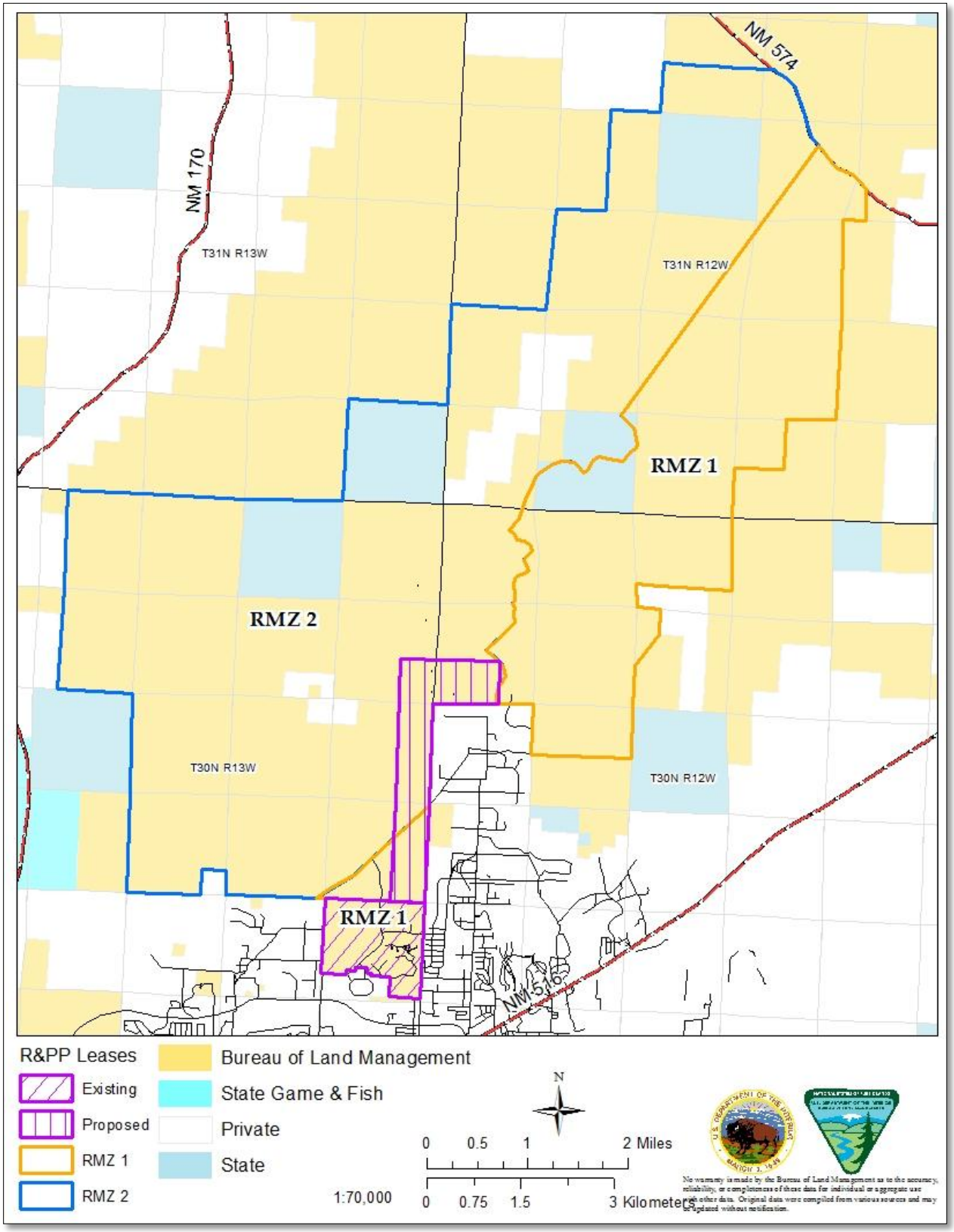


Figure 10. Proposed R&PP Lease in Alternative C



2.4. RMZ 1

2.4.1. Management Common to All Action Alternatives

Goal

RMZ1-CAA-G- 1. Support non-motorized recreation on designated trails.

Objective

RMZ1-CAA-O- 1. Manage RMZ 1 to provide opportunities for visitors to engage in non-motorized trail based and dispersed recreation opportunities in a quiet, semi-rural setting (Table 10).

Management Actions

Recreation

RMZ1-CAA-MA- 1. Management strategies and target opportunities for RMZ 1 are identified in Table 10.

Table 10. RMZ 1 Management Strategy

Targeted Opportunities and Outcomes		
Activities	**Experiences**	**Benefits**
Mountain Biking Hiking, running Horseback riding Dispersed camping	Developing skills and abilities Testing personal endurance Savoring the total sensory experience of a natural landscape Enjoying needed physical exercise	***Personal***: Greater self-reliance; improved skills for outdoor enjoyment; closer relationship with the natural world ***Community***: Greater freedom from urban living ***Economic***: More positive contributions to local and regional economies ***Environmental***: Increased awareness and protection of natural landscapes; reduced negative human impacts such as litter, vegetative trampling, and unplanned trails
Prescribed Setting Character Conditions		
Physical	**Social**	**Operational**
Remoteness: Front Country ***Naturalness:*** Rural ***Facilities:*** Middle Country	***Contacts:*** Backcountry ***Groups Size:*** Backcountry ***Evidence of Use:*** Middle Country	***Access:*** Backcountry ***Visitor Services:*** Middle Country ***Management Controls:*** Middle Country
Implementation (Activity) Planning Framework		
Management	Maintain and improve network for recreation facilities, including trails and staging areas. Install signage to reduce use conflict.	
Marketing	Develop community collaboration and partnerships.	
Monitoring	None identified.	
Administration	Apply special rules to restrict mechanized travel to designated trails.	

2.4.2. Management Specific to Alternative A (Preferred Alternative)

Allocations

Recreation

RMZ1-A-A- 1. Manage 6,100 acres as RMZ 1 (Figure 6).

Transportation and Travel

RMZ1-A-A- 2. Motorized and non-motorized use in RMZ 1 would be limited to designated routes (Figure 6).

Management Actions

Recreation

RMZ1-A-MA- 1. Develop the following parking/staging areas:

- If legal access is granted across the private property located at T30N R12W, section 18, collaborate with the COF to develop a parking area. Name of location: Road Apple Rally South.
- In T31N R12W, section 14, SW ¼, develop a primitive parking area. Location to be named: Road Apple Rally North.

Transportation and Travel

RMZ1-A-MA- 2. Routes are designated as they are displayed in Figure 11 and route specific information can be found in the *Route Comparison Table for the Glade Run Recreation Area Recreation and Travel Management Plan* (BLM 2013). More detail on specific route segments can be accessed through KML files viewable in Google Earth. These files can be downloaded from the Glade Run Recreation Area Management Plan website (http://www.blm.gov/nm/st/en/prog/recreation/farmington/Glade_Run_Recreation_Area/grra_improvement_public.html) or by requesting a CD from the FFO.

RMZ1-A-MA- 3. Trail designations and allowed mode of travel are displayed in Table 11 and Figure 12. Bold underlining indicates the mode of travel focus for construction and maintenance.

Table 11. Trail Designations for RMZ 1 in Alternative A

Trail	Segment Location	Allowable Mode of Travel[1]					
		OHV ≤ 84”	OHV ≤ 65”	OHV ≤ 24”	Mechanized	Equestrian	Pedestrian
Road Apple Rally	T31N R12W secs. 14, 15, 22, 27, 28, 29, 31, 32, 33; T30N R12W secs. 4, 5, 6, 7, 8, 17; T30N R13W sec. 12, 13, 24, 25				**X**[1]	X	X
Sherriff’s Posse Equestrian Trail	T30N R12W secs. 17 and 20				X	**X**[1]	X
OHV Trail	T31N R12W secs. 21, 22, 34; T30N R12W secs. 5, 7, 8, 9		**X**[1]	X	X	X	X

[1] Bold underlining indicates the mode of travel focus for construction and maintenance.

Figure 11. Route Designations for RMZ 1 in Alternative A

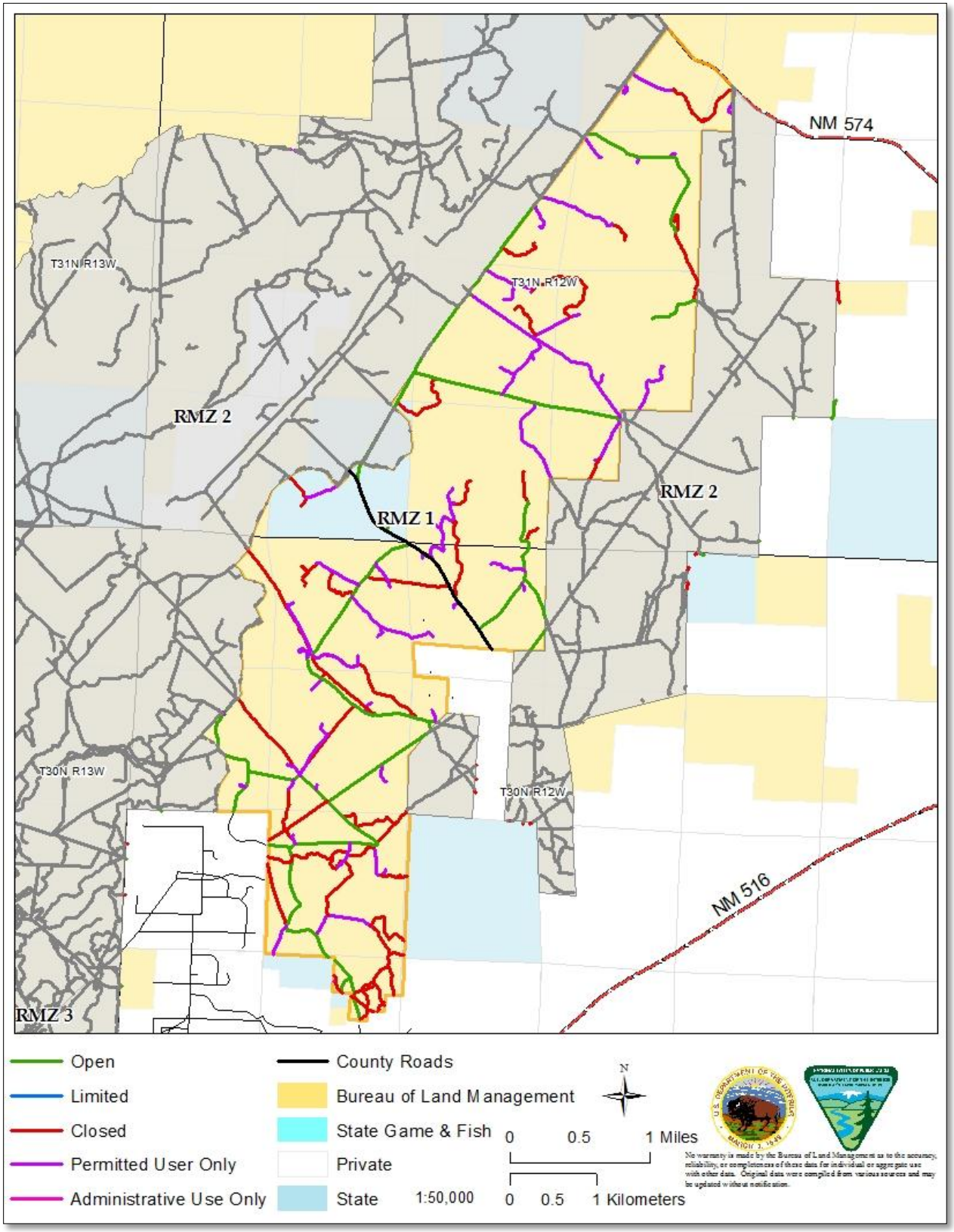
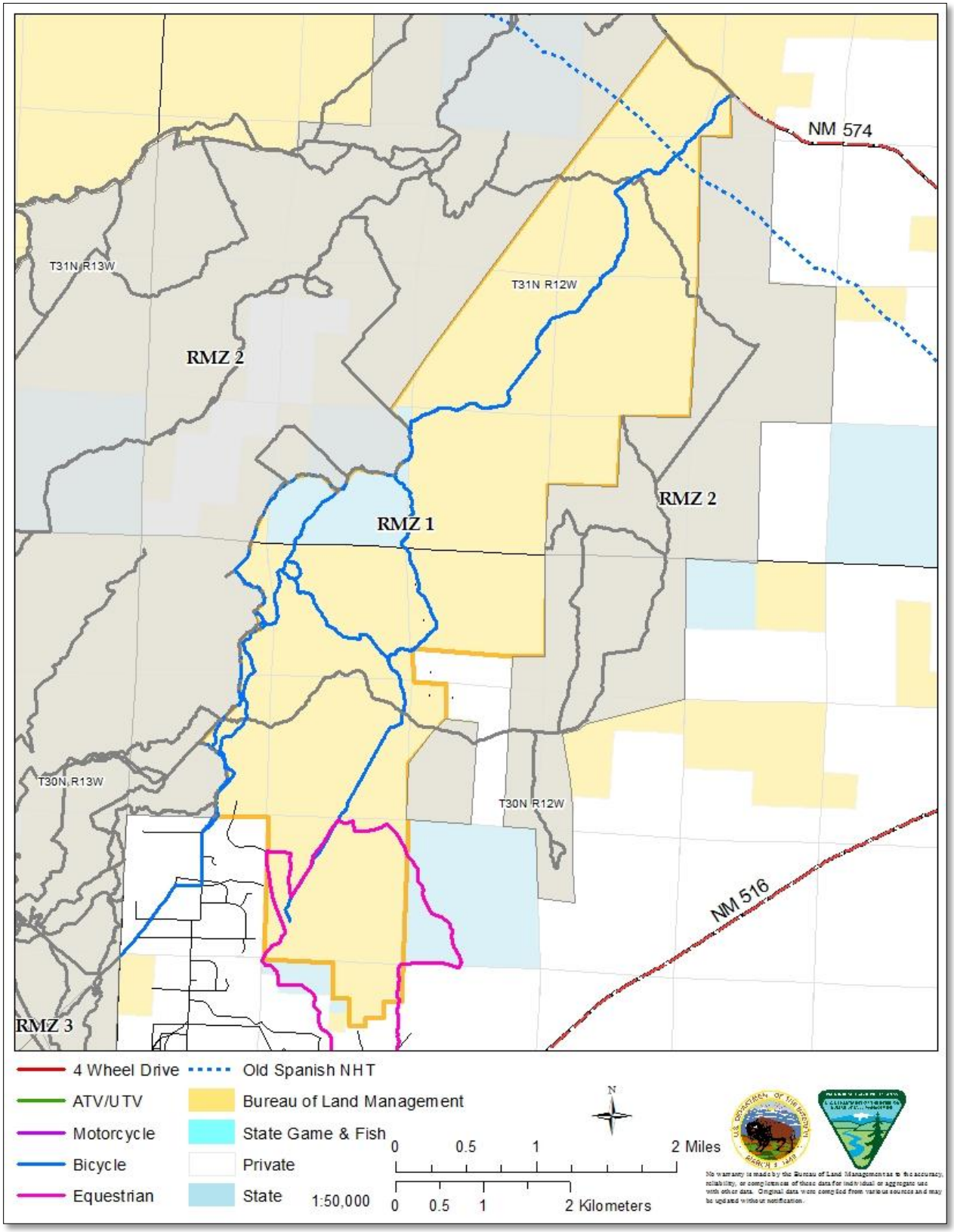


Figure 12. Trail Designations for RMZ 1 in Alternative A



Land Tenure

RMZ1-A-MA- 4. Seek to acquire legal access across the private property located in T30N R12W sec. 18, NW ¼ for non-motorized access to the Road Apple Rally trail to ensure long term access and usability. Potential access could be as an easement, sale, or other form of acquisition from willing land owners.

RMZ1-A-MA- 5. Work to secure access across private, COF, or State of New Mexico lands to the Sherriff's Posse horse trail loop. Potential access could be as an easement, sale, or other form of acquisition from willing land owners.

RMZ1-A-MA- 6. Collaborate with the COF and/or Sherriff's Posse to establish a corral parking/staging area on private, COF State of New Mexico lands to provide for a trailhead for the Sherriff's Posse horse trail loop.

National Historic Trails

RMZ1-A-MA- 7. Pursuant to additional cultural inventory and/or the publication of the Joint BLM/NPS Comprehensive OSNHT Management Plan, management of the OSNHT would include the following:

- Development of an interpretive station near or at the proposed parking/staging area identified in T31N R 12W, section 14 SW ¼ pursuant to appropriate funding and personnel.
- Manage a ¼ mile corridor centered on the congressionally designated trail as a NSO area for new mineral leases and/or future renewable energy development.
- This ¼ mile corridor will serve as the official National Trail Right-of-Way until such time as new information becomes available and/or the corridor is modified.
- New routes designated within the ¼ mile corridor must meet the intent of the National Trail System Act (NTSA), be non-motorized in nature, and attempt to maximize the vicarious experience of the OSNHT.
- As additional information is acquired by BLM, modifications may be made to the size, location and/or management prescriptions of the corridor and/ or OSNHT.
- This segment of the OSNHT may be managed independently from the trail as a whole.

Education and Outreach

RMZ1-A-MA- 8. Information kiosks, interpretive stations, and other educational or informative infrastructure could be developed within or near any or all parking/staging areas.

2.4.3. Management Specific to Alternative C

Allocations

Recreation

RMZ1-C-A- 1. Manage 6,400 acres as RMZ 1 (Figure 9).

Transportation and Travel

RMZ1-C-A- 2. Motorized vehicle use in RMZ 1 would be limited to designated, maintained primitive roads (Figure 9).

Management Actions

Recreation

RMZ1-C-MA- 1. Develop the following parking/staging areas:

- If legal access is granted across the private property located at T30N R12W, section 18, collaborate with the COF to develop a parking area. Name of location: Road Apple Rally South.
- In the SW ¼ of section 14, T31N R12W, develop a parking area. Location to be named: Road Apple Rally North.

RMZ1-C-MA- 2. Prioritize maintenance of trails used for competitive events (e.g., Road Apple Rally and XTERRA).

RMZ1-C-MA- 3. Additional facilities may be developed based on identified area needs, public demand, location of appropriate site for proposed facilities, and based on funding and personnel availability. This includes camping areas, restrooms, and day-use developments such as picnic tables.

Transportation and Travel

RMZ1-C-MA- 4. Routes are designated as they are displayed in Figure 13 and route specific information can be found in the *Route Comparison Table for the Glade Run Recreation Area Recreation and Travel Management Plan* (BLM 2013). More detail on specific route segments can be accessed through KML files viewable in Google Earth. These files can be downloaded from the Glade Run Recreation Area Management Plan website (http://www.blm.gov/nm/st/en/prog/recreation/farmington/Glade_Run_Recreation_Area/grra_improvement_public.html) or by requesting a CD from the FFO.

RMZ1-C-MA- 5. Trail designations are displayed in Figure 14 and Table 12. Bold underlining indicates the mode of travel focus for construction and maintenance.

Table 12. Trail Designations for RMZ 1 in Alternative C

Trail	Segment Location	Allowable Modes of Travel[1]					
		OHV ≤ 72”	OHV ≤ 50”	OHV ≤ 24”	Mechanized	Equestrian	Pedestrian
Road Apple Rally	T31N R12W secs. 14, 15, 22, 27, 28, 29, 31, 32, 33; T30N R12W secs. 4, 5, 6, 7, 8, 17; T30N R13W sec. 24, 25				**X**[1]	X	X
Sherriff’s Posse Equestrian Trail	T30N R12W secs. 17 and 20				X	**X**[1]	X

[1] Bold underlining indicates the mode of travel focus for construction and maintenance.

Figure 13. Route Designations for RMZ 1 in Alternative C

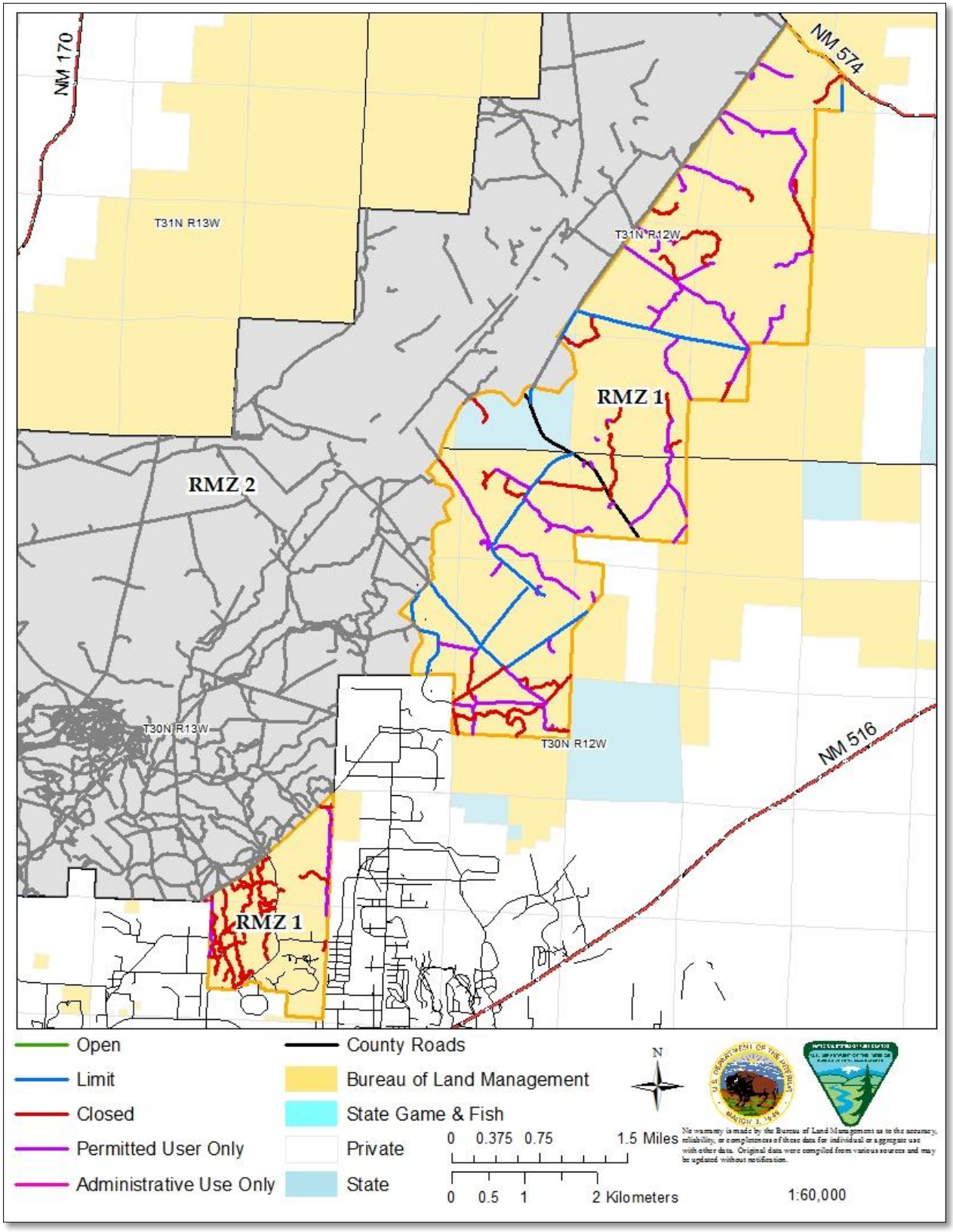
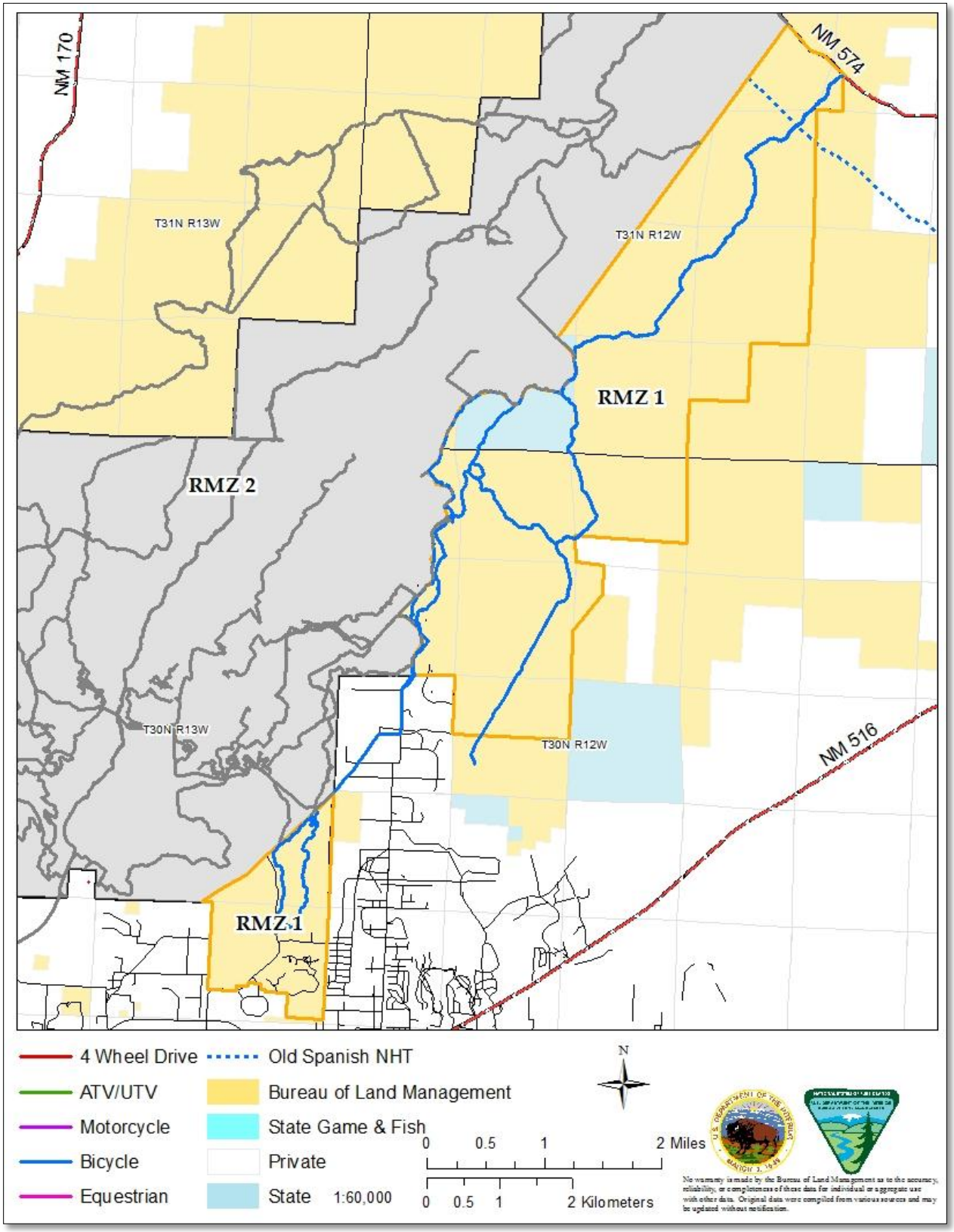


Figure 14. Trail Designations for RMZ 1 in Alternative C



Land Tenure

RMZ1-C-MA- 6. Seek to acquire legal access across the private property located in T30N R12W, section 18 for non-motorized access to the Road Apple Rally trail to ensure long term access and usability. Potential access could be as an easement, sale, or other form of acquisition from willing land owners.

RMZ1-C-MA- 7. Work to secure access across private, COF, or State of New Mexico lands to the Sherriff's Posse horse trail loop. Potential access could be as an easement, sale, or other form of acquisition from willing land owners.

RMZ1-C-MA- 8. Collaborate with the COF and/or Sherriff's Posse to establish a corral parking/staging area on private, COF, State of New Mexico lands to provide for a trailhead for the Sherriff's Posse horse trail loop.

National Historic Trail

RMZ1-C-MA- 9. Pursuant to additional cultural inventory and/or the publication of the Joint BLM/NPS Comprehensive OSNHT Management Plan, management of the OSNHT would include the following:

- Development of an interpretive station near or at the proposed parking/staging area identified in T31N R 12W, section 14 SW ½, pursuant to appropriate funding and personnel.
- Manage a ½ mile corridor centered on the congressionally designated trail as a NSO area for new mineral leases and/or future renewable energy development.
- This ½ mile corridor will serve as the official National Trail Right-of-Way until such time as new information becomes available and/or the corridor is modified.
- New routes designated within the ½ mile corridor must meet the intent of the NTSA, be non-motorized in nature, and attempt to maximize the vicarious experience of the OSNHT.
- As additional information is acquired by BLM, modifications may be made to the size, location and/or management prescriptions of the corridor and/ or OSNHT.

Education and Outreach

RMZ1-C-MA- 10. Information kiosks, interpretive stations, and other educational or informative infrastructure could be developed within or near any or all parking/staging areas.

2.5. RMZ 2

2.5.1. Management Common to All Action Alternatives

Goal

RMZ2-CAA-G- 1. Support motorized and non-motorized recreation on designated trails.

Objective

RMZ2-CAA-O- 1. Manage RMZ 2 to provide opportunities for community residents and visitors who use the area to engage in sustainable trail based day-use opportunities and gain appreciation of the natural setting of the GRRA through self-discovery, dispersed camping opportunities, and OHV touring on designated routes (Table 13).

Management Actions

Recreation

RMZ2-CAA-MA- 1. The management strategy and target opportunities for RMZ 2 are displayed in Table 13.

Table 13. RMZ 2 Management Strategy

Targeted Opportunities and Outcomes		
Activities	**Experiences**	**Benefits**
OHV Trail Riding Mountain Bike Trail Riding Driving For Pleasure Dispersed camping	Developing skills and abilities Testing personal endurance Enjoying risk-taking adventure Savoring the total sensory experience of a natural landscape Escaping everyday responsibilities for awhile	***Personal***: Greater self-reliance; improved skills for outdoor enjoyment; closer relationship with the natural world ***Community***: Providing a place near but outside the community to recreate; removing unwanted uses from industrial areas; addressing health and safety concerns. ***Economic***: Improved local economic stability; maintenance of community's diverse recreation tourism market ***Environmental***: Increased awareness and protection of natural landscapes; reduced negative human impacts such as litter, vegetative trampling, and unplanned trails
Prescribed Setting Character Conditions		
Physical	**Social**	**Operational**
Remoteness: Front Country ***Naturalness:*** Rural ***Facilities:*** Middle Country	***Contacts:*** Middle Country ***Groups Size:*** Middle Country ***Evidence of Use:*** Rural	***Access:*** Middle Country ***Visitor Services:*** Middle Country ***Management Controls:*** Middle Country
Implementation (Activity) Planning Framework		
Management	Establish an OHV staging area (parking, loading/unloading ramps), information kiosks. Develop high quality trail system, including maintenance of existing trail. Install signage to reduce use conflict.	
Marketing	Encourage strong stewardship ethic among users, through dissemination of information via kiosks and brochures. Coordinate management with local communities and user groups. Establish a system of grading trail experience/difficulty.	
Monitoring	Encourage local volunteer groups to actively monitor trail network, use and compliance.	
Administration	Apply special rules to restrict mechanized travel to designated trails. Acquire public access across private and State of NM lands.	

2.5.2. Management Specific to Alternative A (Preferred Alternative)

Allocations

Recreation

RMZ2-A-A- 1. Manage 17,000 acres as RMZ 2 (Figure 6).

Transportation and Travel

RMZ2-A-A- 2. Motorized and non-motorized vehicle use in RMZ 2 would be limited to designated routes (Figure 6).

Land Tenure

RMZ2-A-A- 3. Approve a 700-acre R&PP lease to the COF (Figure 15). The COF proposes are to provide public green space, connect the Anasazi loop (TRL167 and TRL151) to the southern portion of the Kinsey leg of the Road Apple Rally Trail (TRL142), and develop a neighborhood park. The following COAs would apply:

- OHV use in the area would be limited to designated roads and trails to allow for access from the Foothills area.
- BLM would be co-owners of any trail development that occurred at no charge.
- Developed trails would be available for use during speciation recreation events (SRP event). Stipulations for such events would be developed in consultation with COF.
- BLM would be the sole, independent, manager of all SRP events utilizing these trails.
- SRP events held on R&PP leased land trails may require additional permits from the COF.

Management Actions

Recreation

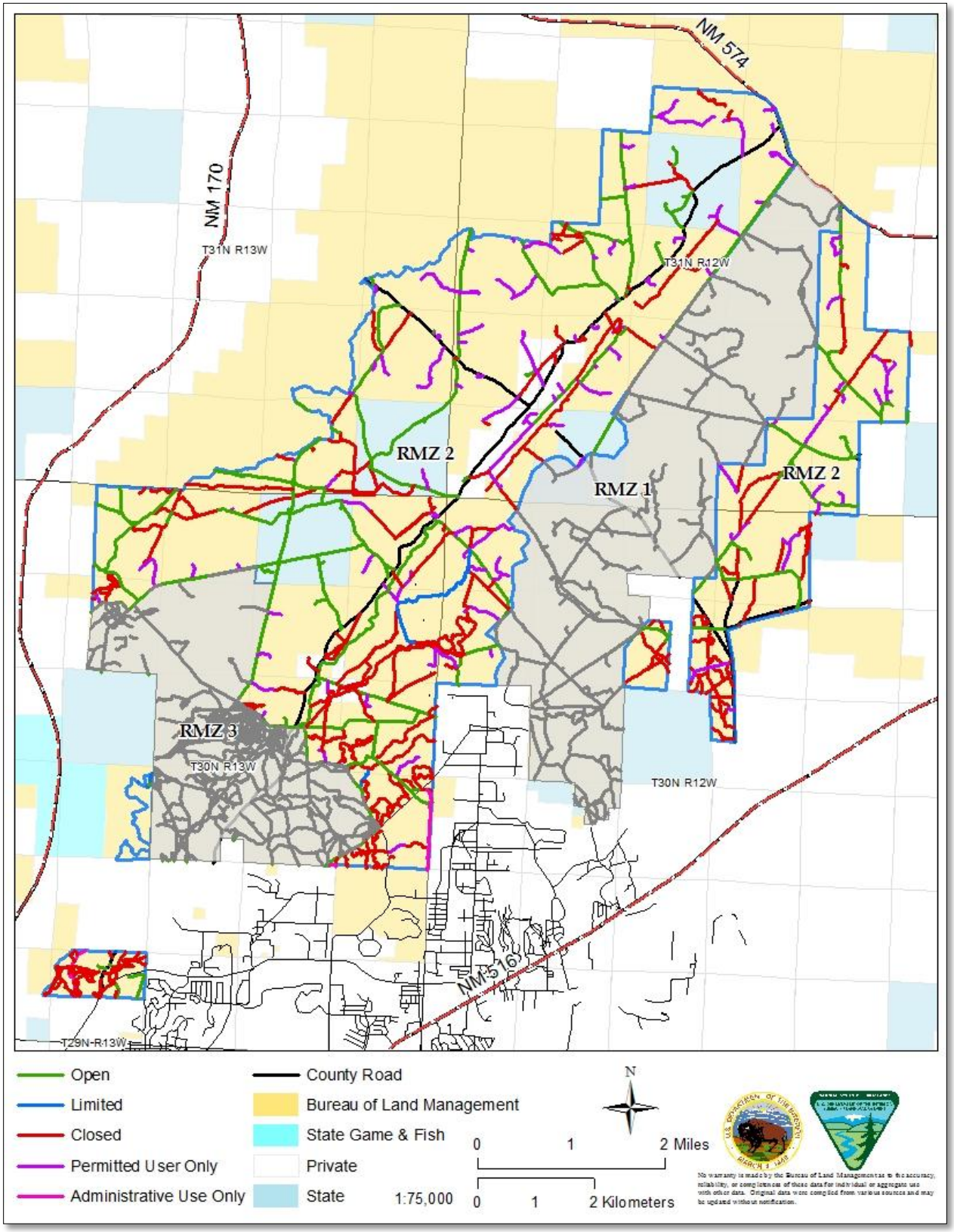
RMZ2-A-MA- 1. Develop the following parking/staging areas:

- One on Hood Mesa at the current COF parking lot. Name of location will be: East Hood Mesa Parking Lot.
- One west of the COF parking lot off of Hood Mesa to accommodate vehicles with trailers. Name of location will be: West Hood Mesa Staging Area.
- Two east of CR 1980 in T31N R12W sec. 10 and sec. 15. Names of the locations will be: Glade Wash Staging Area (sec. 10) and Roller Coaster Staging Area (sec. 15).
- At the intersection of Pinion Hills Boulevard and CR 1980 in T 30N R13W sec. 33. Name of location will be: Pinion Hills Staging Area.

Transportation and Travel

RMZ2-A-MA- 2. Routes are designated as they are displayed in Figure 15 and route specific information can be found in the *Route Comparison Table for the Glade Run Recreation Area Recreation and Travel Management Plan* (BLM 2013). More detail on specific route segments can be accessed through KML files viewable in Google Earth. These files can be downloaded from the Glade Run Recreation Area Management Plan website (http://www.blm.gov/nm/st/en/prog/recreation/farmington/Glade_Run_Recreation_Area/grra_improvement_public.html) or by requesting a CD from the FFO.

Figure 15. Route Designations for RMZ 2 in Alternative A



RMZ2-A-MA- 3. Trail designations are displayed in Table 14 and Figure 16. Bold underlining indicates the mode of travel focus for construction and maintenance.

Table 14. Trail Designations for RMZ 2 in Alternative A

Trail	Segment Location	Allowable Modes of Travel[1]					
		OHV ≤ 84"	OHV ≤ 65"	OHV ≤ 24"	Mechanized	Equestrian	Pedestrian
Road Apple Rally	T31N R13W sec. 36; T31N 12W sec. 9, 10, 16, 20, 21, 29, 30, 31, T30N R13W sec. 1, 2, 11, 13, 14, 24			**X**[1]	**X**[1]	X	X
Motorcycle Trail	T30N R 13W sec. 1, 2, 3, 4, 10, 11, 14, 15, 22, 33; T31N 12W sec. 9, 10, 16, 17, 18, 19, 20, 21, 29, 30; T31N 13W sec. 24, 25, 26, 34, 35, 36			**X**[1]	X	X	X
OHV Trail	T31N R13W sec. 23, 24, 25, 26, 34, 35; T31N R12W sec. 19, 20, 21, 26, 34; T30N R12W sec. 3, 9, 10, 15; T30N R13W sec. 3, 4, 12, 13		**X**[1]	X	X	X	X
Cliffhanger Trails	T30N R13W sec. 1, 13, 14	**X**[1]	X	X	X	X	X

[1] Bold underlining indicates the mode of travel focus for construction and maintenance.

RMZ2-A-MA- 4. Existing trailhead markers will be used to designate Cliff Hanger trailheads. These markers will be modified to meet information standards identified in the Sign Plan (Appendix C) and to include the GPS coordinates of the trail start and end locations.

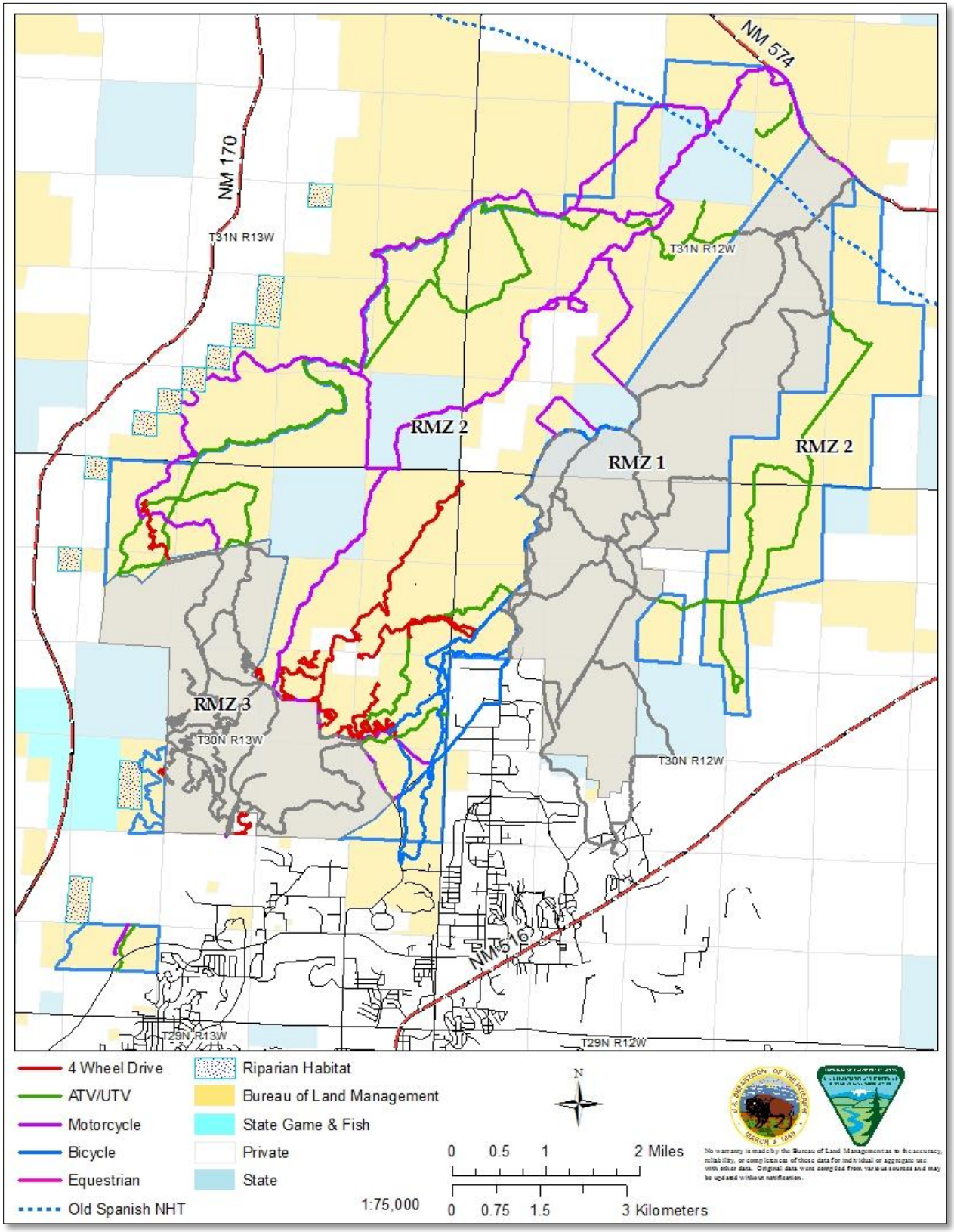
RMZ2-A-MA- 5. Collaborate with the COF, NMDGF and other interested parties to develop areas around Farmington Lake to connect into the GRRA trail system to increase future trail diversity.

RMZ2-A-MA- 6. The trailheads and associated trails displayed in Table 15 are designated for technical OHVs greater than 65 inches in width but the trail tread is not to exceed 84 inches in width and may be used by smaller vehicles.

Table 15. Cliffhanger Trailheads and Trails Designated for OHV Use in RMZ 2 in Alternative A

Trail Name	Unique ID
Casanova Mount	PTRL18
Collard's Climb	PTRL22
Cotton Wood	PTRL26
Coyote Cat Canyon	PTRL27
Joe Brown's Canon	PTRL45
Last Boy Scout Trail	PTRL48
Overland Express	PTRL55
Reptile	PTRL60
Stupid	PTRL74

Figure 16. Trail Designations for RMZ 2 in Alternative A



Special Status Species

RMZ2-A-MA- 7. OHV routes that transverse portions of the designated sensitive species habitats for Brack's cactus and Aztec gilia will be assessed at least once annually for compliance with restrictions and in conjunction with the Trail Monitoring and Maintenance Plan (Appendix D). If the route(s) are determined to be out of compliance, appropriate mitigation measures will be taken including, but not limited to, re-locating the route, further limiting use, installation of barriers, or closure. The following occurrences will result in immediate reassessment:

- Development of user created routes;
- Continued use of routes that are identified for closure;
- Degradation or impairment of habitat along route path;
- Change in designation of the sensitive species habitat.

National Historic Trails

RMZ2-A-MA- 8. Pursuant to additional cultural inventory and/or the publication of the Joint BLM/NPS Comprehensive OSNHT Management Plan, management of the OSNHT would include the following:

- Development of an interpretive station near or at the proposed parking/staging area identified in T31N R 12W, section 14 SW ¼, pursuant to appropriate funding and personnel.
- Manage a ¼ mile corridor centered on the congressionally designated trail as a NSO area for new mineral leases and/or future renewable energy development.
- This ¼ mile corridor will serve as the official National Trail Right-of-Way until such time as new information becomes available and/or the corridor is modified.
- New routes designated within the ¼ mile corridor must meet the intent of the NTSA, be non-motorized in nature, and attempt to maximize the vicarious experience of the OSNHT.
- As additional information is acquired by BLM, modifications may be made to the size, location and/or management prescriptions of the corridor and/ or OSNHT.
- This segment of the OSNHT may be managed independently from the trail as a whole.

Land Tenure

RMZ2-A-MA- 9. If an R&PP application is submitted, all applicable laws, regulations, and policies will be followed including any FLPMA or NEPA requirements.

Outreach and Education

RMZ2-A-MA- 10. Information kiosks, interpretive stations, and other educational or informative infrastructure could be developed within or near any or all parking/staging areas.

Monitoring

RMZ2-A-MA- 11. OHV route(s) will be monitored at least once every three years to determine if trail maintenance is warranted and if route(s) is (are) in compliance with use restrictions. If route(s) is/are determined to be out of compliance, appropriate mitigation measures will be taken including, but not limited to, re-locating the route(s), further limiting use, installation of barriers, or closure.

2.5.3. Management Specific to Alternative B

Allocations

Recreation

RMZ2-B-A- 1. Manage 27,300 acres as RMZ 2 (Figure 8).

Recreation

RMZ2-B-A- 2. Motorized vehicle use in RMZ 2 would be limited to designated routes (Figure 8).

Management Actions

Recreation

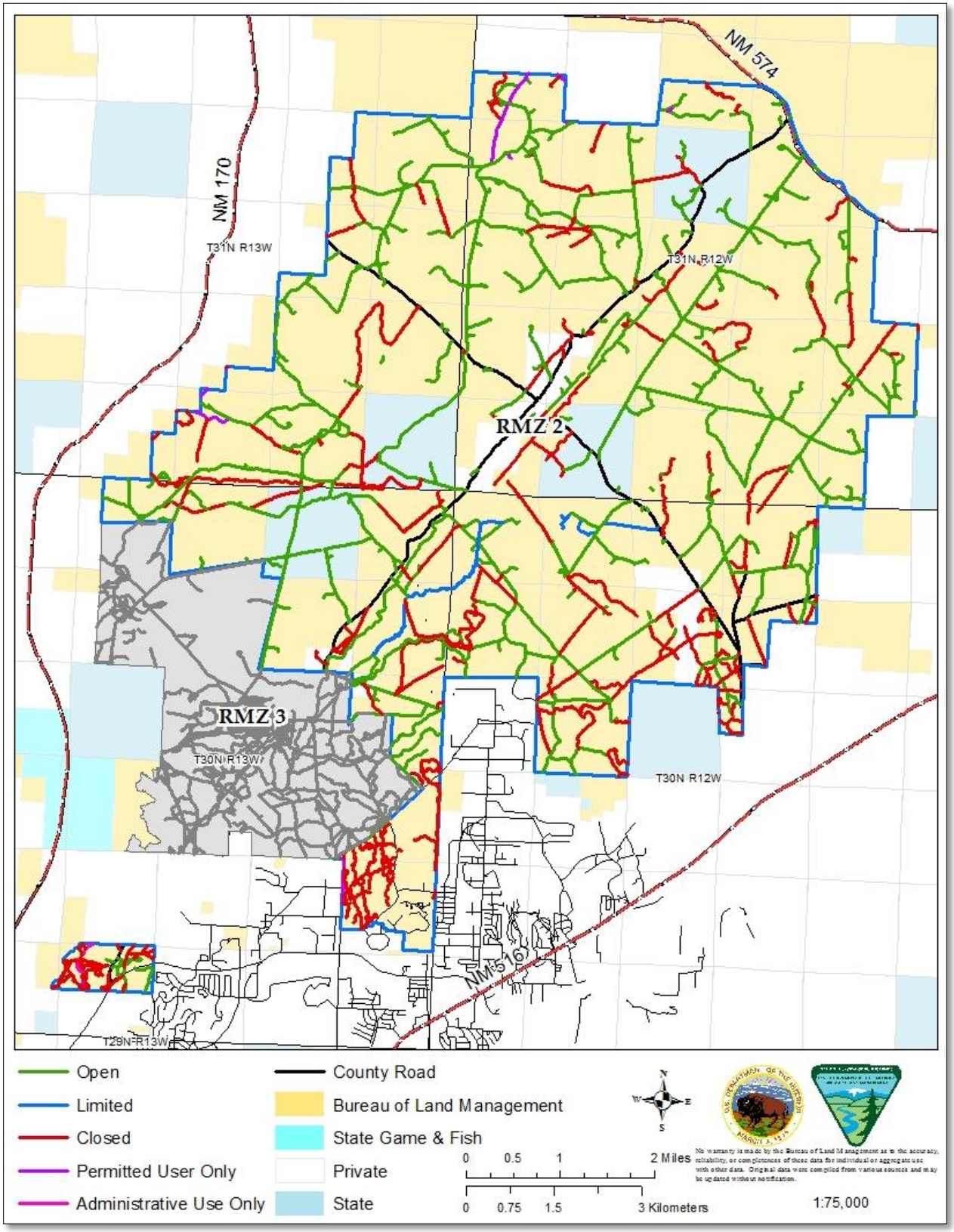
RMZ2-B-MA- 1. Develop the following parking/staging areas:

- If legal access is granted across the private property located at T30N R12W, section 18, collaborate with the COF to develop a parking area. Name of location: Road Apple Rally South.
- In the SW ¼ of section 14, T31N R12W, develop a primitive parking area. Location to be named: Road Apple Rally North.
- One on Hood Mesa at the current COF parking lot. Name of location will be: East Hood Mesa Parking Lot.
- One west of the COF parking lot off of Hood Mesa to accommodate vehicles with trailers. Name of location will be: West Hood Mesa Staging Area.
- Two east of CR 1980 in T31N R12W sec. 10 and sec. 15. Names of the locations will be: Glade Wash Staging Area (sec. 10) and Roller Coaster Staging Area (sec. 15).
- At the intersection of Pinion Hills Boulevard and CR 1980 in T 30N R13W sec. 33. Name of location will be: Pinion Hills Staging Area.

Transportation and Travel

RMZ2-B-MA- 2. Routes are designated as they are displayed in Figure 17 and route specific information can be found in the *Route Comparison Table for the Glade Run Recreation Area Recreation and Travel Management Plan* (BLM 2013). More detail on specific route segments can be accessed through KML files viewable in Google Earth. These files can be downloaded from the Glade Run Recreation Area Management Plan website (http://www.blm.gov/nm/st/en/prog/recreation/farmington/Glade_Run_Recreation_Area/grra_improvement_public.html) or by requesting a CD from the FFO.

Figure 17. Route Designations for RMZ 2 in Alternative B



RMZ2-B-MA- 3. Trail designations are displayed in Figure 18 and Table 16. Bold underlining indicates the mode of travel focus for construction and maintenance.

Table 16. Trail Designations for RMZ 2 in Alternative B

Trail	Segment Location	Allowable Modes of Travel[1]					
		OHV ≤ 108"	OHV ≤ 75"	OHV ≤ 24"	Mechanized	Equestrian	Pedestrian
Road Apple Rally	T31N R13W sec. 36; T31N 12W sec. 9, 10, 16, 20, 21, 22, 27, 28, 29, 30, 31, 32, 33; T30N R13W sec. 1, 2, 11, 13, 14, 24, 25			**X**[1]	**X**[1]	X	X
Sherriff's Posse Equestrian Trail	T30N R12W secs. 17 and 20				X	**X**[1]	X
Motorcycle Trail	T30N R 13W sec. 1, 2, 3, 4, 10, 11, 14, 15, 22, 33; T31N 12W sec. 9, 10, 16, 17, 18, 19, 20, 21, 29, 30; T31N 13W sec. 24, 25, 26, 34, 35, 36			**X**[1]	X	X	X
OHV Trail	T31N R13W secs. 23, 24, 25, 26, 34, 35; T31N R12W secs. 19, 20, 21, 22, 26, 27, 33, 34, 35; T30N R12W secs. 3, 4, 5, 7, 8 9, 10, 15; T30N R13W secs. 2, 3, 4, 12, 13		**X**[1]	X	X	X	X
Cliffhanger Trails	T30N R12W sec. 1, 13	**X**[1]	X	X	X	X	X

[1] Bold underlining indicates the mode of travel focus for construction and maintenance.

RMZ2-B-MA- 4. The trailheads and associated trails displayed in Table 17 are designated for technical OHVs greater than 75 inches in width but the trail tread is not to exceed 108 inches in width and may be used by smaller vehicles.

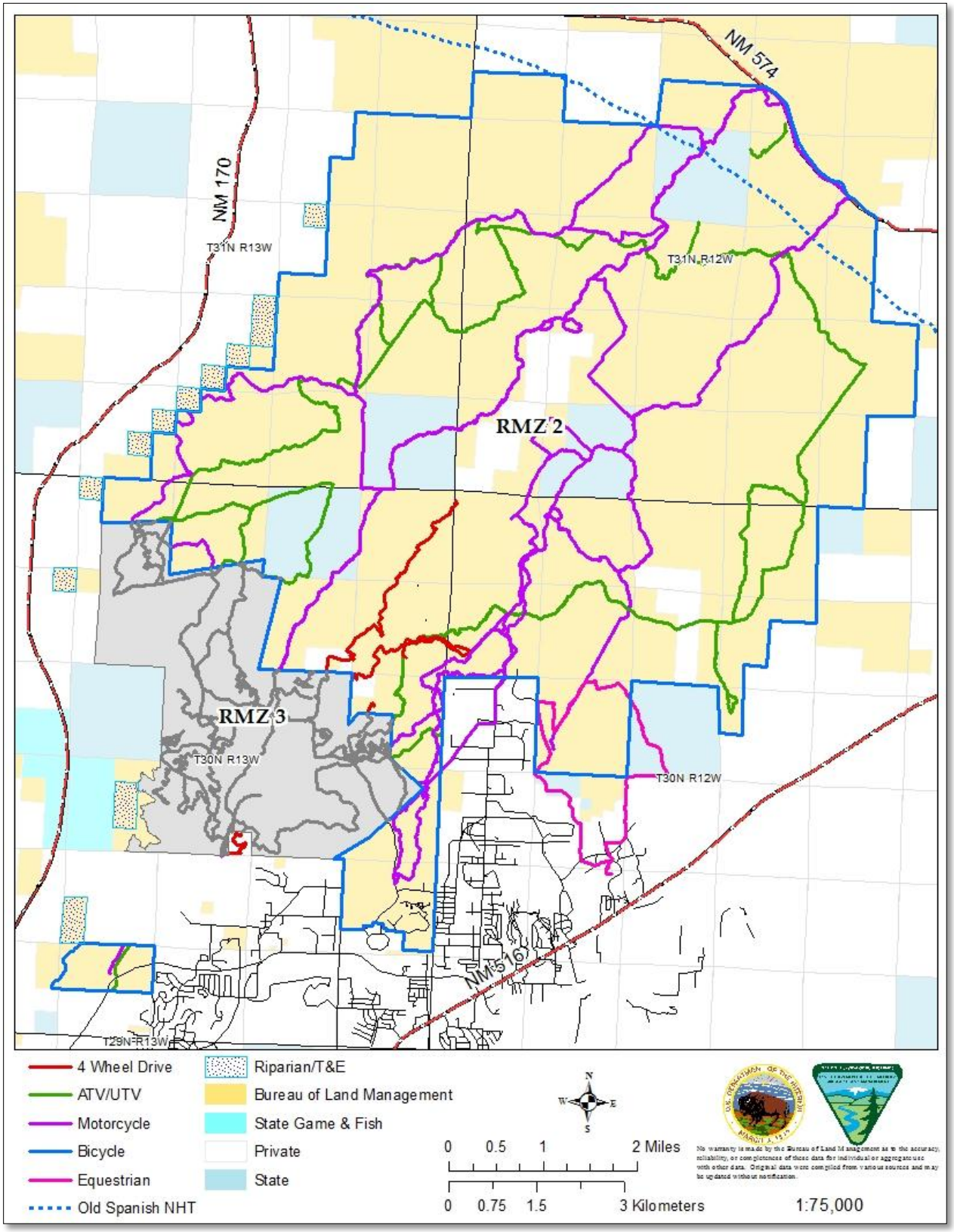
RMZ2-B-MA- 5. Existing trailhead markers will be used to designate Cliffhanger trailheads. These markers will be modified to meet information standards identified in the Sign Plan (Appendix C) and to include the GPS coordinates of the trail start and end locations.

Table 17. Cliffhanger Trailheads and Trails Designated for OHV Use in RMZ 2 in Alternative B

Trail Name	Unique ID
Casanova Mount	PTRL18
Cotton Wood	PTRL26
Last Boy Scout Trail	PTRL48

RMZ2-B-MA- 6. Develop areas around Farmington Lake to connect into the GRRA trail system to increase future trail diversity.

Figure 18. Trail Designations for RMZ 2 in Alternative B



Land Tenure

RMZ2-B-MA- 7. Seek to acquire legal access across the private property located in T30N R12W section 18 for non-motorized access to the Road Apple Rally trail to ensure long term access and usability. Potential access could be as an easement, sale, or other form of acquisition from willing land owners.

RMZ2-B-MA- 8. Work to secure access across private, COF, or State of New Mexico lands to the Sherriff's Posse horse trail loop. Potential access could be as an easement, sale, or other form of acquisition from willing land owners.

RMZ2-B-MA- 9. Collaborate with the COF and/or Sherriff's Posse to establish a corral parking/staging area on private, COF, State of New Mexico lands to provide for a trailhead for the Sherriff's Posse horse trail loop.

RMZ2-B-MA- 10. Seek to acquire access through easement or special land use permit across New Mexico State Trust Lands throughout the GRRA and adjoining areas to ensure long term access, usability, and future trail development needs.

National Historic Trails

RMZ2-B-MA- 11. Pursuant to additional cultural inventory and/or the publication of the Joint BLM/NPS Comprehensive OSNHT Management Plan, management of the OSNHT would include the following:

- Development of an interpretive station near or at the proposed parking/staging area identified in T31N R 12W, section 14 SW ¼ pursuant to appropriate funding and personnel.
- Manage a 200 foot corridor centered on the congressionally designated trail as a CSU area for new mineral leases and/or future renewable energy development.
- This 200 foot corridor from trail centerline will serve as the official National Trail Right-of-Way until such time as new information becomes available and/or the corridor is modified.
- New routes designated within the 200 foot corridor must meet the intent of the NTSA, be non-motorized in nature, and attempt to maximize the vicarious experience of the OSNHT.
- As additional information is acquired by BLM, modifications may be made to the size, location and/or management prescriptions of the corridor and/ or OSNHT.
- This segment of the OSNHT may be managed independently from the trail as a whole.

Education and Outreach

RMZ2-B-MA- 12. Information kiosks, interpretive stations, and other educational or informative infrastructure could be developed within or near any or all parking/staging areas.

2.5.4. Management Specific to Alternative C

Allocations

Recreation

RMZ2-C-A- 1. Manage 14,700 acres as RMZ 2 (Figure 9).

Transportation and Travel

RMZ2-C-A- 2. Motorized vehicle use in RMZ 2 would be limited to designated routes (Figure 9).

Management Actions

Recreation

RMZ2-C-MA- 1. Develop the following parking/staging areas:

- One on Hood Mesa at the current COF parking lot. Name of location will be: East Hood Mesa Parking Lot.
- One east of CR 1980 in T31N R12W sec. 10. Name of the location will be: Glade Wash Staging Area.
- At the intersection of Pinion Hills Boulevard and CR 1980 in T 30N R13W sec. 33. Name of location will be: Pinion Hills Staging Area.

RMZ2-C-MA- 2. Additional facilities may be developed based on identified area needs, public demand, location of appropriate site for proposed facilities, and based on funding and personnel availability. This includes camping areas, restrooms, and day-use developments such as picnic tables.

Transportation and Travel

RMZ2-C-MA- 3. Routes are designated as they are displayed in Figure 19 and route specific information can be found in the *Route Comparison Table for the Glade Run Recreation Area Recreation and Travel Management Plan* (BLM 2013). More detail on specific route segments can be accessed through KML files viewable in Google Earth. These files can be downloaded from the Glade Run Recreation Area Management Plan website (http://www.blm.gov/nm/st/en/prog/recreation/farmington/Glade_Run_Recreation_Area/grra_improvement_public.html) or by requesting a CD from the FFO.

RMZ2-C-MA- 4. Trail designations are displayed in Figure 20 and Table 18. Bold underlining indicates the mode of travel focus for construction and maintenance.

Table 18. Trail Designations for RMZ 2 in Alternative C

Trail	Segment Location	Allowable Modes of Travel[1]					
		OHV ≤ 72”	OHV ≤ 50”	OHV ≤ 24”	Mechanized	Equestrian	Pedestrian
Road Apple Rally	T31N R13W sec. 36; T31N 12W sec. 9, 10, 16, 20, 21, 29, 30, 31, T30N R13W sec. 1, 2, 11, 13, 14, 24				**X**[1]	X	**X**[1]

[1] Bold underlining indicates the mode of travel focus for construction and maintenance.

Figure 19. Designated Routes for RMZ 2 in Alternative C

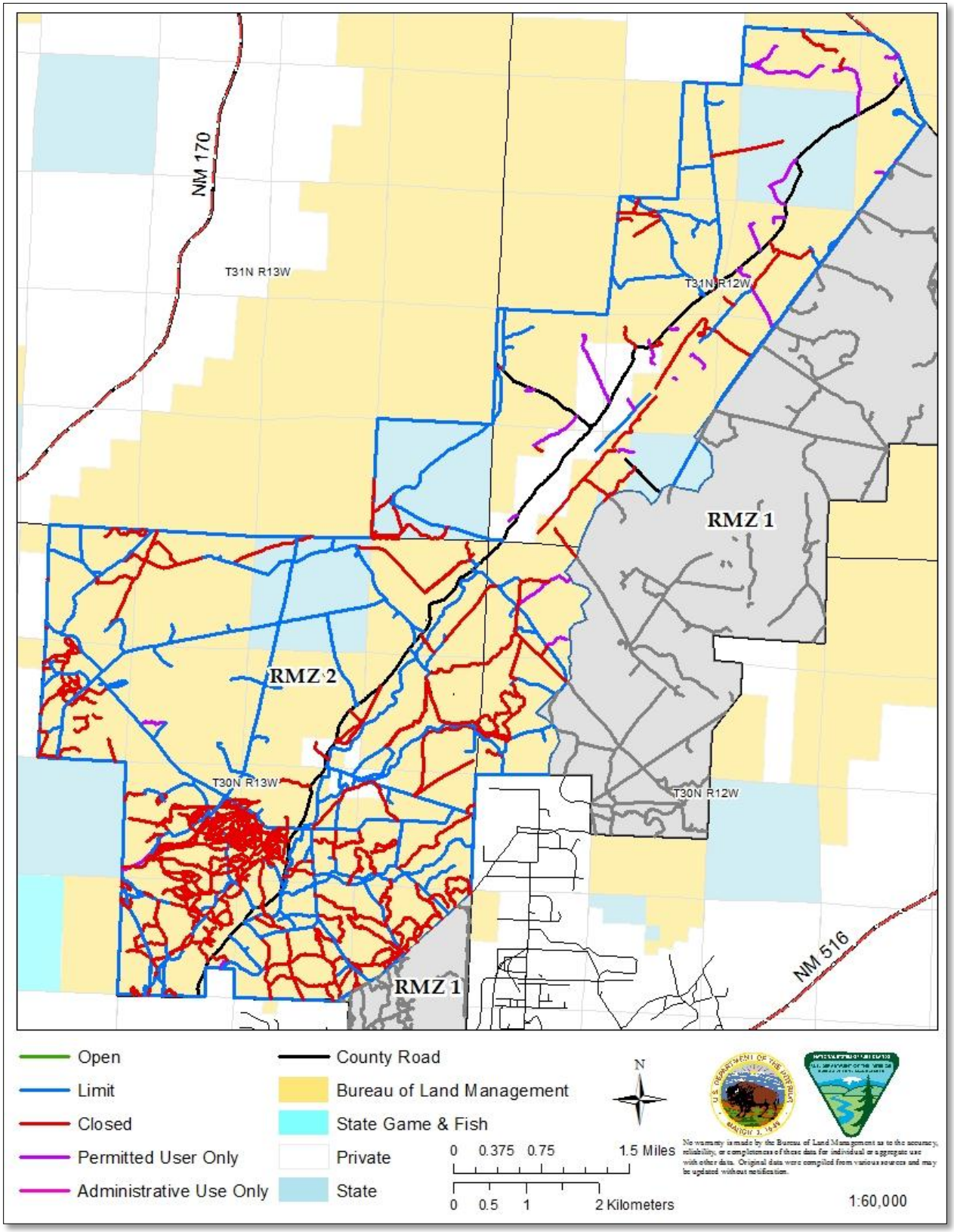
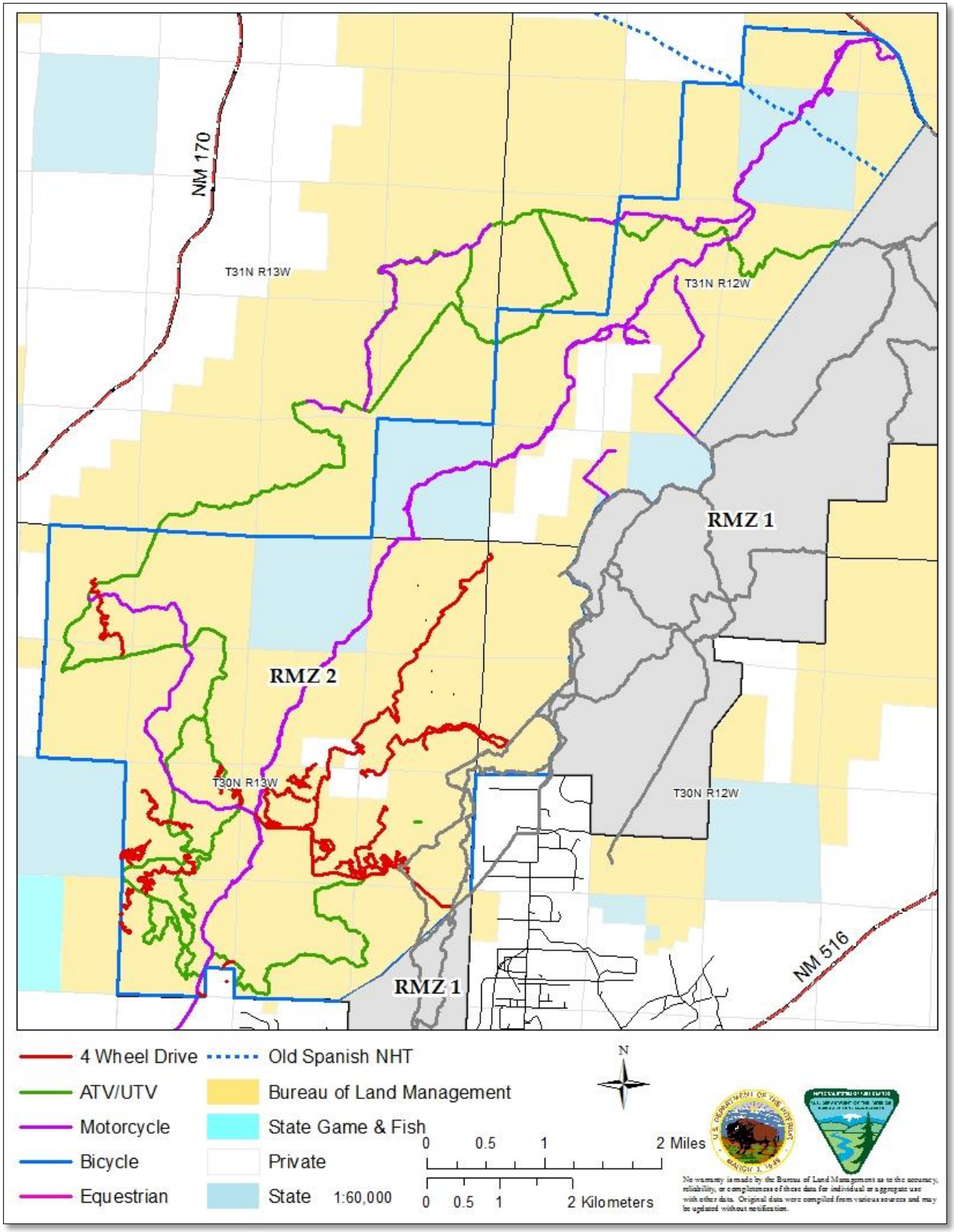


Figure 20. Trail Designations for RMZ 2 in Alternative C



RMZ2-C-MA- 5. The trailheads and associated trails displayed in Table 19 are designated for technical OHVs greater than 50 inches in width but the trail tread is not to exceed 72 inches in width and may be used by smaller vehicles.

Table 19. Cliffhanger Trailheads and Trails Designated for OHV Use in RMZ 2 in Alternative C

Trail Name	Unique ID	Trail Name	Unique ID
After The Fifth	PTRL3	Intimidator	PTRL44
Anasazi Refrigerator	PTRL4	Keeling's Corner	PTRL91
ARCA #1	PTRL5	Lake View	PTRL47
ARCA #2	PTRL6	Leather Hat	PTRL49
ARCA #3	PTRL7	Lower Rim Trail	PTRL50
ARCA #4	PTRL8	Marble Rock	PTRL52
Arch Trail	PTRL9	No Name Yet	PTRL85
Beaver Falls	PTRL11	No Name Yet	PTRL96
Bebo's Bypass	PTRL84	Nova 63	PTRL53
Bone Crusher	PTRL12	One Sock Rock	PTRL90
Brown Springs	PTRL13	Out Back	PTRL54
Bud Sickle	PTRL14	PHYSMF	PTRL57
Bull Snake Trail	PTRL15	Rattle Snake	PTRL59
Casper	PTRL19	Rif Raff	PTRL83
Cobra	PTRL21	Rim Trail	PTRL61
Collard's Loop	PTRL88	RJ's Trail	PTRL62
Comfort Me Phil	PTRL24	Road Runner	PTRL63
Crow’s Nest	PTRL28	Second Playground	PTRL65
Dirty Dozen	PTRL30	Seven Water Falls	PTRL66
Don't Go	PTRL31	Spider Wash	PTRL69
Enemy Mine	PTRL33	Stone Hedge	PTRL72
EOT	PTRL97	Story Rock	PTRL73
Fox Bird	PTRL35	Swirl Rock	PTRL93
Gauntlet	PTRL37	Tent Campsite	PTRL89
Git It Billy	PTRL86	The Big Johnson	PTRL75
Gladiator	PTRL38	The Spot	PTRL92
Graffiti Bowl	PTRL39	Triple Whammy	PTRL95
Greased Owl	PTRL40	Water Fall	PTRL79
H.D.S.P.F.	PTRL41	Water Fall	PTRL87
Hook It Up	PTRL94	Zeb's Trail	PTRL82

RMZ2-C-MA- 6. OHV route(s) will be monitored at least once every three years to determine if trail maintenance is warranted and if route(s) is (are) in compliance with use restrictions. If route(s) is/are determined to be out of compliance, appropriate mitigation measures will be taken including, but not limited to, re-locating the route(s), further limiting use, installation of barriers, or closure.

National Historic Trails

RMZ2-C-MA- 7. Pursuant to additional cultural inventory and/or the publication of the Joint BLM/NPS Comprehensive OSNHT Management Plan, management of the OSNHT would include the following:

- Development of an interpretive station near or at the proposed parking/staging area identified in T31N R 12W, section 14 SW ¼, pursuant to appropriate funding and personnel.
- Manage a ½ mile corridor centered on the congressionally designated trail as a NSO area for new mineral leases and/or future renewable energy development.
- This ½ mile corridor will serve as the official National Trail Right-of-Way until such time as new information becomes available and/or the corridor is modified.
- New routes designated within the ½ mile corridor must meet the intent of the NTSA, be non-motorized in nature, and attempt to maximize the vicarious experience of the OSNHT.

2.6. RMZ 3

2.6.1. Management Common to All Action Alternatives

Goal

RMZ3-CAA-G- 1. Provide immediate access for local communities to open, unconfined space.

Objective

RMZ3-CAA-O- 1. Manage RMZ 3 to provide opportunities for community residents and visitors who use the area to engage in cross-country travel opportunities with few management restraints (Table 20).

Management Actions

Recreation

RMZ3-CAA-MA- 1. The management strategy and target opportunities for RMZ 3 are displayed in Table 20.

Table 20. RMZ 3 Management Strategy

Targeted Opportunities and Outcomes		
Activities	**Experiences**	**Benefits**
OHV Riding OHV Event Area Driving For Pleasure Dispersed Camping	Developing skills and abilities Testing personal endurance Enjoying risk-taking adventure	***Personal***: Greater self-reliance; improved skills for outdoor enjoyment; closer relationship with the natural world ***Community***: Providing a place near but outside the community to recreate with few management restraints ***Economic***: Improved local economic stability; provide opportunity to attract OHV events ***Environmental***: Increased awareness and protection of natural landscapes; reduced negative human impacts such as litter, vegetative trampling, and unplanned trails
Prescribed Setting Character Conditions		
Physical	**Social**	**Operational**
Remoteness: Rural **Naturalness:** Rural **Facilities:** Middle Country	**Contacts:** Middle Country **Groups Size:** Middle Country **Evidence of Use:** Rural	**Access:** Middle Country **Visitor Services:** Middle Country **Management Controls:** Middle Country
Implementation (Activity) Planning Framework		
Management	Establish an OHV staging area (parking, loading/unloading ramps), information kiosks. Develop high quality sign system to clearly mark community trails.	
Marketing	Encourage strong stewardship ethic among users, through dissemination of information via kiosks and brochures. Coordinate management with local communities and user groups. Establish a system of grading trail experience/difficulty.	
Monitoring	Encourage local volunteer groups to actively monitor trail network, use and compliance.	
Administration	Random enforcement presence.	

2.6.2. Management Specific to Alternative A (Preferred Alternative)

Allocation

Recreation

RMZ3-A-A- 1. Manage 3,300 acres as RMZ 3 (Figure 6).

Transportation and Travel

RMZ3-A-A- 2. RMZ 3 would be open to cross-country motorized vehicle use (Figure 6).

Management Actions

Transportation and Travel

RMZ3-A-MA- 1. Routes are designated as they are displayed in Figure 21 and route specific information can be found in the *Route Comparison Table for the Glade Run Recreation Area Recreation and Travel Management Plan* (BLM 2013). More detail on specific route segments can be accessed through KML files viewable in Google Earth. These files can be downloaded from the Glade Run Recreation Area Management Plan website (http://www.blm.gov/nm/st/en/prog/recreation/farmington/Glade_Run_Recreation_Area/grra_improvement_public.html) or by requesting a CD from the FFO. These designations do not preclude cross-country travel by motorized vehicles.

RMZ3-A-MA- 2. Users of routes that potentially cross property boundaries are required to follow New Mexico Statute Annotated (NMSA) 30-14-1 through NMSA 30-14-6.

RMZ3-A-MA- 3. Trail designations are displayed in Figure 22 and Table 21. Bold underlining indicates the mode of travel focus for construction and maintenance. Designating trails within an open area allow BLM to provided additional resource to the maintenance and identification of these trails. However, these designations do not preclude cross-country travel by motorized vehicles throughout the open area.

Table 21. Trail Designations for RMZ 3 in Alternative A

		Allowable Modes of Travel[1]					
Trail	**Segment Location**	**OHV ≤ 84"**	**OHV ≤ 65"**	**OHV ≤ 24"**	**Mechanized**	**Equestrian**	**Pedestrian**
Road Apple Rally	T30N R13W sec. 14, 24			**X**[1]	**X**[1]	X	X
Motorcycle Trail	T30N R13W sec. 10, 14, 15, 22, 23, 24			**X**[1]	X	X	X
OHV Trail	T30N R13W secs. 9, 10, 13, 14, 15, 22, 23, 24; T31N R13W sec. 3		**X**[1]	X	X	X	X
Cliffhanger Trails	T30N R13W sec. 3, 9, 10, 13, 14, 15,21, 22, 23	**X**[1]	X	X	X	X	X

[1] Bold underlining indicates the mode of travel focus for construction and maintenance.

RMZ3-A-MA- 4. Existing trailhead markers will be used to designate Cliffhanger trailheads. These markers will be modified to meet information standards identified in the Sign Plan (Appendix C) and to include the GPS coordinates of the trail start and end locations.

Figure 21. Route Designations for RMZ 3 in Alternative A

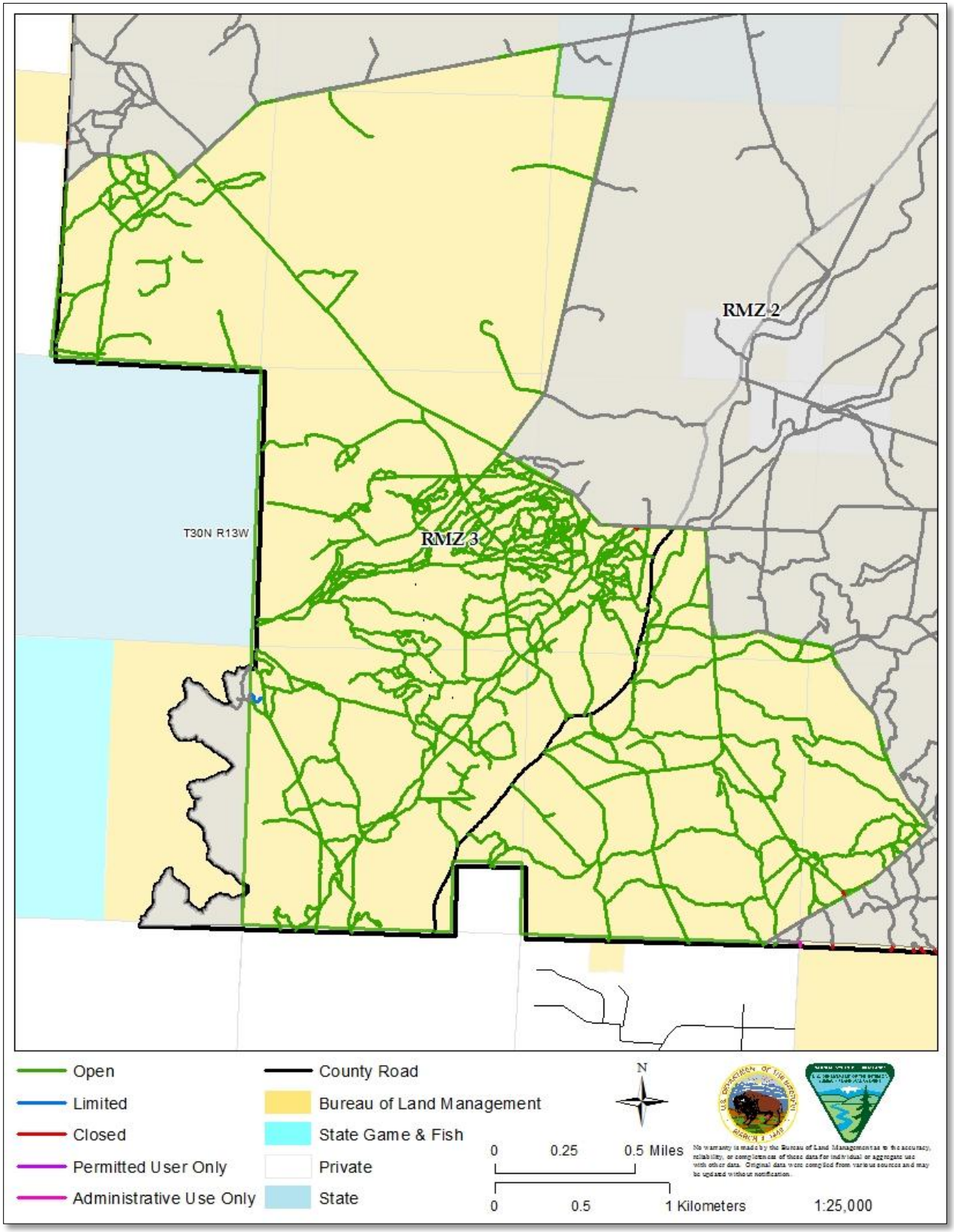
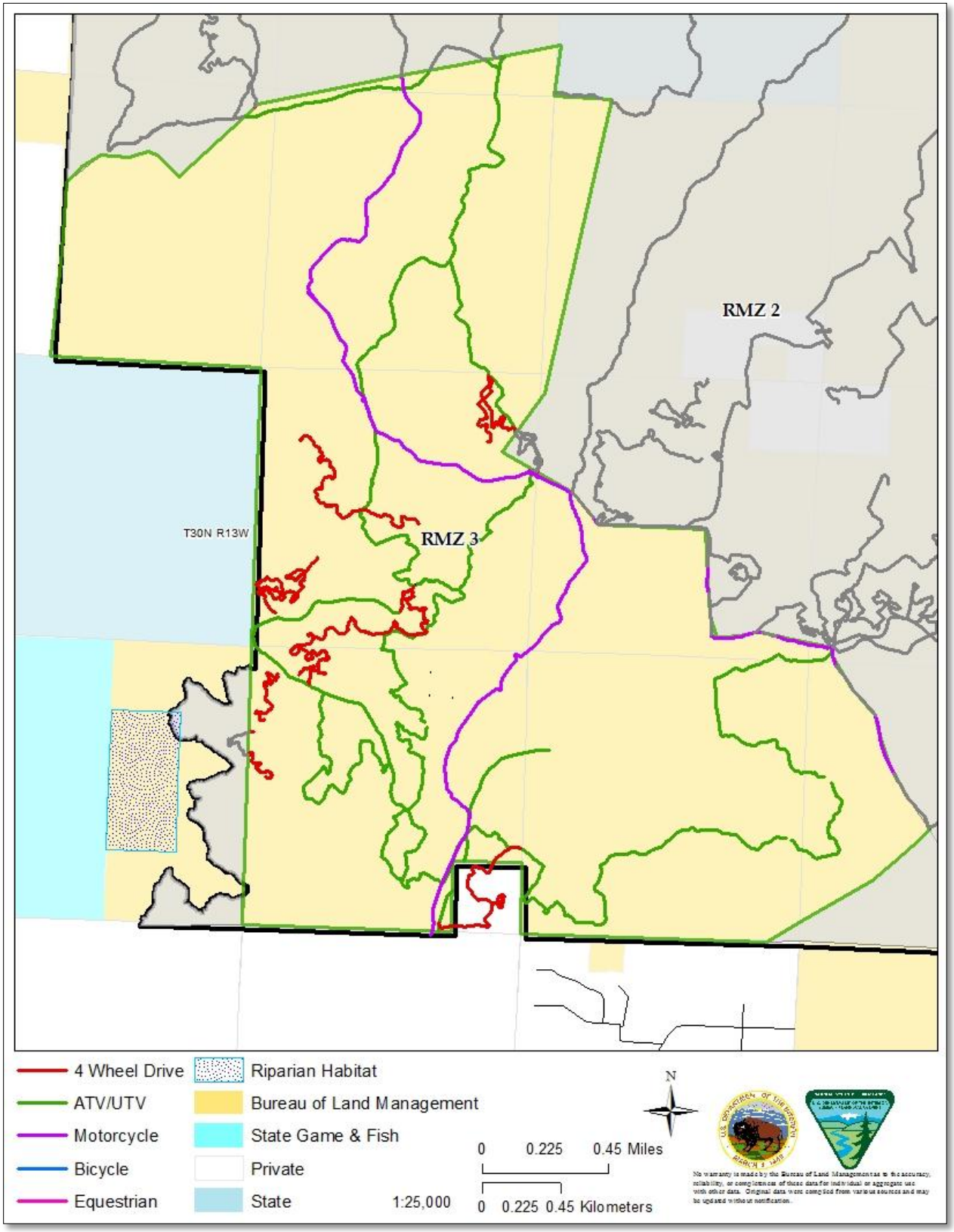


Figure 22. Trail Designations for RMZ 3 in Alternative A



RMZ3-A-MA- 5. The trailheads and associated trails displayed in Table 22 are designated for technical OHVs greater than 65 inches in but may be used by smaller vehicles.

Table 22. Cliffhanger Trailheads and Trails Designated for OHV Use in RMZ 3 in Alternative A

Trail Name	Unique ID	Trail Name	Unique ID
After The Fifth	PTRL3	Marble Rock	PTRL52
Anasazi Refrigerator	PTRL4	No Name Yet	PTRL85
ARCA #1	PTRL5	No Name Yet	PTRL96
ARCA #2	PTRL6	Nova 63	PTRL53
ARCA #3	PTRL7	One Sock Rock	PTRL90
ARCA #4	PTRL8	Out Back	PTRL54
Arch Trail	PTRL9	PHYSMF	PTRL57
Beaver Falls	PTRL11	Rattle Snake	PTRL59
Bebo's Bypass	PTRL84	Rif Raff	PTRL83
Bone Crusher	PTRL12	Rim Trail	PTRL61
Brown Springs	PTRL13	RJ's Trail	PTRL62
Bud Sickle	PTRL14	Road Runner	PTRL63
Bull Snake Trail	PTRL15	Second Playground	PTRL65
Casper	PTRL19	Seven Water Falls	PTRL66
Cobra	PTRL21	Spider Wash	PTRL69
Collard's Loop	PTRL88	Stone hedge	PTRL72
Comfort Me Phil	PTRL24	Story Rock	PTRL73
Crow’s Nest	PTRL28	Swirl Rock	PTRL93
Dirty Dozen	PTRL30	Tent Campsite	PTRL89
Don't Go	PTRL31	The Big Johnson	PTRL75
Enemy Mine	PTRL33	The spot	PTRL92
EOT	PTRL97	Triple Whammy	PTRL95
Fox Bird	PTRL35	Water Fall	PTRL79
Gauntlet	PTRL37	Water Fall	PTRL87
Git It Billy	PTRL86	Zeb's Trail	PTRL82
Gladiator	PTRL38	Keeling's Corner	PTRL91
Graffiti Bowl	PTRL39	Lake View	PTRL47
Greased Owl	PTRL40	Leather Hat	PTRL49
H.D.S.P.F.	PTRL41	Lower Rim Trail	PTRL50
Hook It Up	PTRL94	Marble Rock	PTRL52
Intimidator	PTRL44	No Name Yet	PTRL85
Keeling's Corner	PTRL91	No Name Yet	PTRL96
Lake View	PTRL47	Nova 63	PTRL53
Leather Hat	PTRL49	One Sock Rock	PTRL90
Lower Rim Trail	PTRL50		

2.6.3. Management Specific to Alternative B

Allocations

Recreation

RMZ3-B-A- 1. Manage 4,500 acres as RMZ 3 (Figure 8).

Transportation and Travel

RMZ3-B-A- 2. RMZ 3 would be open to cross-country motorized vehicle use (Figure 8).

Management Actions

Transportation and Travel

RMZ3-B-MA- 1. Routes are designated as they are displayed in Figure 23 and route specific information can be found in the *Route Comparison Table for the Glade Run Recreation Area Recreation and Travel Management Plan* (BLM 2013). More detail on specific route segments can be accessed through KML files viewable in Google Earth. These files can be downloaded from the Glade Run Recreation Area Management Plan website (http://www.blm.gov/nm/st/en/prog/recreation/farmington/Glade_Run_Recreation_Area/grra_improvement_public.html) or by requesting a CD from the FFO. These designations do not preclude cross-country travel by motorized vehicles.

RMZ3-B-MA- 2. Trail designations are displayed in Figure 24 and Table 23. Bold underlining indicates the mode of travel focus for construction and maintenance. Designating trails within an open area allow BLM to provided additional resource to the maintenance and identification of these trails. However, these designations do not preclude cross-country travel by motorized vehicles throughout the open area.

Table 23. Trail Designations in RMZ 3 for Alternative B

Trail	Segment Location	Allowable Modes of Travel[1]					
		OHV ≤ 108”	OHV ≤ 75”	OHV ≤ 24”	Mechanized	Equestrian	Pedestrian
Road Apple Rally	T30N R13W sec. 14, 24			**X**[1]	**X**[1]	X	X
Motorcycle Trail	T30N R13W sec. 10, 14, 15, 22, 23, 24			**X**[1]	X	X	X
ATV Trail	T30N R13W secs.4, 9, 10, 13, 14, 15, 22, 23, 24	X	**X**[1]	X	X	X	X
Cliffhanger Trails	T30N R13W sec. 3, 9, 10, 13, 14, 15,21, 22, 23	**X**[1]	X	X	X	X	X

[1] Bold underlining indicates the mode of travel focus for construction and maintenance.

RMZ3-B-MA- 3. Existing trailhead markers will be used to designate Cliffhanger trailheads. These markers will be modified to meet information standards identified in the Sign Plan (Appendix C) and to include the GPS coordinates of the trail start and end locations.

RMZ3-B-MA- 4. Priority will be given to designated trails for maintenance actions.

Figure 23. Route Designations for RMZ 3 in Alternative B

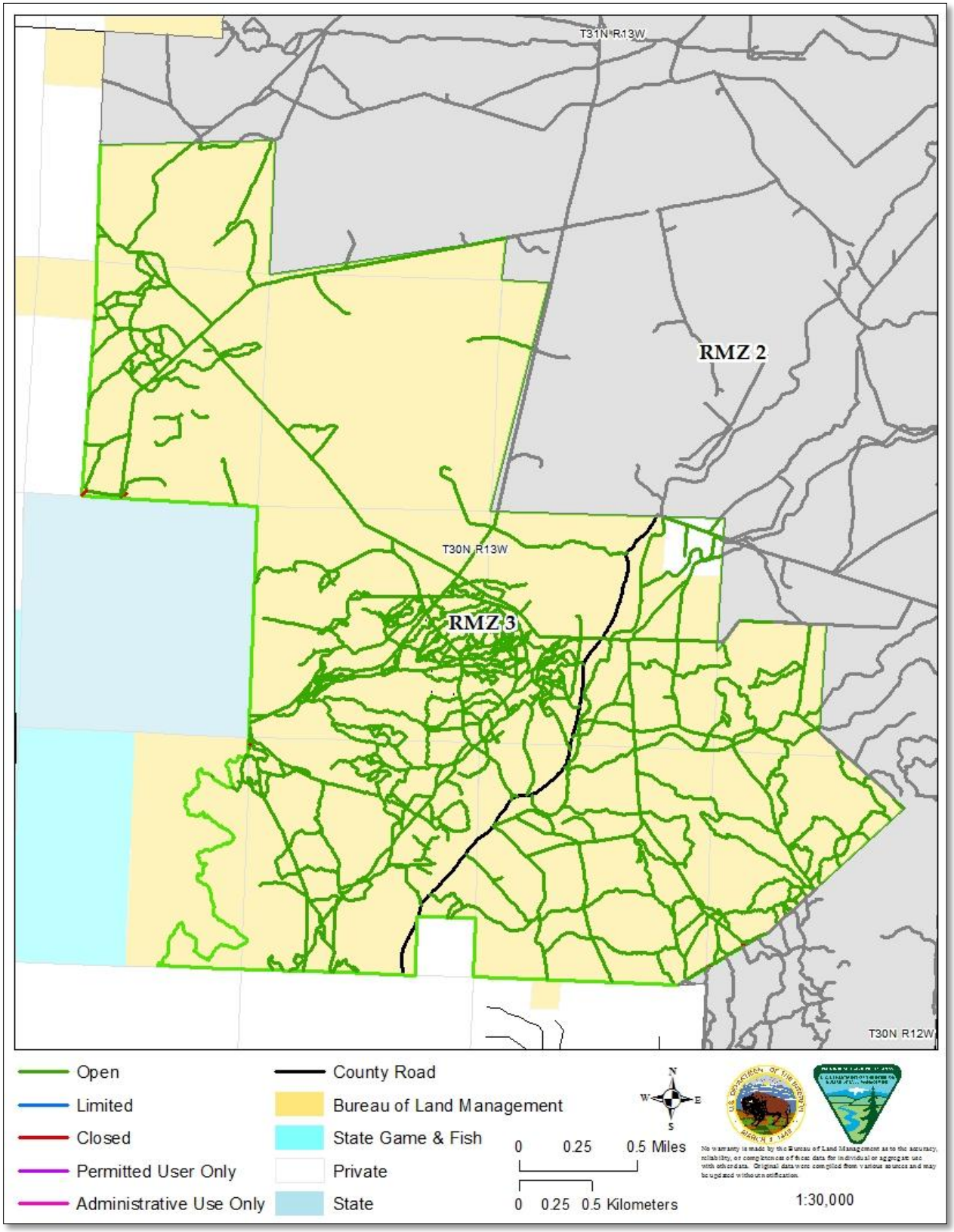
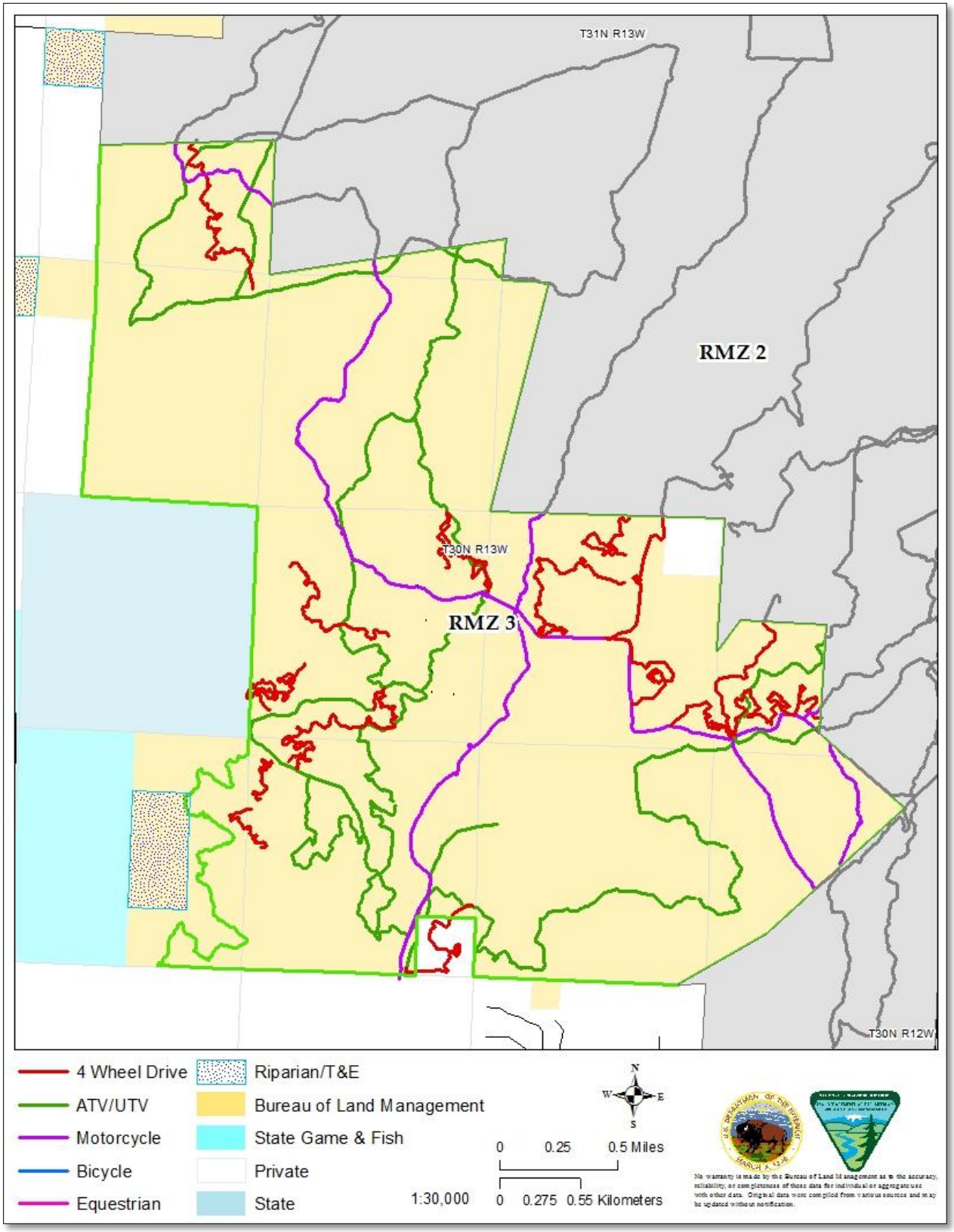


Figure 24. Trail Designations for RMZ 3 in Alternative B



RMZ3-B-MA- 5. Designated trailheads and associated trails open to OHV use are displayed in Table 24.

Table 24. Cliffhanger Trailheads and Trails Open to OHV Use in RMZ 3 in Alternative B

Trail Name	Unique ID	Trail Name	Unique ID
After The Fifth	PTRL3	Marble Rock	PTRL52
Anasazi Refrigerator	PTRL4	No Name Yet	PTRL85
ARCA #1	PTRL5	No Name Yet	PTRL96
ARCA #2	PTRL6	Nova 63	PTRL53
ARCA #3	PTRL7	One Sock Rock	PTRL90
ARCA #4	PTRL8	Out Back	PTRL54
Arch Trail	PTRL9	Overland Express	PTRL55
Beaver Falls	PTRL11	PHYSMF	PTRL57
Bebo's Bypass	PTRL84	Rattle Snake	PTRL59
Bone Crusher	PTRL12	Reptile	PTRL60
Brown Springs	PTRL13	Rif Raff	PTRL83
Bud Sickle	PTRL14	Rim Trail	PTRL61
Bull Snake Trail	PTRL15	RJ's Trail	PTRL62
Casper	PTRL19	Road Runner	PTRL63
Cobra	PTRL21	Second Playground	PTRL65
Collard’s Climb	PTRL22	Seven Water Falls	PTRL66
Collard's Loop	PTRL88	Spider Wash	PTRL69
Comfort Me Phil	PTRL24	Stone hedge	PTRL72
Coyote Cat Canyon	PTRL27	Story Rock	PTRL73
Crow’s Nest	PTRL28	Stupid	PTRL74
Dirty Dozen	PTRL30	Swirl Rock	PTRL93
Don't Go	PTRL31	Tent Campsite	PTRL89
Enemy Mine	PTRL33	The Big Johnson	PTRL75
EOT	PTRL97	The spot	PTRL92
Fox Bird	PTRL35	Triple Whammy	PTRL95
Gauntlet	PTRL37	Water Fall	PTRL79
Git It Billy	PTRL86	Water Fall	PTRL87
Gladiator	PTRL38	Zeb's Trail	PTRL82
Graffiti Bowl	PTRL39	Keeling's Corner	PTRL91
Greased Owl	PTRL40	Lake View	PTRL47
H.D.S.P.F.	PTRL41	Leather Hat	PTRL49
Hook It Up	PTRL94	Lower Rim Trail	PTRL50
Intimidator	PTRL44	Marble Rock	PTRL52
Joe Brown’s Canon	PTRL45	No Name Yet	PTRL85
Keeling's Corner	PTRL91	No Name Yet	PTRL96
Lake View	PTRL47	Nova 63	PTRL53
Leather Hat	PTRL49	One Sock Rock	PTRL90
Lower Rim Trail	PTRL50		

3. AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

This chapter describes the key physical, biological, and social values of the analysis area, usually the GRRA boundary, as well as the environmental impacts or consequences of the alternatives.

Trends and Assumptions for Analysis

The following trends and assumptions were made in assessing impacts of the alternatives. These trends represent existing reasonably foreseeable future conditions independent of implementation of this plan. They are expected to influence the management of BLM lands over the next 20 years and represent the background condition “baseline” from which the long-term impact of all alternatives will be disclosed

- Traffic levels on all roads and trails will increase.
- Demands for all types of recreation will increase.
- Parking at trailheads will become more congested.
- Residential development of private lands adjacent to BLM lands will increase.
- Areas that provide solitude and low levels of use will decrease.
- Technological advances in mechanized and motorized vehicles and in GPS and telecommunications will encourage increased exploration of trails in remote areas.
- Costs for law enforcement and travel management compliance will increase.
- Costs for maintaining and managing the travel management system will increase.
- The degree to which travel-related activities adversely affect soil stability, vegetation, and water quality is related to the type and amount of traffic that occurs: i.e., routes with higher levels of motorized use cause more sedimentation and require more maintenance to control erosion than routes with lower levels of non-motorized use.

The purpose of cumulative impacts analysis is to ensure the federal decision-makers consider the full range of consequences of actions. The cumulative impacts analysis considers past, present, and reasonably foreseeable future actions that would affect the resource of concerns within the geographic scope and the timeframe of the analysis. In the following analysis, the impacts of past and present actions are captured in the description of the affected environment. Reasonably foreseeable actions in the GRRA include:

- Continuing oil and gas development as authorized in the 2003 Farmington RMP and analyzed in the 2003 Farmington PRMP/FEIS.
- Continuing livestock grazing as authorized in the 2003 Farmington RMP and analyzed in the 2003 Farmington PRMP/FEIS.
- Continuing right-of-way development as authorized in the 2003 Farmington RMP and analyzed in the 2003 Farmington PRMP/FEIS. This includes the proposed San Juan Basin Energy Connect (SJBEC) transmission line for which a Draft EIS is being prepared.
- Increased demand for recreation and trail development.

Cumulative effects analysis occurs only for those issues where direct and indirect impacts may involve a cumulative impact along with the identified reasonably foreseeable actions.

3.1. Soil Resources

3.1.1. Affected Environment

The landscape morphology and erosion potential of the GRRA is tied to the underlying geology. Rocks exposed at the surface of the GRRA are primarily those of the Nacimiento Shale and Ojo Alamo sandstones of Tertiary age, and the Kirtland sandstones of the Cretaceous age. The rocks of these formations are composed primarily of interbedded layers of sandstone and shale of predominantly non-marine origin. The cliff-forming sandstones are more resistant than the shale but eventually weather into their composite sands. The shale is highly erodible and weathers into silts and clays. The variations in erodibility of the rocks in the planning area result in a typical southwestern landscape dominated by sandstone-capped mesas and deep and narrow canyons and arroyos.

The National Resource Conservation Service (NRCS) mapped 14 soil types within in the GRRA (Figure 25). Seven soil types account for a combined area of approximately 130 acres; about 0.5 percent of the total area of Alternative A and are not analyzed further. The seven soil types that represent the majority of the area within the GRRA are represented in Table 25 and Figure 25. Table 25 identifies the erosion potential for each soil type was found in the Soil Maps for Detailed Planning section of NRCS's *Soil Survey of San Juan County, New Mexico: Eastern Part* (Soil Survey; Nov. 1980). Abbreviated descriptions of these seven soil types are listed below. A more complete evaluation of the seven soil types may be found in the Soil Survey.

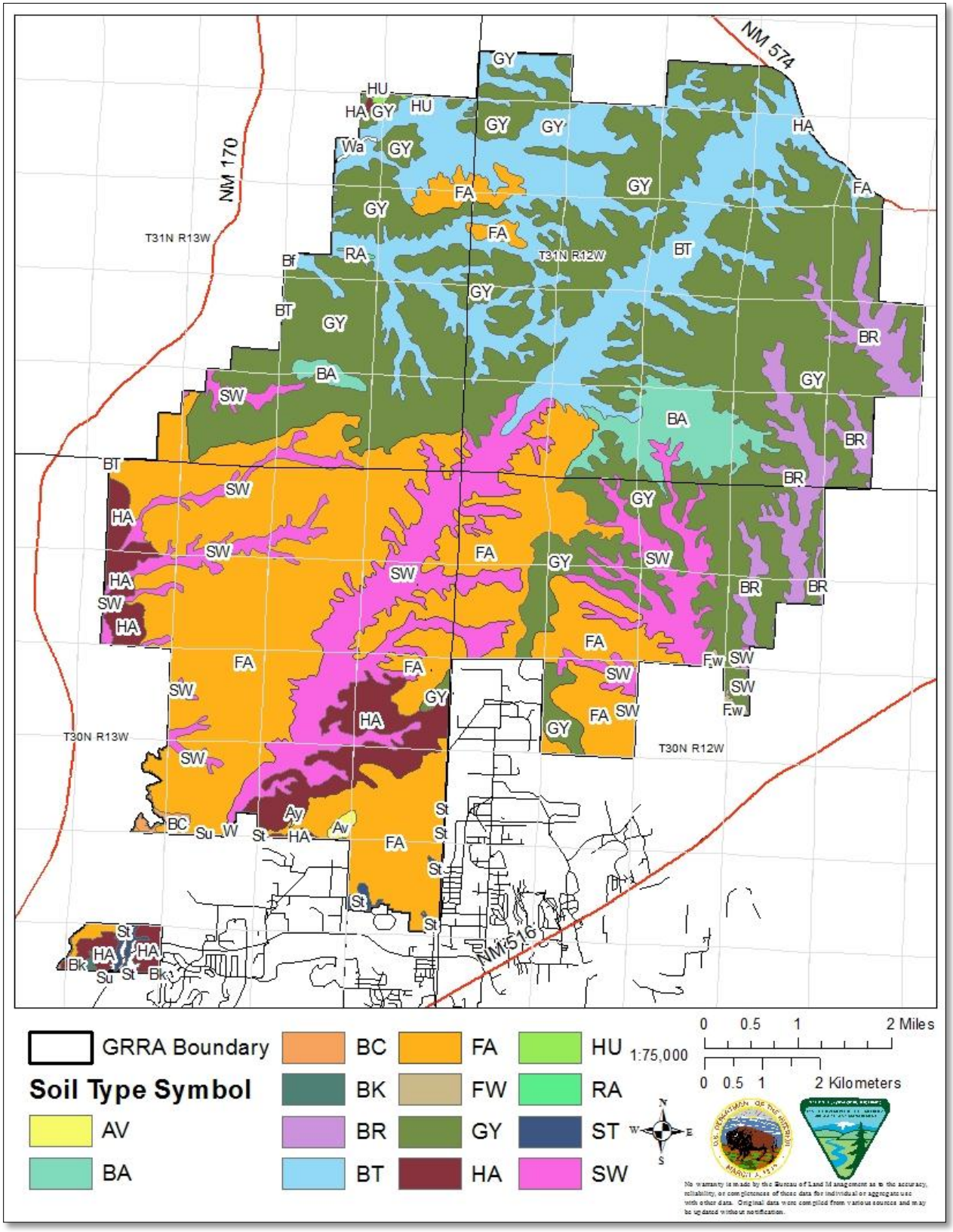
Table 25. Soil Mapping Units in the GRRA

Soil Survey Symbol	Soil Type	Acres (approximate)	Erosion Potential
BR	Blancot-Fruitland association, gently sloping	1,144	Slight to Moderate
BA	Badlands	851	Not Rated
BT	Blancot-Notal Association	2,909	Moderate
FA	Farb-Persayo-Rock Outcrop	8,044	High to Severe
GY	Gypsiorthids-Badland-Stumble Complex	8,839	Slight to Moderate
HA	Haplargids-Blackston-Torriorthents Complex	1,236	Slight to Severe
SW	Stumble-Fruitland Association	3,347	None to Slight
Not Analyzed		130	

BR: The Blancot-Fruitland soil unit is found on fans and in valleys with slopes of 0 to 8 percent. This unit is about 45 percent Blancot loam, 25 percent Fruitland sandy loam, and 30 percent inclusions consisting of Stumble and Turley soils on fans and valley sides. The Blancot soil is deep and well drained, and is formed in alluvium derived dominantly from sandstone and shale. The surface layer is typically grayish brown loam about 6 inches thick. The permeability is moderate, available water capacity is high, runoff velocity is medium and the hazard of water erosion is moderate. The Fruitland soil is deep and well drained and also formed in alluvium derived dominantly from sandstone and shale. The surface is brown sandy loam about 8 inches thick. This soil has moderately rapid permeability, available water capacity is moderate, runoff is slow and the hazard of water erosion is slight. The potential plant community for this soil is Indian ricegrass, blue grama, western wheatgrass, galleta, fourwing saltbush and giant dropseed.

BA: The Badland soil type consists of non-stony barren shale uplands that are dissected by deep intermittent drainages and gullies, and is located on slopes ranging from 5 to 80 percent. The badland soils do not support vegetation in significant quantities, but can be utilized by wildlife.

Figure 25. Soil Mapping Units in the Analysis Area



BT: The Blancot-Nota Association is found on fans and in valleys with slopes of 0 to 5 percent. This soil unit is about 55 percent Blancot loam, 25 percent Notal silty clay loam, and 20 percent other soil inclusions. This soil unit is deep and well drained, and formed in alluvium derived dominantly from sandstone and shale. The surface is pale brown loam about two to three inches thick. The subsoil is pale brown and light brownish gray clay loam about 13 to 20 inches thick. The substratum to a depth of 60 inches or more is light grayish brown sandy clay loam. The permeability of the Blancot portion is moderate and the water capacity is high. The permeability of the Notal portion is very slow and the water capacity if very high. The runoff potential for this soil unit is medium, and the hazard of water erosion is moderate. The potential plant community of this soil unit is western wheatgrass, galleta, Indian ricegrass, and fourwing saltbush.

FA: The Farb-Persayo-Rock Outcrop soil unit is found on hills and breaks with slopes from 3 to 30 percent. The unit is about 40 percent Farb fine sandy loam, 30 percent Persayo clay loam, 20 percent rock outcrop, and 10 percent other soil inclusions. The rock outcrop is barren sandstone on benches, ridges and breaks. The soil portions of the unit are shallow and are well to excessively drained. The soil formed in residuum derived dominantly from sandstone or shale. The surface layer is pale brown fine sandy loam or gray clay loam from about 2 to 7 inches thick. The permeability is moderately rapid and the water availability is very low. Runoff potential is rapid and the hazard of water erosion is high to severe. The potential plant community is mainly juniper, pinion, antelope bitterbrush, and Indian ricegrass.

GY: The Gypsiorthids-Badland-Stumble soil unit is found on hills, knolls, and breaks with slopes of 30 percent, and in valleys. This unit is about 35 percent Gypsiorthids, 35 percent badlands, 15 percent Stumble loamy sand, and 15 percent other soil inclusions. The Gypsiorthids portions of this soil unit have variable attributes and may be very shallow to deep, available water capacity is very low to high, runoff is slow to medium, and water erosion potential is slight to moderate. This soil is generally well drained, and formed in material derived dominantly from gypsum. Badland consists of non-stony, barren shale uplands that are dissected by deep, intermittent drainage ways and gullies. The Stumble soil is deep and somewhat excessively drained. It formed in alluvium derived dominantly from sandstone and shale. Typically, the surface layer is yellowish brown and pale brown loamy sand. Permeability is rapid, Available water capacity is low, very slow, and the hazard of water erosion is slight. The potential plant communities in this soil unit include Indian ricegrass, giant dropseed, alkali sacaton, and bottlebrush squirrel tail.

HA: The Haplargids-Blackston-Torriorthnents soil unit is found on terraces, mesas, and plateaus with slopes of 8 to 50 percent. This unit is about 45 percent Haplargids, 30 percent Blackston, and 20 percent Torriorthents, and 5 percent other soil inclusions. The Haplargids portions of this soil unit have variable attributes and may be shallow to deep, permeability is moderate to moderately slow, available water capacity is low to high, runoff is low to rapid, and the hazard of water erosion is slight to severe. This soil is well drained; has a surface layer of dark brown cobbly sandy loam about 7 inches thick. The Blackston soil is deep and well drained and formed in alluvium derived from mixed sources. Typically, the surface layer is yellowish brown gravelly loam about 2 inches thick. This soil has moderately slow permeability, low available water capacity, slow runoff, and slight potential for water erosion. The Torriorthents soils are shallow to deep, well drained, and were formed in alluvium from mixed sources. The surface layer usually consists of light brownish gray cobbly loam about 3 inches thick. This soil has moderately rapid to moderately slow permeability, low to high available water capacity; slow to rapid runoff, and a water erosion hazard of slight to severe. The potential plant community for this unit includes fourwing saltbush, Indian ricegrass, galleta, pinion, and juniper.

SW: The Stumble-Fruitland soil unit is found on fans and valley sides with slopes of 0 to 8 percent. This unit is about 40 percent Stumble loamy sand, 30 percent Fruitland sandy loam, and 30 percent other soil inclusions. The Stumble soil is deep and somewhat excessively drained, and it formed in alluvium derived dominantly from sandstone and shale. The surface layer is typically brown loamy sand about 6 inches thick. This soil has rapid permeability, low available water capacity, slow runoff, and the water erosion hazard is slight to none. The Fruitland soil is deep and well drained, and it formed in alluvium derived dominantly from sandstone and shale. The typical surface layer is brown sandy loam about 7 inches thick. This soil has moderately rapid permeability, moderate available water capacity, slow runoff; the

hazard of water erosion is slight. The potential plant community for this soil unit is Indian ricegrass, giant dropseed, sand dropseed, and alkali sacaton.

The FFO Fragile Soils Procedure was developed to help identify areas where soils may be difficult to reseed and stabilize when reduced to bare soil. FFO reviewed Natural Resource Conservation Service (NRCS) soil surveys and identified soil types BA, GY, and RT as containing areas of potentially fragile soil depending on the percent slope. Fragile soils have a high erosion risk due to a combination of soil erodibility characteristics, slope length, and slope gradient. The analysis area has some soils designated as potentially fragile soil; none of the proposed open areas have soils designated as potentially fragile soil (Figure 26). The spatial scale for this analysis is limited to the largest proposed boundary of the GRRA.

3.1.2. Impacts from All Alternatives

All alternatives contain limited areas (Table 9). Impacts associated with a limited to designated routes are generally the same, though the size of these areas varies by alternatives.

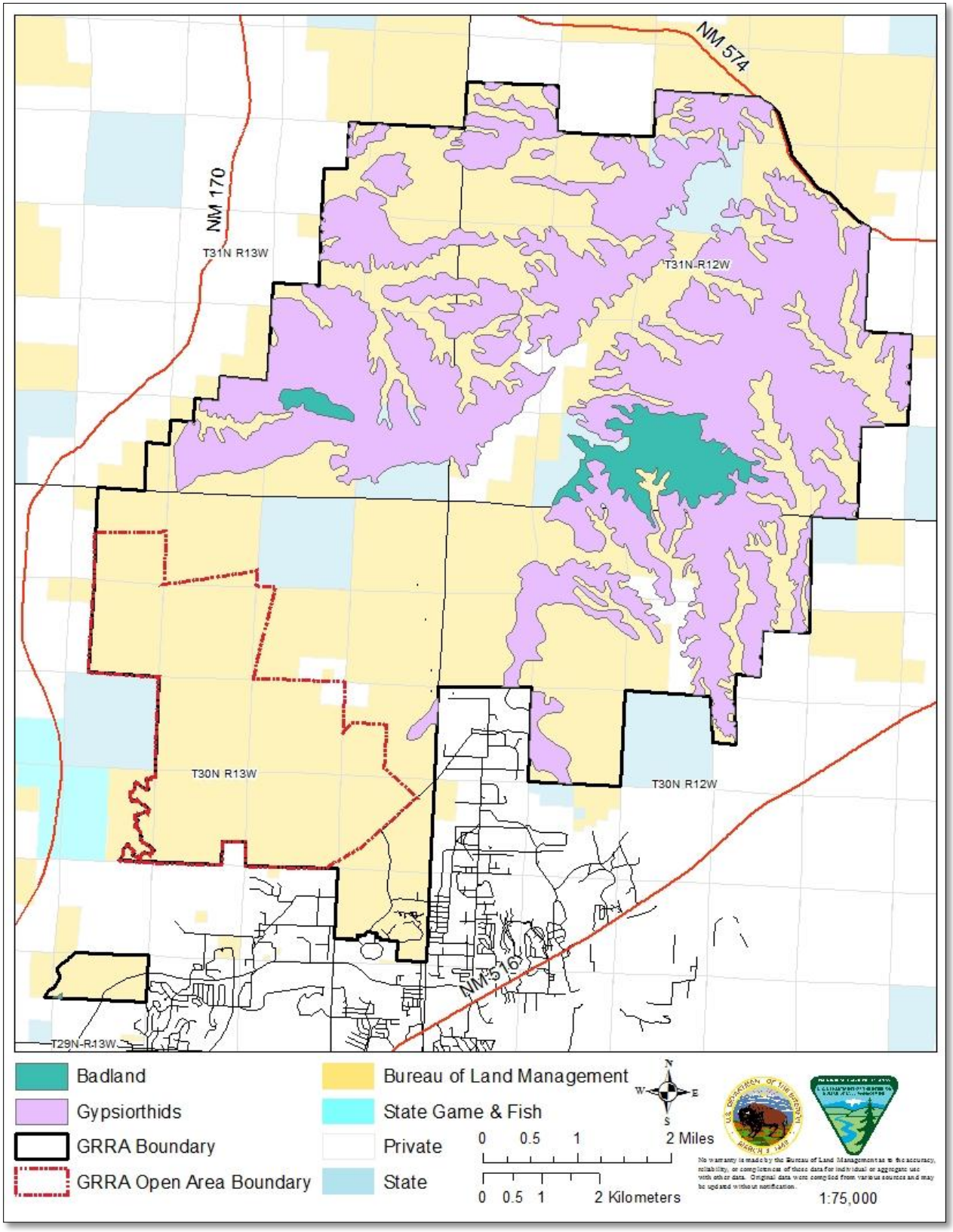
Direct and Indirect Impacts

The Web Soil Survey (WSS) provides soil data and information produced by the National Cooperative Soil Survey (NCSS). It is operated by the NRCS. The WSS allows the user of the service to designate an area of interest and apply the Soil Data Explorer feature. The Soil Data Explorer generates suitability and limitation ratings for several land uses. The suitability ratings of an activity in an area of interest are reported as not limited – soil has features that are very favorable for the specified use, somewhat limited – soil has features that are moderately favorable for the specified use, very limited – soil has one or more features that are unfavorable for the specified use, or not rated. One of the Soil Data Explorer land uses is recreational development. One category of recreational development is off-road motorcycle trails. Areas of interest for all alternatives were analyzed for off-road motorcycle trails. The No Action Alternative and Alternatives A and C were very similar and generally the ratings were 67 percent not limited, 32 percent somewhat limited, and one percent not rated. Alternative B proposed the largest limited area and included portions of La Plata River floodplain are not included in the No Action Alternative and Alternatives A and C. The La Plata River floodplain portion of Alternative B contained 14.3 acres that the WSS report rated as very limited.

All the limited areas proposed in all alternatives contain areas of FFO designated potential fragile soils (Figure 26). The FFO Fragile Soils Procedure requires new projects that disturb designated potentially fragile soils on slopes of 20 percent or more to identify those areas of fragile soils and propose soil management mitigation techniques such as: excelsior netting, geotextile materials, silt fences, and silt traps, or runoff control features to minimize soil erosion. Any new trails created in the limited area will be required to follow the FFO Fragile Soils Procedure.

Using the Route Evaluation Form (Appendix A) to assess existing trails, re-routed trails, and new trails will further help to reduce soil impacts by identifying areas of potential erosion. New trails and re-routed portions of trails will also have to comply with the Criteria for Trail Placement (Appendix B). These criteria focus on developing trails in stable, low maintenance areas that will result in the overall reduction of soil movement and disturbance.

Figure 26. Fragile Soils in the GRRA



Recreation activities in the limited area are restricted to designated trails. Soils may be impacted on the designated trails from foot travel, horseback riding, bicycling, and OHVs including two-wheeled motorcycles, four-wheeled utility vehicles, jeeps, and passenger vehicles. The surface of the trails is typically bare soil which may be susceptible to erosion depending on the type of soil and the gradient of the trail. The designated trails would be narrow and linear. The width of the individual trails varies depending on the designated use of the trail and each alternative: up to 108 inches wide for the 4WD, up to 75 inches wide for ATV/UTV trails, and 24 inches wide or less for motorcycle, bicycle, and equestrian trails. Table 26**Error! Reference source not found.** displays the number of miles of trail in each alternative and the resulting disturbance from those trails. The table also displays the percentage of the GRRA that would be disturbed by trails under each alternative. Sediment originating from designated trails would be dispersed throughout the limited area and is not expected to have a measurable impact on the Animas, La Plata, or San Juan River systems.

Table 26. Trail Impacts to Soil Resources from All Alternatives

	No Action Alternative	Alternative A	Alternative B	Alternative C
Miles of Trails	25	139	148	56
Acres of Disturbance from Trails	8.1	66.9	72.5	29.1
Percent of GRRA Disturbed by Trails	0.05	0.38	0.26	.02

Cumulative Impacts

Impacts to soil resources under the No Action Alternative would continue to be similar to current conditions. The narrow linear trails that would be authorized under Alternatives A, B, or C would be dispersed throughout the limited area and would be monitored and maintained according to the maintenance procedures proposed in the GRRA plan. Any new trails that would impact FFO designated fragile soils would follow the FFO Fragile Soils Procedure. If any trails or facilities are retired, the bare soils areas of the trails or facilities would follow the FFO Bare Soil Reclamation Procedure. Oil and gas will continue to be developed and produced in the project area. Areas within the planning area reduced to bare soil by oil and gas development and production activities would follow the FFO Bare Soil Reclamation Procedure.

Facilities proposed in the action alternatives include up to five new parking areas, one horse corral attached to one of the new parking areas, protective barriers, and kiosks to provide information to the public. All the proposed facilities would impact soil erosion due to removal of vegetation. The proposed parking areas would be surfaced to limit soil erosion, and are expected to result in a reduction of soil erosion currently caused by recreationist pulling off roads to park and impacting vegetation at random. Horse corrals may result in bare soil that may not be stabilized within the corral; however, water management techniques may be employed around the corral perimeter to limit the amount of sediment migrating from the site. Protective barriers should result in reduced erosion by restricting recreationists from unstable areas. All the facilities combined would impact less than 10 acres and should help limit erosion in the planning area.

3.1.3. Impacts from the No Action Alternative and Alternatives A and B

Only the No Action and Alternatives A and B contain open areas. Alternative C is excluded from this analysis because it does not contain an open area.

Direct and Indirect Impacts

The No Action Alternative and Alternatives A and B include areas open to cross-country motorized vehicle use (3,800 acres, 3,300 acres, and 4,500 acres, respectively). An open area allows for the use of all types of vehicle at all times. There are some rock outcrops and established routes in the proposed open areas that recreationists have repeatedly utilized. The rock outcrops do not support vegetation, and show little impacted by vehicle use. Vegetated areas that may be driven over only occasioning may retain the existing vegetation community. Vegetated areas that are routinely driven over and established routes

that are located in areas of vegetated soil are generally reduced to bare soil. Bare soil areas may be more susceptible to water and wind erosion depending on soil types and steepness of slope.

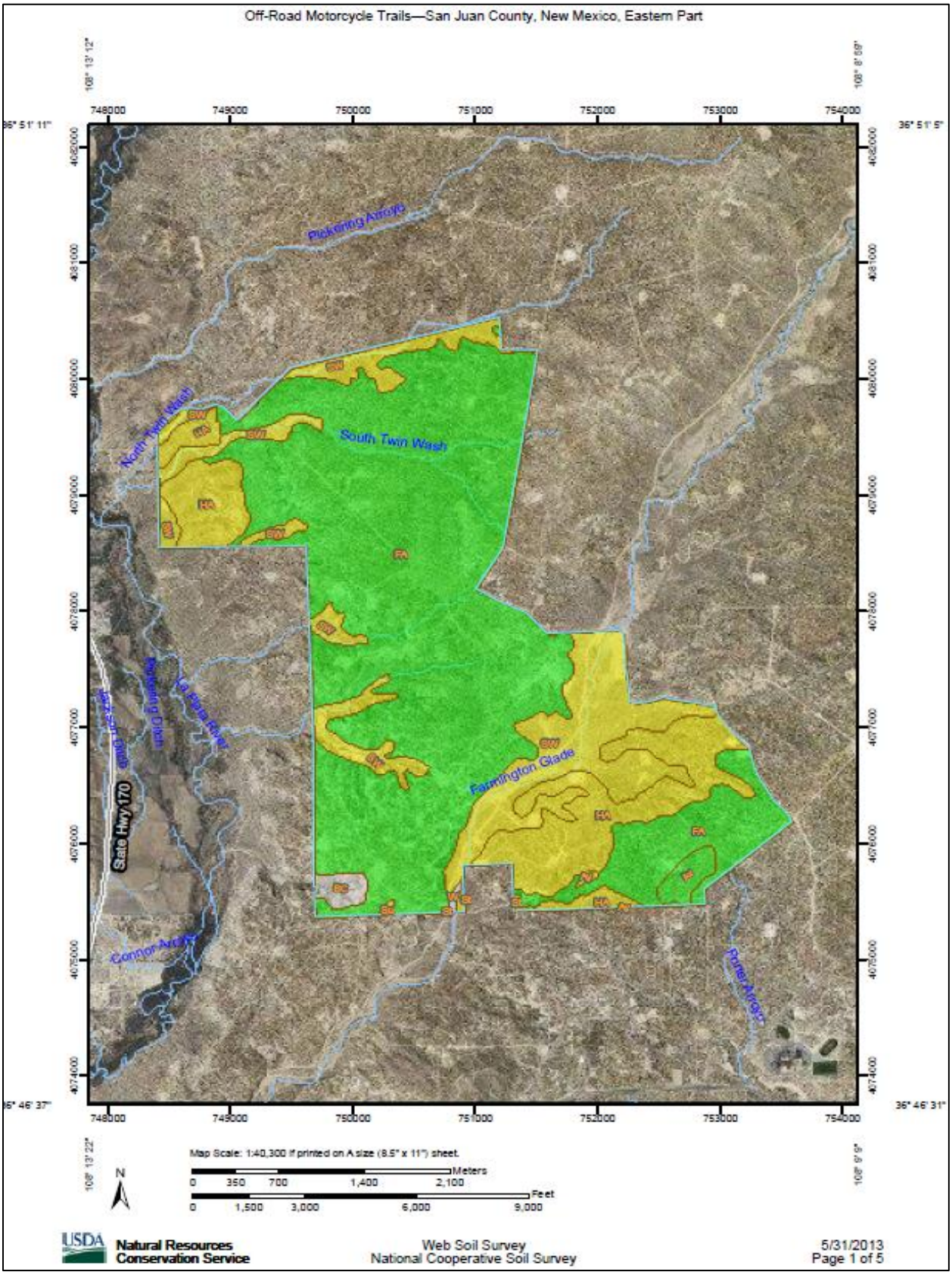
The GRTS was established in the 1988 Farmington RMP. This plan acknowledged that the area had been ridden by local ORV enthusiasts for over 30 years and that trails had been established. The GRTS was amended in 1996 to include an open area designated for unlimited vehicle use. The open area has been authorized and heavily utilized for the past 17 years. A review of aerial photo (Figure 27) shows a comparison of the vegetation in open area and the limited area. A review of this vegetation comparison does not suggest that there has been significant loss of trees in the open area, or a high percentage increase in the amount of bare ground as compared to the limited area. However, the past 17 years of unlimited use in the existing open area has resulted in areas of bare soil, and the continued authorization of an open area would be expected to result in increased areas of bare ground over time.

The WSS Soil Data Explorer was used to develop an area of interest for the No Action Alternative and Alternatives A and B proposed open areas. The Soil Data Explorer was used to analyze the suitability and limitations of the Off-Road Motorcycle Trails option of the Recreational Development Category (Table 28). Off-road motorcycle trails are intended primarily for recreational use. They require little or no site preparation. They are not covered with surfacing material or vegetation. Considerable compaction of the soil material is likely.

A map unit is typically composed of one or more “components.” A component is either some type of soil or some non-soil entity (e.g., rock outcrop). Aggregation is the process by which a set of component attribute values is reduced to a single value that represents the map unit as a whole. For the attribute being aggregated the first step of the aggregation process is to derive one attribute value for each of a map unit’s components. From this set of component attributes, the next step of the aggregation process derives a single value that represents the map unit as a whole. Once a single value for each map unit is derived, a thematic map for soil map units can be rendered. Aggregation must be done because, on any soil map, map unites are delineated but components are not.

For each of a map unit’s components, a corresponding percent composition is recorded. A percent composition of 60 indicates that the corresponding component typically makes up approximately 60% of the map unit. Percent composition is a critical factor is some, but not all aggregation methods.

Figure 27. Example of Soil Ratings for an Area Open to Motorized Vehicle Use



MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Map Units

Soil Ratings

Very limited

Somewhat limited

Not limited

Not rated or not available

Political Features

Cities

Water Features

Streams and Canals

Transportation

Rails

Interstate Highways

US Routes

Major Roads

MAP INFORMATION

Map Scale: 1:40,300 if printed on A size (8.5" × 11") sheet.

The soil surveys that comprise your AOI were mapped at 1:63,360.

Please rely on the bar scale on each map sheet for accurate map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: UTM Zone 12N NAD83

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: San Juan County, New Mexico, Eastern Part
Survey Area Data: Version 10, Sep 23, 2009

Date(s) aerial images were photographed: Data not available.

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Table 27. Off-Road Motorcycle Trails Summary by Map Unit for the No Action Alternative, Alternative A, and Alternative B.

Map Unit	Map Unit Name	Rating	Component Name (percent)	Rating Reasons (numeric values)	Acres in Area of Interest	Percent of Area of Interest
Av	Avalon sandy loam, 2 to 5 percent slopes	Not limited	Avalon (95%)		34.1	1.0%
Ay	Avalon loam, 0 to 3 percent slopes	Somewhat limited	Avalon (90%)	Dusty (0.50)	3.5	0.1%
BC	Badland-Rock outcrop-Persayo complex, extremely steep	Not limited	Badland (35%)		26.9	0.8%
			Rock outcrop (30%)			
FA	Farb-Persayo-Rock outcrop complex, moderately steep	Not limited	Farb (40%)		2,220.3	66.5%
HA	Haplargids-Blackston-Torriorthents complex, very steep	Somewhat limited	Haplargids (45%)	Slope (0.14)	464.1	13.9&
			Blackston (30%)	Dusty (0.50)		
			Torriorthents (20%)	Dusty (0.50)		
				Slope (0.14)		
St	Stumble loamy sand, 0 to 3 percent slopes	Somewhat limited	Stumble (90%)	Too sandy (0.36)	6.8	0.2%
			Fruitland (10%)	Dusty (0.50)		
Su	Stumble loamy sand, 3 to 8 percent slopes	Somewhat limited	Stumble (90%)	Too sandy (0.36)	2.5	0.1%
SW	Stumble-Fruitland association, gently sloping	Somewhat limited	Stumble (40%)	Too sandy (0.36)	578.1	17.3%
W	Lakes, rivers, reservoirs	Not rated	Water (95%)		4.2	0.1%
				Total	**3,340.4**	**100.0%**

The aggregation method, “Dominant Condition”, first groups like attribute values for the components in a map unit. For each group, percent composition is set to the sum of the percent composition of all components participating in that group. These groups now represent “conditions” rather than components. The attribute value associated with the group with the highest cumulative percent composition is returned.

The ratings are based on the soil properties that influence erodibility, trafficability, dustiness, and the ease of re-vegetation. These properties are stoniness, slope, depth to a water table, ponding, flooding, and the texture of the surface layer. The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect the specified use. “Not limited” indicated that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. “Somewhat limited” indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. “Very limited” indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical rating indicates the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact of the use (1.0) and the point at which the soil feature is not a limitation (0.00).

Table 28 displays the percentage of the area open to cross-country motorized vehicle use in each alternative in each Recreational Development Category. The WSS does not have an open to all vehicles

at all times category, and impacts to an open area may be more severe that off-road motorcycle trails. The off-road motorcycle trails category is the most useful category available for rating, and the results indicate that the proposed open areas are located on lands reasonably suited for the activities proposed (Table 29).

Table 28. Percent of Area in Soil Data Explorer Recreational Development Categories

Recreational Development Category	No Action Alternative	Alternative A	Alternative B
Not Limited	63.9	67.5	59.1
Somewhat Limited	33.5	31.6	39.7
Not Rated	2.6	0.9	1.1

Table 29. Off-Road Motorcycle Trails Summary by Rating Value

Rating	Acres in Area of Interest	Percent of Area of Interest
Not Limited	2,254.4	67.5%
Somewhat Limited	1,055.0	31.6%
Null or Not Rated	31.1	0.9%
Total	**3,340.4**	**100.0%**

Cumulative Impacts

An open area of 3,800 acres in the GRTS has been authorized for 17 years and has resulted in some well used routes and other areas of bare soil which are more susceptible to soil erosion. The No Action Alternative would reauthorize the 3,800 acre open area and impacts would continue to be similar to the impacts of the last 17 years. Alternative A would authorize and open area of 3,300 acres, and Alternative B would authorize 4,500 acres of open area. The impacts of Alternatives A and B would be similar to the existing open area, and areas of bare soil would be expected to increase over time. Alternative C does not contain an open area and result in less impacts than the No Action, A, and B alternatives. None of the proposed open areas contain any FFO designated fragile soils. All of the proposed open areas are located in areas reported by the WSS as not limited, somewhat limited, or not rated for off-road motorcycle trails. None of the proposed open areas are located on soils rated by the WSS as very limited for off-road motorcycle trails. The New Mexico Environment Department (NMED) Integrated Report (IR) does not list recreation related (including OHVs) as a probable source of impairment for any of the San Juan River (Hogback to Animas River), Animas River (San Juan River to Estes Arroyo), and La Plata River (San Juan River to McDermott Arroyo) assessment units that the proposed open areas drain into. When any designated open areas are unauthorized, the FFO Bare Soil Reclamation Procedure will be followed to rehabilitate areas reduced to bare soil as a result of the GRRA R&TMP.

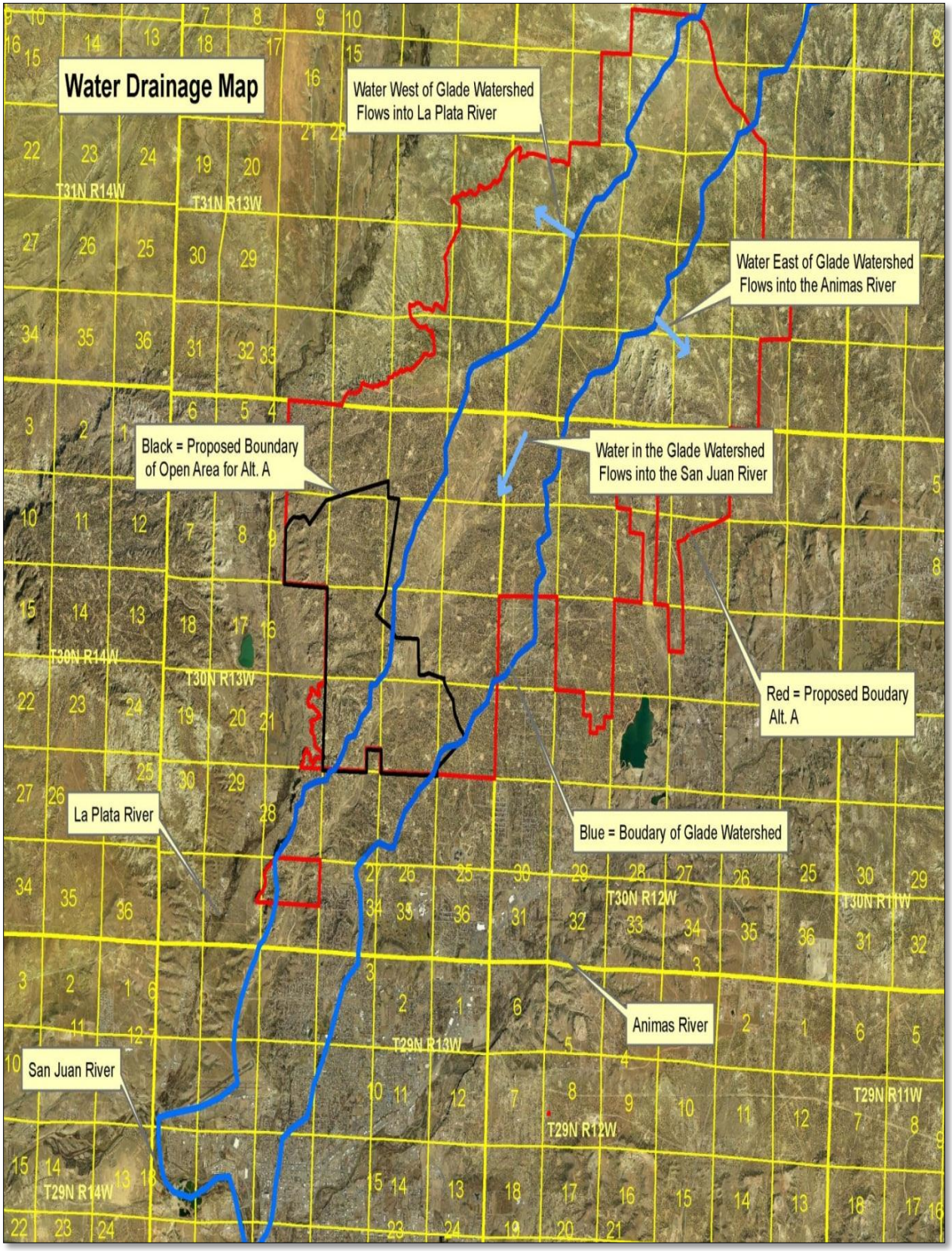
3.2. Water Resources

3.2.1. Affected Environment

The GRRA is located in three watersheds that drain into the San Juan River. These three watersheds comprise the spatial scale from which the analysis was completed. The eastern portion of the GRRA drains in to the Animas River; the central portion drains into the Farmington Glade Watershed; the western portion drains into the La Plata River; and all of water that drains from the GRRA enters the San Juan River within the COF limits (Figure 28). The Animas River drains approximately 870,000 acres with headwaters in the San Juan Mountains above Silverton, Colorado, and enters the San Juan River at Farmington.

The Farmington Glade Watershed is a 24,700-acre wash system that is dry except during thunderstorm runoff events and occasionally snow melt events. The Farmington Glade Watershed begins about 7 miles upstream of the GRRA, extends through the center, and finally passes through private properties until entering the San Juan River. Approximately 10,200 acres of the Farmington Glade Watershed are in the GRRA.

Figure 28: Water Drainage Map for the Planning Area



The La Plata River drains approximately 373,000 acres with headwaters in the La Plata Mountains in Colorado and enters the San Juan River at Farmington. About 8,700 acres of the GRRA drain into the La Plata River.

The San Juan River is a large system about 383 miles long, drains approximately 24,600 square miles, and empties into the Colorado River at Lake Powell. Navajo Dam is located on the San Juan River 34 miles east of Farmington. The dam impacts the river below the dam by modifying the flow rate, the sediment transport, the water temperature, and the flooding potential. All of the GRRA drains into the San Juan River.

Under the New Mexico Water Quality Act, the New Mexico Water Quality Control Commission is the water pollution control agency for New Mexico. The NMED is the constituent agency that is primarily responsible for implementing and enforcing the regulations and standards adopted by the Commission. NMED prepared the 2012-2014 State of New Mexico Clean Water Act §303(d)/§305(b) IR. The IR contains an Integrated List (IL) of impaired waters in New Mexico. Information in the IL includes designated uses, probable causes of non-attainment, and probable sources that may be leading to non-attainment of the noted uses for each assessment unit listed. Designated uses are uses specified in the State of New Mexico Standards for Interstate and Intrastate Surface Waters (20.6.4 NMAC) that apply to the given assessment unit and/or any documented existing uses that apply to the given assessment unit. Probable causes are primarily based on water quality monitoring, and targeted monitoring with data supplemented by outside sources shown to be of sufficient quality. Probable sources listed for any particular water body have not been proven to be a source, or the only sources of the identified impairment. It is based on the qualitative field observations made by field staff for assessment units sampled during rotational watershed surveys and watershed restoration projects. The top ten probable sources of surface water impairment identified in the IR are: rangeland grazing, loss of riparian habitat, natural sources, stream bank modification, highway/road/bridge runoff, flow alterations, source unknown, on-site septic treatment systems, municipal point source discharges, and recreation related (including OHVs).

The analysis area for analyzing impacts from the GRRA on water resources is the San Juan River below Navajo Dam extending to just below the confluence of the La Plata River. This portion of the San Juan River drains approximately 2,855,000 acres and includes the Animas River, the Farmington Glade, and the La Plata River Watersheds.

Portions of the GRRA drain into three assessed units in the IL: San Juan River (Hogback to Animas River), Animas River (San Juan River to Estes Arroyo), and La Plata River (San Juan River to McDermott Arroyo). The majority of designated uses for the three assessment units were fully supported or not assessed. All three assessment units were reported as not supporting marginal cold water habitat and primary contact; in addition, the Animas assessment unit was reported as not supporting warm water aquatic life. Definitions for these three designated uses are found in 20.6.4 NMAC:

- **Marginal Coldwater** in reference to aquatic life use means that natural intermittent or low flows, or other natural habitat conditions severely limit maintenance of a cold water aquatic life population or historical data indicate that the temperature on the surface water of the state may exceed 25°C.
- **Primary Contact** means any recreational or other water use in which there is prolonged and intimate human contact with the water, such as swimming and water skiing, involving considerable risk of ingesting water in quantities sufficient to pose a significant health hazard.
- **Warm water** with reference to an aquatic life use means that water temperature and other characteristics are suitable for the support or propagation or both of warm water aquatic life.

A list of all the probable causes and sources of impairment from the IL for not supporting the designated uses of cold water habitat, primary contact, and warm water aquatic life in these three assessment units were compiled from pages 431 - 436 of the IL. Probable causes included E. Coli, sedimentation/siltation, turbidity, nutrient/eutrophication biological indicators, temperature, and dissolved oxygen. Probable sources of impairment from the IL included drought, municipal point source discharge, onsite septic treatment systems, rangeland grazing, unknown, flow alterations, high density urbanized area, stream bank modifications, animal feeding, and loss of riparian habitat.

3.2.2. Impacts from All Alternatives

Direct and Indirect Impacts

The potential impact to the La Plata River, Animas River, and San Juan River watersheds from the management of the GRRA may be an increase in sediment reaching the rivers due to recreation activities. The No Action Alternative and Alternatives A and B all contain limited and open areas. The Alternative A project area is divided into a limited use section of 23,100 acres and an open area of 3,300 acres for a total area of 26,500 acres. The limited area would authorize approximately 15 miles of 4WD trails 75 inches wide, 46 miles of ATV trails 65 inches wide, 51 miles of motorcycle, bicycle, and equestrian trails 32 inches wide for a total trail disturbance of about 70 acres. These narrow linear trails are distributed throughout the limited area and would be monitored and maintained per the proposed maintenance plan. Alternative A proposes facilities include parking areas, horse corrals, and protective barriers that may total approximately 5 acres of disturbance. The proposed facilities would be built in relatively flat areas and incorporate water management techniques such as barriers and check dams to limit the amount of sedimentation leaving the area. Combined disturbance in the limited are under Alternative A would be about 75 acres, or 0.32 percent of the limited area. The potential amount of sediment reaching the rivers systems from the proposed limited area is unknown, but FFO considers the potential sediment impact to the rivers to be slight.

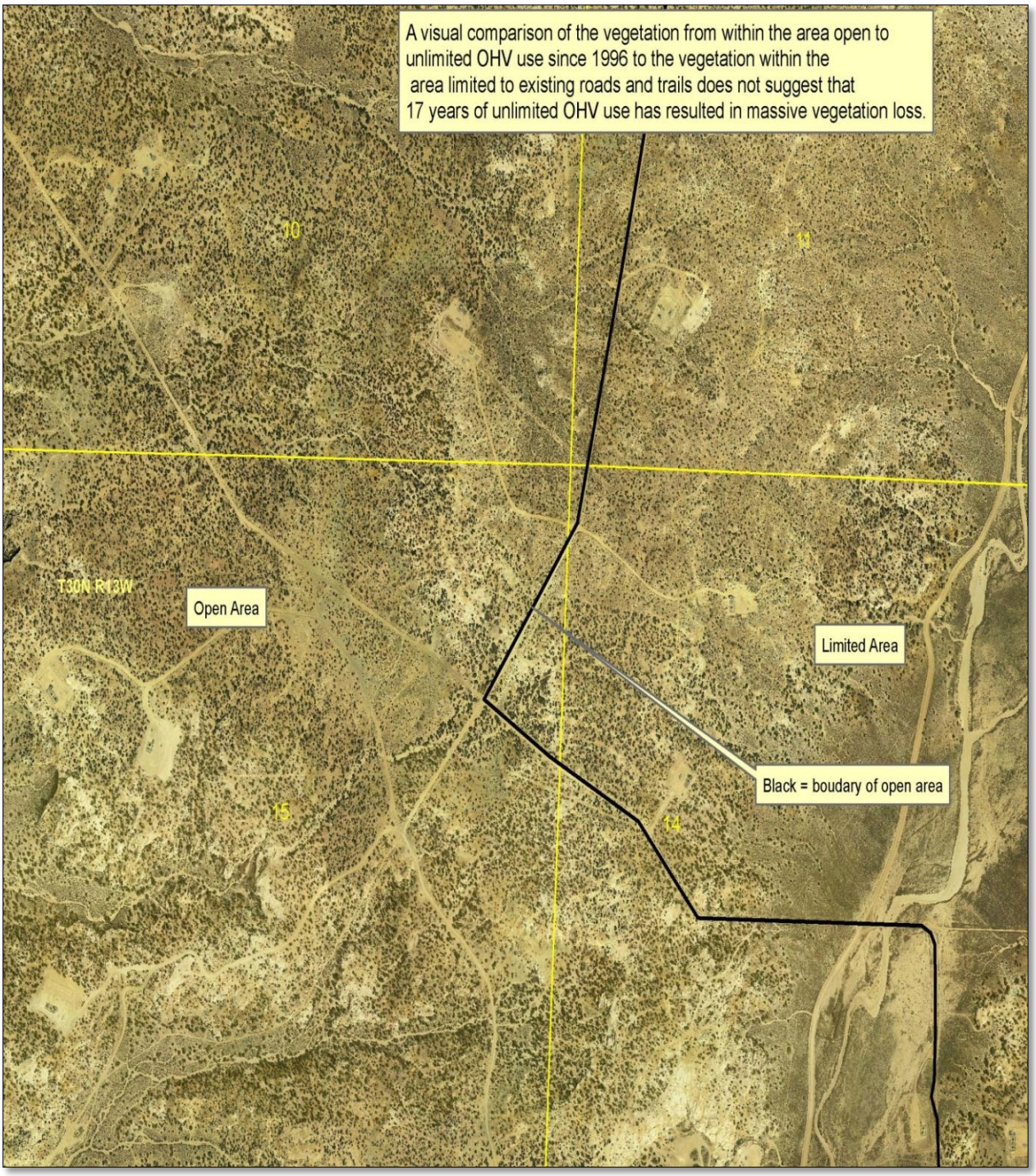
The proposed open area of Alternative A is 3,300 acres in size and is open to all types of vehicle use at all times. Recreationists may not collect vegetation or cut trees without specific authorization; however, recreations may drive over vegetation. Areas that are repeatedly driven over may result in bare soil that may be more susceptible to water erosion depending on soil types and steepness of slope. The potential amount of sediment reaching the rivers systems from the proposed open area is unknown, but FFO considers the potential sediment impact to the rivers to be higher in the open area compared to the limited area.

The GRTS was established in the 1988 Farmington RMP. The GRTS plan acknowledged that the area had been ridden by local ORV enthusiasts for over 30 years and that trails had been established. The GRTS was amended in 1996 to include an open area designated for cross country travel. The open area has been authorized and heavily utilized for the past 17 years. A review of the aerial photo in Figure 29 shows a comparison of the vegetation in open area and the limited area. A review of this vegetation comparison does not suggest that there has been significant loss of vegetation in the open area, or a high percentage increase in the amount of bare ground as compared to the limited area.

All of the water that drains from the proposed project area enters the San Juan River at, or before, the confluence of the La Plata River. Navajo Reservoir acts as a sediment trap for the San Juan River drainage above the reservoir. The San Juan River drains an area of approximately 2,855,000 acres between Navajo Reservoir and the confluence of the La Plata River. The proposed open are is 3,300 acres, or 0.12 percent of the drainage that may be impacted by proposed open area.

As noted, the NMED prepared the 2012-2014 State of New Mexico Clean Water Act §303(d)/§305(b) IL. The proposed project drains into the San Juan River (Hogback to Animas River), Animas River (San Juan River to Estes Arroyo), and La Plata River (San Juan River to McDermott Arroyo) assessment units. The IL reported that these three assessment units were not supporting marginal cold water habitat and primary contact; in addition, the Animas assessment unit was reported as not supporting warm water aquatic life. A list of all the probable causes and sources of impairment from the IL for not supporting the designated uses of cold water habitat, primary contact, and warm water aquatic life in these three assessment units were compiled from pages 431, 435, and 436 of the IL. Probable causes included E. Coli, sedimentation/siltation, turbidity, nutrient/eutrophication biological indicators, temperature, and dissolved oxygen. Probable sources of impairment from the IL included drought, municipal point source discharge, onsite septic treatment systems, rangeland grazing, unknown, flow alterations, high density urbanized area, stream bank modifications, animal feeding, and loss of riparian habitat.

Figure 29. Comparison of Impacts to Vegetation in Areas Currently Managed as Open to Cross-Country Motorized Vehicle Use and Limited to Designated Trails



On page 41 of the NMED IR, the top ten probable sources of impairment are listed as: rangeland grazing, loss of riparian habitat, natural sources, stream bank modifications, highway/road/bridge runoff, flow alterations, source unknown, on-site septic treatment systems, municipal point source discharges, and recreation related (including OHV). The NMED IL does not list recreation related (including OHVs) as a probable source of impairment for any of the San Juan River (Hogback to Animas River), Animas River (San Juan River to Estes Arroyo), and La Plata River (San Juan River to McDermott Arroyo) assessment units.

The differences between limited and open area acreages in the No Action Alternative and Alternatives A, B, and C are insignificant when compared to the 2,855,000 acre size of the overall watershed that the proposed project drains into. The impact analysis is the same for all alternatives. Any sediment that may have entered the San Juan, Animas, and La Plata River systems during the past 17 years that the GRTS (Including an Open Area) has been authorized have not been identified in the NMED IL as a probable source of impairment to the three assessment units adjacent to the proposed recreation area. The authorization of any of the alternatives in the proposed GRRA is not expected to result in further impairment of the San Juan River (Hogback to Animas River), Animas River (San Juan River to Estes Arroyo), and La Plata River (San Juan River to McDermott Arroyo) assessment units.

Cumulative Impacts

The San Juan, Animas, and La Plata River systems have all been impacted during the last century of urban and rural development in the area. All three rivers are utilized extensively for agricultural irrigation. The Animas and San Juan Rivers support domestic water and sewage treatment facilities. The Ridges Basin Dam impacts flow regimes on the Animas River. Navajo Dam impacts water quality and flow regimes on the San Juan River. The 2004 Bed-Material Characteristics of the San Juan River and Selected Tributaries report (2004) documented a sediment load reduction of 85 percent at Bloomfield, and 34 percent at Shiprock after completion of Navajo Dam. The NMED IL reported that there were 14.2 percent no flow days at United States Geological Survey (USGS) La Plata River gage 09367500 that would equate to about 50 days per year that there was no flow in the La Plata River. All three rivers have been either negatively or positively impacted by the urbanization of the area. The proposed GRRA is not expected to further impact the three river systems significantly.

3.3. Vegetation

3.3.1. Affected Environment

The GRRA is comprised of four main vegetation communities: badlands, greasewood, sagebrush, and pinion-juniper. Other smaller vegetation community types may be interspersed, such as the Colorado Plateau sand shrubland community. Vegetation community types were derived from Southwest Regional GAP Analysis Project (SWReGAP) Data (SWReGAP 2004). SWReGAP data is considered coarse filter or not as detailed, but is the best available data to analyze the main representative vegetation in GRRA and generate vegetation maps. Acreage of each vegetation type is approximated from this data and may underrepresent some vegetation types in the GRRA such as the badland community, or invasive annuals (see Section 3.4).

Badlands

Approximately 35 acres of the Badland/Rock/Wash communities are in the GRRA. Plant communities of the badland complex are typically sparsely vegetated, often with less than 10% vegetation cover but occasionally up to 30%. Cryptobiotic soil/crust is an important component of this habitat. Shrubs and half shrubs are apparent and rather unevenly distributed. The potential plant community varies somewhat with depth of soil, exposure and slope. Despite the limited cover, these areas often support many endemic species. Many endemic species in NW New Mexico are restricted to soils derived from a specific geologic formation and most occur in areas of exposed parent materials. Species composition is highly variable but may include Utah juniper, Colorado pinion, four-wing saltbush, Indian ricegrass, galleta, winterfat, Mormon tea, alkali sacaton, globemallow, and snakeweed. FFO has two (2) rare plant species (BLM Special Status Plant Species-[SSPS]), Aztec gilia (*Aliciella formosa*) and Brack's hardwall cactus

(*Sclerocactus cloverae ssp. brackii*) associated with the badland vegetation type of the Nacimiento Formation that occurs in FFO. A segment of the Nacimiento formation occurs in the GRRA and a portion of both potential habitat and populations of these species are known to occur in the GRRA. One other rare plant that may have potential habitat in the badland areas of the GRRA is Mancos saltplant (*Proatriplex pleiantha*).

Shrub communities of badlands tend to be confined to meandering drainages, sandy ridges, sand hill complexes, gravelly or rocky draws, and moist swale habitats. Woodlands generally occur in draws and deep swales, hillside slumps, and along ridgelines. Occasionally at the edge of sand hill complexes where water seeps from the hills at their interface with underlying, relatively impermeable clay soils is a more diverse habitat for grasses, forbs, and both shrubs and trees.

Greasewood

The greasewood vegetation community comprises approximately 69,162 acres (approximately 5%) of the FFO boundary. Within the GRRA up to 900 acres are present depending on alternative. The greasewood vegetation communities are most characteristic of broad valley bottoms but can be found on alluvial fans (slope less that 8%) above the valley floor and on plateaus and mesas. Mean annual precipitation varies from 7 to 10 inches with deviations of 4 inches or more being quite common. These sites can potentially receive additional moisture from the adjacent uplands. The soils are generally deep (24 to 60 inches or more), well drained and are sodium affected. The soils associated with this cover type are typically fine sandy loams and fine silty clay loams and is moderately susceptible to wind and water erosion without adequate herbaceous cover. Common species that can be expected to occur are black greasewood, big sagebrush, alkali sacaton, western wheatgrass, galleta, fourwing saltbush, shadscale saltbush, Indian ricegrass, and sand dropseed. Vegetation can be difficult to establish in the finer clay soils.

Sagebrush

The sagebrush/grass vegetation community comprises approximately 551,198 acres (approximately 39%) of the FFO area. Sagebrush/grass community present in the GRRA is up to 3,700 acres depending on the alternative. The sagebrush community is comprised primarily of Wyoming big sage with lesser amounts of basin big sage and minor areas of black sage. This plant community occupies vast areas of relatively open rolling hills to the south of Farmington and numerous mesas and canyon bottoms to the east and north. It is found on all aspects from about 5,000 to 7,200 feet but is most common on southerly and western aspects. Soils vary from clayey to fine sandy loam to loamy in texture with loamy sites being more pervasive. In general, the soils underlying this plant community are moderately deep (20 to 54 inches thick) and well drained. Typical soil series in the FFO area where the sagebrush/grass plant community is found include Penistaja, Buckle, Doak, Blancot and Orlie. The precipitation regime varies from 7 to 14 inches.

The sagebrush/grass vegetation community is a dominant component and is integral to a proper functioning watershed and ecosystem of the FFO area landscape. Maintaining proper hydrologic function of this plant community is essential to the ability of the plants to produce forage for livestock and wildlife, retention of soils on site and the minimization of the degradation of water quality due to the deposition of salts and sediment. Common species that can be expected to occur are Wyoming and basin big sagebrush, western wheatgrass, galleta, blue grama, Indian ricegrass and sand dropseed. Forbs are highly dependent upon precipitation; typical species are biscuit root, woolly plantain, astragalus species, asters, daisies and borage species.

Pinyon-Juniper

Pinyon–juniper woodlands comprise approximately 638,884 acres (45.6%) of the FFO. In the GRRA, pinyon-juniper woodlands up to 27,000 acres are present, depending on the alternative. Pinyon dominate at higher elevations, and tend to form more closed-canopied stands that exhibit forest like dynamics and species composition, commonly including a significant shrub component of oaks and alder leaf, mountain mahogany and limited grasses. Juniper tends to grow at lower elevations and in more arid areas as its scaled foliage allows it to conserve water more effectively than pinyon pine. Historical occurrence of

pinyon and juniper is difficult to map, but pre-settlement trees are generally located in shallow, rocky soils and tend to have a unique growth form characterized by rounded, spreading canopies; large basal branches; large irregular trunks; and furrowed fibrous bark (Miller and Rose 1999).

Soils are similarly variable, ranging from relatively deep soils often high in clay or sand content, to shallow rocky soils, to rock outcrops where no soil is present, but the trees are rooted in deep cracks of the bedrock. Woodlands of pinyon or juniper or both occupy a broad zone of intermediate moisture and temperature conditions between the hot arid deserts of lower elevations and the cool mesic forests of higher elevations.

Pinyon–juniper vegetation has been identified three fundamentally different groupings (Romme et al. 2009) based primarily on canopy structure, understory characteristics, and historical disturbance regimes. The three categories are persistent pinyon –juniper woodlands, pinyon–juniper savannas, and wooded shrublands. FFO has two general pinyon-juniper vegetation types as described by Romme et al (2009) as Persistent Woodlands and Wooded Shrublands by our precipitation patterns and geographic location. Savannah communities in the Four Corners region and the Colorado Plateau are relatively rare. Pinyon-juniper in the GRRA is confined to higher elevations; shallower rocky soils derived mainly from sandstone, and so would be considered to be the persistent woodlands.

These woodland trees are typically associated with a major shrub component, notably big sagebrush (several subspecies) and other sagebrush species, antelope bitterbrush, and various rabbitbrush species. There is a mix of warm and cool season grass species, mostly bunch grass species within varying elevations of pinyon-juniper communities. Perennial bunch grass in the lower elevation pinyon-juniper communities may include Indian ricegrass, blue grama, mutton grass, bottlebrush squirreltail, and needleandthread grass. Rare plants that may have potential habitat in the pinyon-juniper community are Cottam's milkvetch (*Astragalus cottamii*), NM Species of Concern (SOC), and San Juan milkweed (*Asclepias sanjuanesis*) BLM SSPS (See Section 3.6).

Figure 30 through Figure 33 display the main community types in the GRRA, with the open and limited use areas by alternative overlaying them. These figures also depict the spatial scale of the GRRA utilized for the following analysis.

3.3.2. Impacts from the No Action Alternative

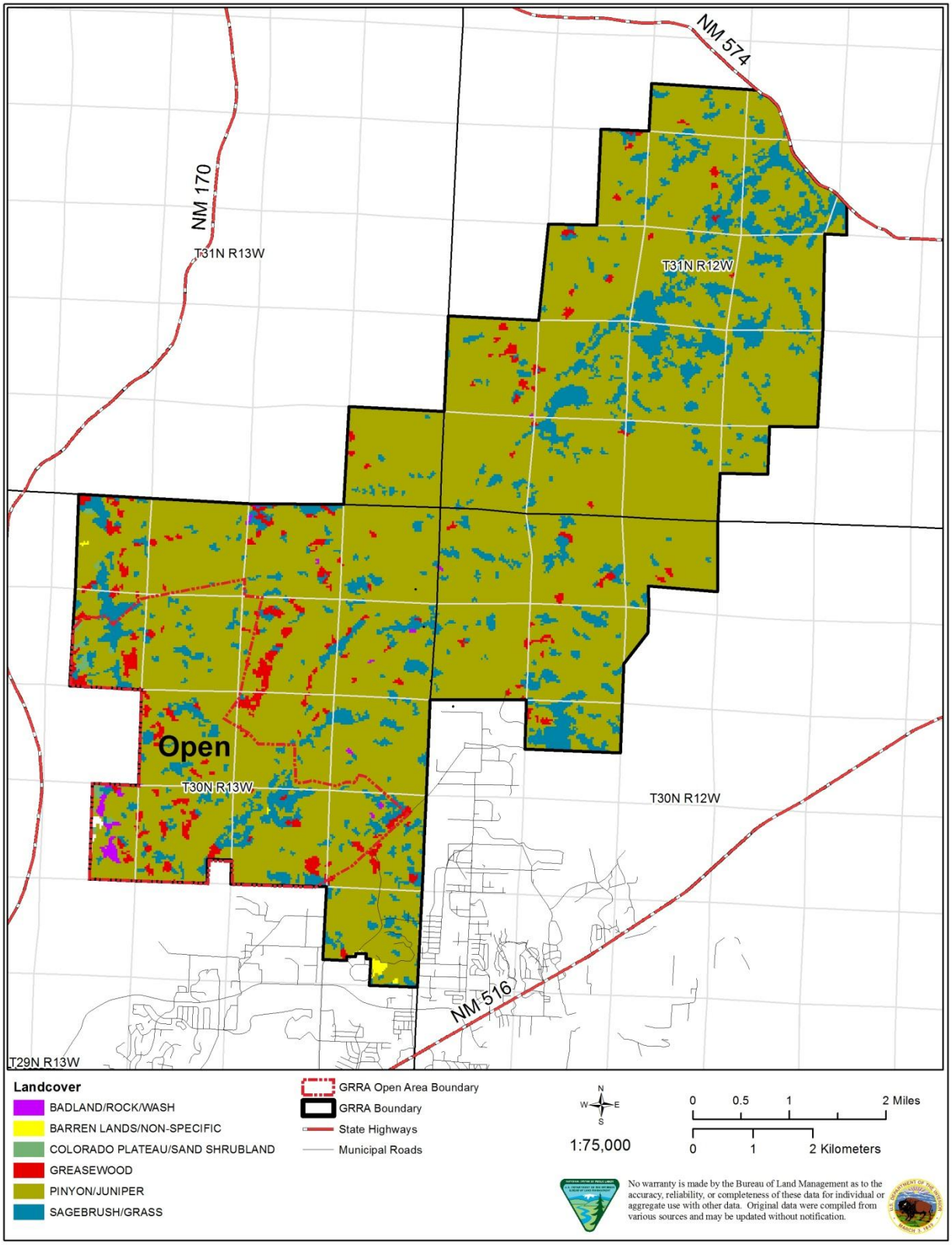
Direct and Indirect Impacts

Terrestrial plant communities and habitats would continue to be adversely impacted by the continued use of the 3,800 acres of open to cross country use, and 17,700 acres of OHV use limited to designated routes (Figure 30). This would include direct impacts from habitat removal as well as a wide variety of indirect impacts. As recreational use continues to climb, impacts would increase over time. Plant communities and habitats affected by direct or indirect impacts from proposed recreation activities could incur short- or long-term changes in species composition, abundance, and distribution.

Direct impacts of OHV trail use, and the creation of single track motorized and non-motorized recreation activities on vegetation include reduced vegetation cover and growth rates, and increased potential for non-native grasses and pioneering species to become established, thus altering vegetation communities. Equestrian use or hiking on existing trails is difficult to distinguish from use by motorized or non-motorized recreation use but may contribute to the cumulative effects on vegetation. Equestrians or hikers may also go off trail causing dispersed impact to vegetation communities that would be minor; short-term (e.g., crushed vegetation, soil compaction).

In certain instances, depending on the soils, the impervious nature of compacted route surfaces could result in significant runoff that generates greater moisture availability immediately along OHV and non-motorized routes. This would promote increased vegetation cover and plant abundance than could be potentially found in the surrounding areas away from the OHV and non-motorized routes. These "edge" habitats with higher moisture conditions can promote the encroachment of non-native and invasive plant species.

Figure 30. Vegetation Community Types for OHV Designations in the No Action Alternative



In some areas, restoration may potentially include native species that are not locally adapted or plant communities different from established or later seral native communities. Although the replanting of disturbed soils may successfully establish vegetation in some locations (i.e., with a biomass and species richness similar to those of local native communities), the resulting plant community may be quite different from native communities in terms of species composition and representation of particular vegetation types, such as shrubs. The community composition of replanted areas would likely be greatly influenced by the species that are initially seeded, and colonization by species from nearby native communities may be slow. Non-native species may be utilized only if native plant materials were not available and immediate site stabilization was necessary. Utilizing non-native species may result in the introduction of those species into nearby natural areas. The establishment of mature native plant communities may require decades, and some community types may never fully recover from disturbance. Successful re-establishment of some habitat types, such as some shrubland communities, may be difficult and may require considerably greater periods of time. Certain soil types such as fine sandy loams or silty clay loams may be more difficult to reestablish vegetation on (greasewood or badland vegetation communities). Restoration of plant communities in areas with arid climates (e.g., averaging less than 9 in. (20 cm) of annual precipitation) would be especially difficult (Monsen et al. 2004).

Indirect impacts on terrestrial habitats within or adjacent to the planning area could result from land clearing and exposed soil; soil compaction; and changes in topography, surface drainage, and infiltration characteristics. Indirect impacts could also include the degradation of habitat from construction activities occurring in adjacent areas. Prohibiting the removal of forest product (predominately fire wood and vegetation) by the public would continue to help reduce the degradation of vegetation habitat types.

In addition to habitat removal, the operation of OHVs or non-motorized recreation may result in injury or destruction of existing vegetation and biological (microbiological) soil crusts and the compaction and disturbance of soils (Belnap and Herrick 2006). Soil aeration, infiltration rates, and moisture content could be impacted. Biological soil crusts occur in deserts and other sparsely vegetated arid habitats and are important for soil stability, nutrient cycling, and water infiltration; their disturbance may affect the development of plant communities (Fleischner 1994; Belnap et al. 2001; Gelbard and Belnap 2003). All these factors could affect the rate or success of vegetation re-establishment.

Habitats adjacent to the planning may become fragmented or isolated as a result of the continued use or designation of routes. Biodiversity may subsequently be reduced in fragmented or isolated habitats. The fragmentation of large, undisturbed habitats of high quality by the continued use or development of routes would be considered a greater impact than if those routes were located on previously disturbed or fragmented habitat.

The deposition of fugitive dust (including associated salts) generated during clearing and grading maintenance of existing roads through the GRRA and/or during the use of roads and trails, or deposition that results from wind erosion of exposed soils, could reduce photosynthesis and productivity (Thompson et al. 1984; Hirano et al. 1995), increase water loss (Eveling and Bataille 1984) in plants within and adjacent to the planning area, and result in injury to leaves. Considerable amounts of fugitive dust could be generated from the large areas of disturbed soil found within the GRRA. Plant community composition could subsequently be altered, resulting in habitat degradation. In addition, pollinator species could be affected by fugitive dust, potentially reducing pollinator populations in the vicinity. Localized impacts on plant populations and communities could occur if seed production in some plant species is reduced.

The No Action Alternative and Alternative B would have somewhat greater effects on the native plant communities than either Alternatives A or C. There would be a higher level of motorized and non-motorized use within the planning area and a more extensive route network. This would result in increasingly bare, un-vegetated ground then under the Alternatives A or C. Bare ground increased the rate of evaporation of available moisture, increases the risk of wind and water erosion, and makes it easier for invasive, non-native plant species to establish.

Cumulative Impacts

In general, the more development that occurs (trails, roads, and facilities), the greater the impact will be to the vegetative communities. Under the No Action Alternative, the vegetative community would continue to be impacted at current levels with a moderate increase as user-created routes proliferate. Authorized and unauthorized recreational use in the GRRA could negatively affect the potential/occupied habitat of rare and SSPS. Disturbances in the area, including oil and gas development, and livestock grazing would continue, contributing further impacts to vegetation. This alternative would not result in impacts from facilities as these would not be developed.

3.3.3. Impacts from Alternative A (Preferred Alternative)

Direct and Indirect Impacts

Table 30 displays the vegetation communities in the GRRA under Alternative A. Terrestrial vegetation would continue to be adversely impacted by the proposed 3,300 acres of open to cross country use, and 23,100 acres of OHV use limited to designated routes (Figure 31). This alternative would have a less adverse effect on the native plant communities in the area, because of the reduction in motorized use by increasing route designations. The route network, under this alternative, would not be as extensive as under the No Action Alternative or Alternative B, reducing the overall amount of bare, un-vegetated ground. This would lead to a potential increase in the rate of evaporation of available moisture, increases the risk of wind and water erosion, but not as great a rate as the No Action Alternative or Alternative B. Soil disturbance makes it easier for invasive exotic plant species to establish. Facilities would be developed in this alternative resulting in localized removal and permanent loss of vegetation on these sites.

Table 30. Vegetation Communities in the GRRA under Alternative A

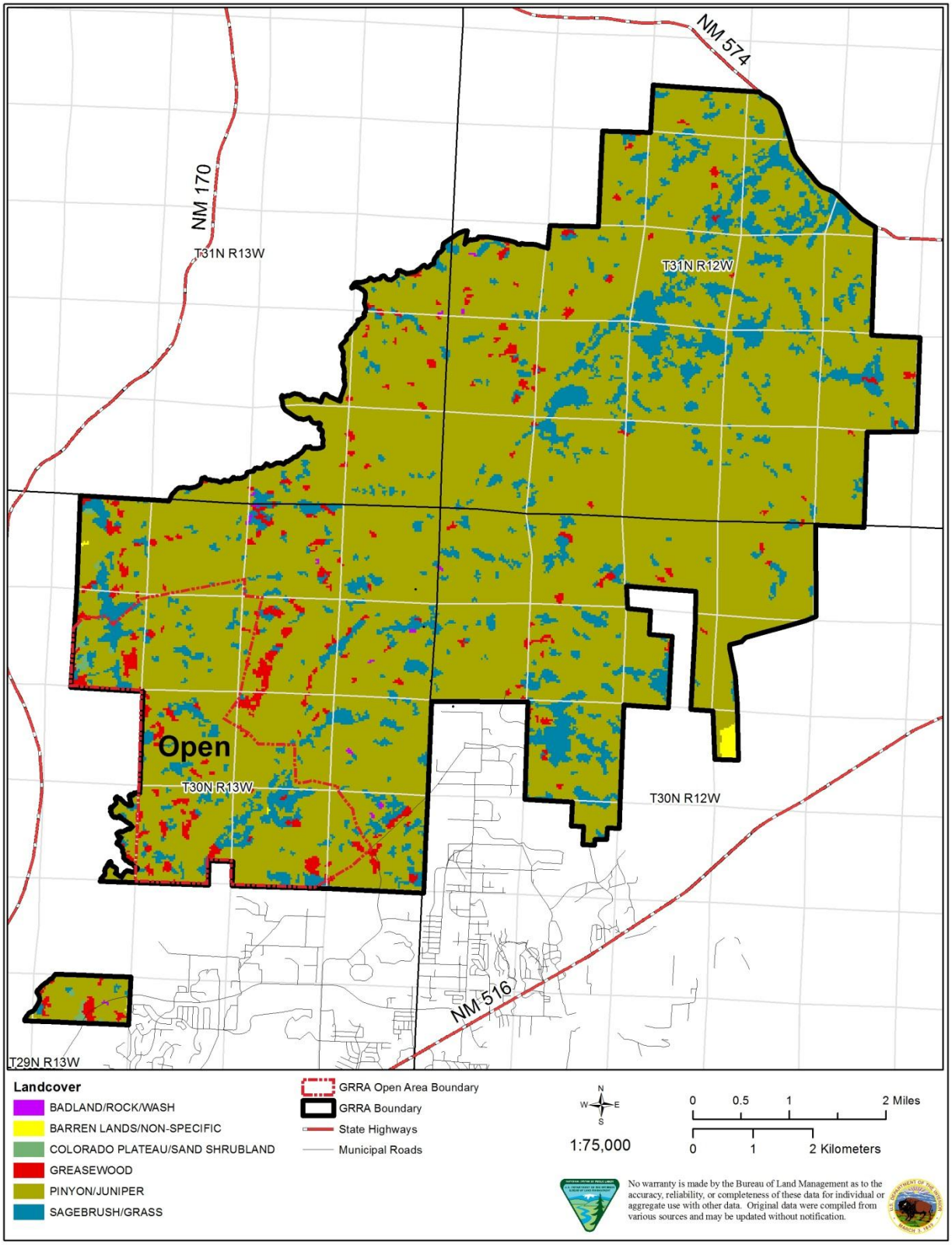
Vegetation Community	Acres
Badland/Rock/Wash	21
Barren Lands/Non-Specific	48
Colorado Plateau/Sand Shrubland	38
Greasewood	708
Pinyon/Juniper	22,708
Sagebrush/Grass	3,051

Impacts to vegetation can be minimized from trail systems by proper placement and planning. Monitoring for adherence to planned activities is crucial to minimizing impacts. BMPs will be applied such as unauthorized trail closures, soil stabilization (erosion control), and certified weed free native seed mixes appropriate for the soils and vegetation community where restoration of roads, trails or general disturbance is required. The prevention of invasive weeds including cheatgrass is important to sustain natural plant communities.

Cumulative Impacts

In general, the more development that occurs (trails, roads, and facilities), the greater the impact will be to the vegetative communities. Under this alternative, the vegetative community would continue to be impacted but at a reduced level as compared to the No Action Alternative. The greatest potential for impacts would continue to occur in areas of occupied and potential habitat for SMS. Route closures in this alternative should alleviate risks somewhat to potential and occupied habitat of SMS. New trails will be designed to avoid populations of SSPS, and if new information on SMS is found, routes will be modified to avoid them. Disturbances in the area, including oil and gas development, and livestock grazing would continue, contributing further impacts to vegetation. Facilities developed under this alternative would result in a long term loss of vegetation. However, development of facilities would reduce the proliferation of user-created parking/staging areas and concentrate use to areas that could be monitored.

Figure 31. Vegetation Community Types for OHV Designations in Alternative A



3.3.4. Impacts from Alternative B

Direct and Indirect Impacts

Table 31 displays the vegetation communities in the GRRA under Alternative B. Terrestrial vegetation would continue to be adversely impacted by the proposed 4,500 acres of open to cross country use, and 27,300 acres of OHV use limited to designated routes (Figure 32). This alternative would have a more adverse effect on the native plant communities in the area, because of the increase in motorized use and non-motorized use. The route network, under this alternative, would be more extensive than all other alternatives, increasing the overall amount of bare, un-vegetated ground. Facilities would be developed in all alternatives resulting in localized removal and permanent loss of vegetation. This would lead to a potential increase in the rate of evaporation of available moisture, increases the risk of wind and water erosion, and makes it easier for invasive exotic plant species to establish.

Table 31. Vegetation Communities in the GRRA under Alternative B

Vegetation Communities	Acres
Badland/Rock/Wash	35
Barren Lands/Non-Specific	62
Colorado Plateau/Sand Shrubland	39
Greasewood	915
Pinyon/Juniper	27,087
Sagebrush/Grass	3,715

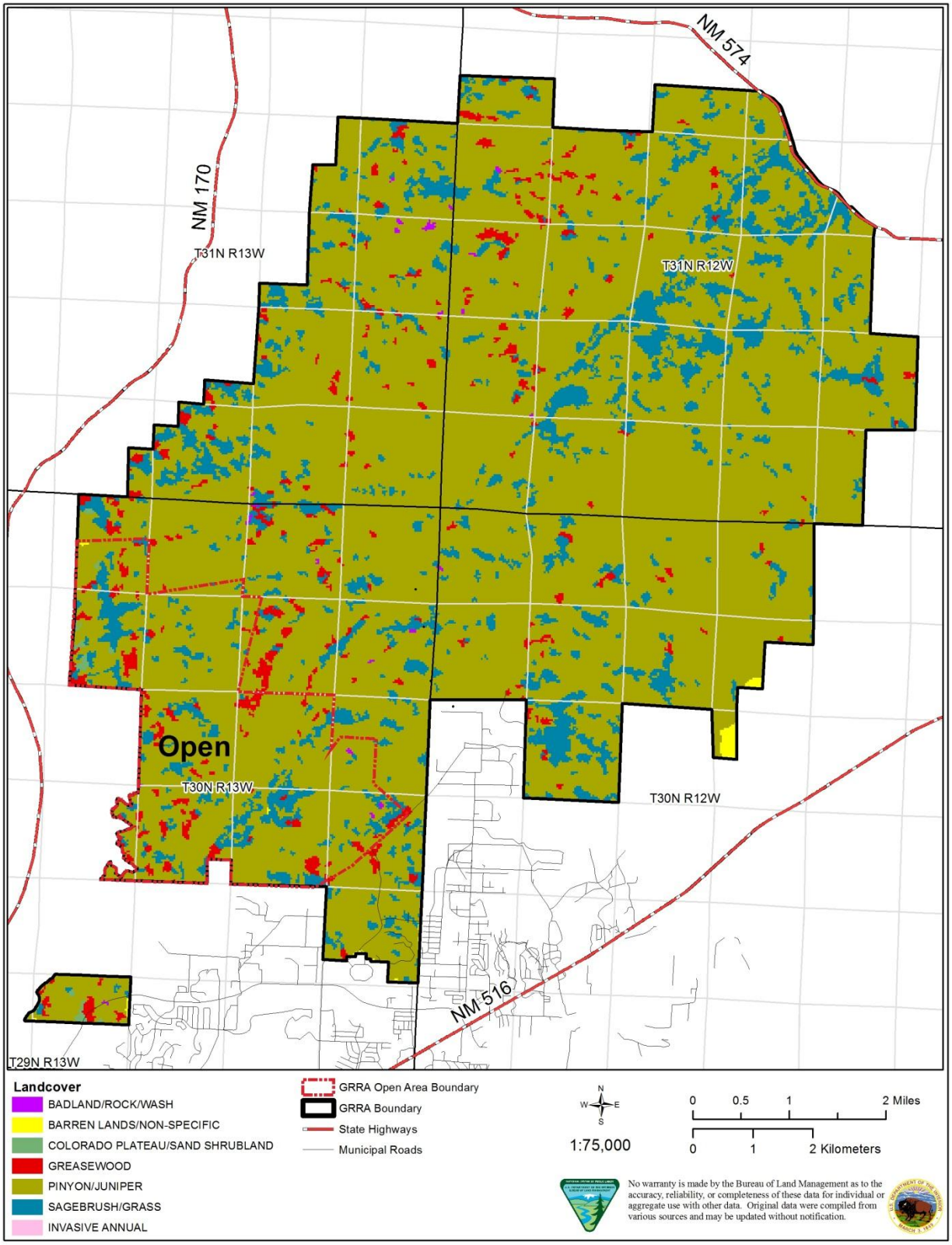
Direct impacts on plant communities and habitats would be expected to occur along all routes within the planning area and along new facilities that are developed to support recreation use (e.g. parking/staging areas). Vegetation would be cleared for facilities to be constructed and vegetation would remain absent from continually used routes within the GRRA. Removal of trees within or along woodland areas would potentially result in an indirect disturbance to woodland interior areas through changes in light and moisture conditions. The plant communities that become established on any area disturbed would depend on the restoration practices that are implemented, including the species selected, the species present in adjacent habitats, the degree of disturbance to vegetation and substrates, and the vegetation management practices selected for implementation.

Impacts to vegetation can be minimized from trail systems by proper placement and planning. Monitoring for adherence to planned activities is crucial to minimizing impacts. BMPs such as unauthorized trail closures, soil stabilization (erosion control), and certified weed free native seed mixes appropriate for the soils and vegetation community where restoration of roads, trails or general disturbance is required. The prevention of invasive weeds including cheatgrass is important to sustain natural plant communities.

Cumulative Impacts

In general, the more development that occurs (trails, roads, and facilities), the greater the impact will be to the vegetative communities. Under this alternative, the vegetative community would continue to be impacted but at a reduced level as compared to the No Action Alternative. The greatest potential for impacts would continue to occur in areas of occupied and potential habitat for SSPS. New trails will be designed to avoid populations of SSPS, and if new information on SMS is found, routes may be modified to avoid them. Facilities developed under this alternative would result in a long term loss of vegetation. However, development of facilities would reduce the proliferation of user-created parking/staging areas and concentrate use to areas that could be monitored.

Figure 32. Vegetation Community Types for OHV Designations in Alternative B



3.3.5. Impacts from Alternative C

Direct and Indirect Impacts

Table 32 displays the vegetation communities in the GRRA under Alternative C. Terrestrial vegetation wildlife would continue to be adversely impacted by the 14,700 acres of motorized use limited to designated routes (Figure 33). Effects to the plant communities would be more beneficial than the No Action Alternative, Alternative A, or Alternative B. Minimizing the amount of motorized access routes and 6,400 acres of closed to motorized vehicle use would lessen the impacts to the plant communities. The designation of roads and trails for specific uses would reduce the impact of motorized off-highway vehicles. The fragmentation of native plant communities by increased use of roads and trails would be reduced and those areas with soils that are susceptible to disturbance and erosion would be protected. The closure of trails adjacent to populations of special status plants would protect the plants and habitat. Limiting the mileage of designated routes both motorized and non-motorized, and managing to prevent the creation of new routes would limit the spread of noxious weeds and invasive weeds where motorized or non-motorized vehicles are the/a method of dispersal. New facilities would cause direct and localized disturbance from construction, but would encourage concentrated use by providing parking and information, which would help alleviate scattered parking that poses additional risks to the SSPS and creates additional fragmentation.

Table 32. Vegetation Communities in the GRRA under Alternative C

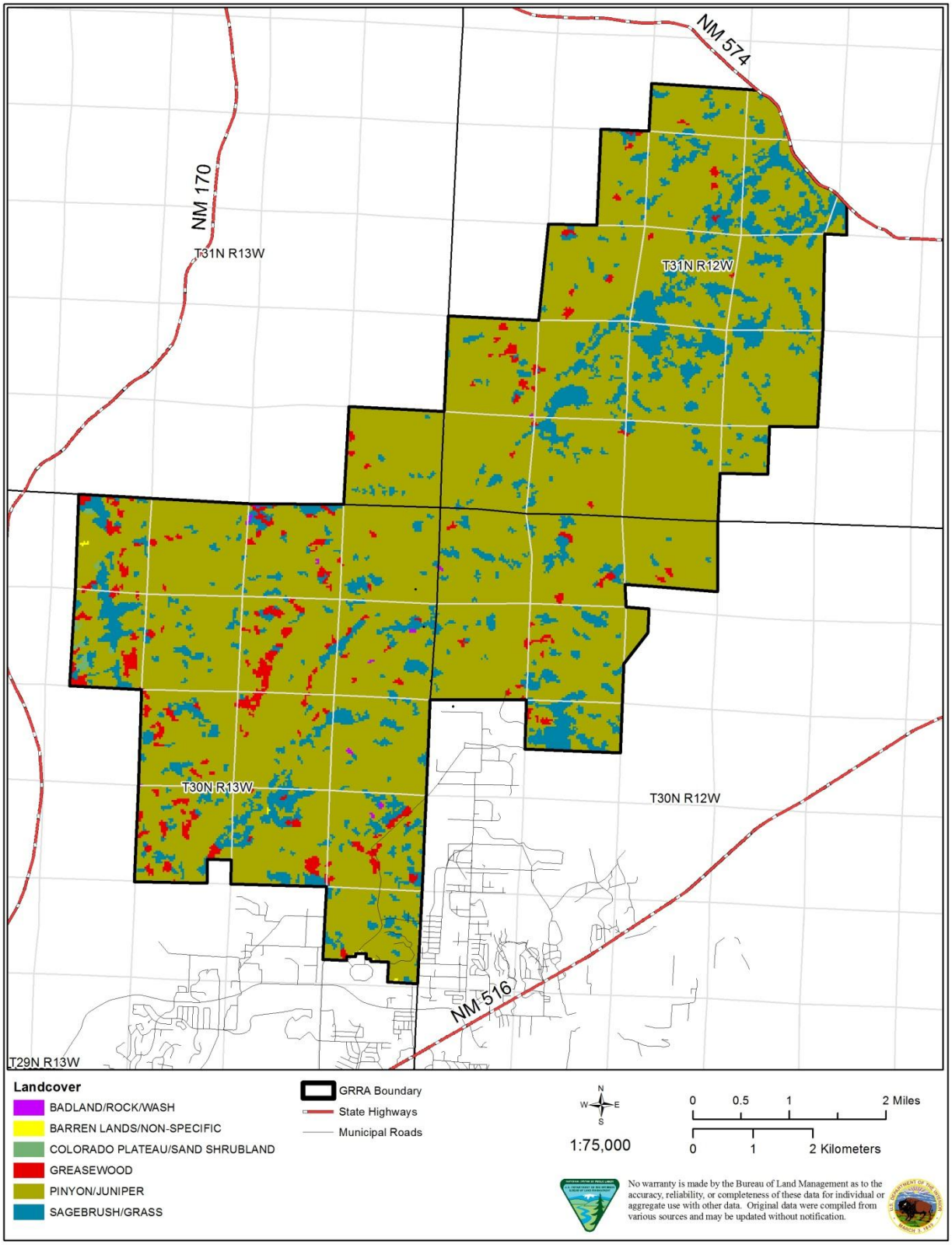
Vegetation Communities	Acres
Badland/Rock/Wash	16
Barren Lands/Non-Specific	10
Colorado Plateau/Sand Shrubland	26
Greasewood	578
Pinyon/Juniper	17,876
Sagebrush/Grass	2,672

Impacts to vegetation can be minimized from trail systems by proper placement and planning. Monitoring for adherence to planned activities is crucial to minimizing impacts. BMPs such as unauthorized trail closures, soil stabilization (erosion control), and certified weed free native seed mixes appropriate for the soils and vegetation community where restoration of roads, trails or general disturbance is required. The prevention of invasive weeds including cheatgrass is important to sustain natural plant communities.

Cumulative Impacts

In general, the more development that occurs (trails, roads, and facilities), the greater the impact will be to the vegetative communities. Under this alternative, the vegetative community would continue to be impacted but at a reduced level as compared to the No Action Alternative. The greatest potential for impacts would continue to occur in areas of occupied and potential habitat for SMS. Route closures in this alternative should alleviate risks somewhat to potential and occupied habitat of SMS. New trails will be designed to avoid populations of SSPS, and if new information on SMS is found, routes will be modified to avoid them. Disturbances in the area, including oil and gas development, and livestock grazing would continue, contributing further impacts to vegetation. Facilities developed under this alternative would result in a long term loss of vegetation. However, development of facilities would reduce the proliferation of user-created parking/staging areas and concentrate use to areas that would be monitored.

Figure 33. Vegetation Community Types for OHV Designations in Alternative C



3.4. Noxious Weeds and Invasive Species

3.4.1. Affected Environment

Management of invasive and non-native species is mandated under several pieces of legislation, including the Lacey Act, as amended (16 USC 3371-3378); the Federal Noxious Weed Act of 1974, as amended (7 USC 2801 et seq.); the New Mexico Noxious Weed Management Act of 1998; and Executive Order 13112 regarding Invasive Species. Under Executive Order 13112, federal agencies are directed to not authorize or carry out actions that would cause or promote the introduction of invasive species.

In the San Juan Basin, invasive plants are frequently found in areas that have been disturbed by surface activities. A mission of the FFO is to detect new invasive plant species populations, prevent the spread of these new populations, manage existing populations, and eradicate invasive populations. This is to be accomplished in a timely manner, using the safest environmental methods available. For all actions on FFO lands that involve surface disturbance or reclamation, reasonable steps are required to prevent the introduction or spread of invasive plants (BLM 2003a). The United States Department of Agriculture (USDA) has designated certain plants as federally listed noxious weeds (NRCS] 2010). The New Mexico Department of Agriculture (NMDA) has designated certain plants as State-listed noxious weeds (NMDA 2009). A total of 212 invasive and poisonous weed species have been identified in the FFO. The 2003 Farmington PRMP/FEIS lists the invasive, non-native plant SOC in the FFO (BLM 2003a).

Invasive species are generally tolerant of disturbed conditions, and disturbed soils at project sites may provide an opportunity for the introduction and establishment of non-native invasive species. Seeds or other propagules of invasive species may be transported to the planning area from infested areas by heavy equipment or other vehicles that are used at the site. Invasive species may also spread from established populations within or outside of the planning area and colonize soils disturbed by recreation use. The longer time periods required for the re-establishment of plant communities in arid regions may create an increased potential for the establishment and spread of invasive species. Invasive plant species typically develop high population densities and tend to exclude most other plant species, thereby reducing species diversity and potentially resulting in long-term effects. The establishment of invasive species may greatly reduce the success of native plant community restoration efforts in project areas and create a source of future colonization and degradation of adjacent undisturbed areas. The establishment of invasive species, particularly annual grasses, such as cheatgrass (*Bromus tectorum*), which produce large amounts of easily ignitable fuel over large contiguous areas, may also alter fire regimes. This situation may result in an increase in the frequency and intensity of wildfires, and in some areas, such as in some desert-scrub communities, a fire regime may be created where none was present before. In plant communities that are not adapted to frequent or intense fires, native species, particularly shrubs and trees, may be adversely affected, and their populations may be greatly reduced, creating opportunities for greater increases in invasive species populations (Brooks and Pyke 2001). Increases in fire frequency or severity may thus result in a reduction of biodiversity and may promote the conversion of some habitats (such as forest, shrubland, or shrub-steppe) to other types, prolonging or preventing the development of mature native habitats (BLM 2007).

The spatial scale for analysis of invasive plant populations is limited to the GRRA boundary to more accurately show the current environment being analyzed. There are five documented invasive plants populations found within the GRRA. These populations include musk thistle, cheatgrass, halogeton, Russian knapweed and Russian olive. Locations of these plant populations are monitored and managed under the FFO weeds program. The majority of these infestations occur along roads and active well pad locations.

3.4.2. Impacts from the No Action Alternative

Direct and Indirect Impacts

Within the GRRA, effects from invasive, non-native species would be moderate for the short and long term. Under the No Action Alternative, increased vehicle traffic on authorized and unauthorized routes, including interstate traffic, to and within the planning area could result in the establishment of new

populations of invasive, non-native weeds within the planning area. Likewise, the disturbed and/or barren surfaces created by the current travel system could increase the likelihood of weed establishment and spread. Continued monitoring and control of weeds within the planning area would reduce the likelihood of weed establishment, but difficult with the proliferation of user created unauthorized routes.

Cumulative Impacts

Spatial scale is the GRRA because its boundary defines a discrete area with heavy recreational use and an extensive network of trails that contribute to the risk of non-native and invasive species introduction. Within the planning area, energy, utility, residential, and commercial development; livestock and wildlife grazing; wind; and agriculture have contributed to the introduction and spread of invasive, non-native plant species. For all actions on public lands that involve surface disturbance or rehabilitation, steps are required to prevent the introduction and spread of noxious weeds. These requirements include using weed-free seed mixtures and weed seed-free hay, mulch, and straw. In addition, the FFO mission for invasive weed management is to detect new invasive weed populations, prevent the spread of new invasive weed populations, manage existing populations, and eradicate invasive populations (Farmington RMP 2003b). The No Action Alternative could contribute moderately to potential cumulative invasive, non-native species impacts.

3.4.3. Impacts from Alternative A (Preferred Alternative)

Direct and Indirect Impacts

Within the GRRA, effects from invasive, non-native species would be low for the short and long term. Under this alternative, increased vehicle traffic, including interstate traffic, to and within the planning area could result in the establishment of new populations of invasive, non-native weeds within the planning area. Likewise, the disturbed and/or barren surfaces created by the proposed travel system could increase the likelihood of weed establishment and spread. Designation of routes and closure of unauthorized routes would reduce risk of weed establishment and spread. Continued monitoring and control of weeds within the planning area would reduce the likelihood of weed establishment. Additionally, a designated travel system would allow for more effective monitoring by being able to target routes designated for public use.

Cumulative Impacts

Spatial scale is the GRRA because its boundary defines a discrete area with heavy recreational use and an extensive network of trails that contribute to the risk of non-native and invasive species introduction. Within the planning area, energy, utility, residential, and commercial development; livestock and wildlife grazing; wind; and agriculture have contributed to the introduction and spread of invasive, non-native plant species. For all actions on public lands that involve surface disturbance or rehabilitation, steps are required to prevent the introduction and spread of noxious weeds. These requirements include using weed-free seed mixtures and weed seed-free hay, mulch, and straw. In addition, the FFO mission for invasive weed management is to detect new invasive weed populations, prevent the spread of new invasive weed populations, manage existing populations, and eradicate invasive populations (Farmington RMP 2003b). This alternative could contribute minimally to potential cumulative invasive, non-native species impacts.

3.4.4. Impacts from Alternative B

Direct and Indirect Impacts

Within the GRRA, effects from invasive, non-native species would be moderate for the short and long term. Under this alternative, increased vehicle traffic, including interstate traffic, to and within the planning area as well as the continued proliferation of unauthorized routes could result in the establishment of new populations of invasive, non-native weeds within the planning area. Likewise, the disturbed and/or barren surfaces created by the proposed travel system could increase the likelihood of weed establishment and spread. Designation of routes and closure of unauthorized routes would reduce risk of weed

establishment and spread. Continued monitoring and control of weeds within the planning area would reduce the likelihood of weed establishment. Due to the larger size of the proposed travel system in this alternative, monitoring would be less effective than under Alternatives A and C.

Cumulative Impacts

Spatial scale is the GRRA because its boundary defines a discrete area with heavy recreational use and an extensive network of trails that contribute to the risk of non-native and invasive species introduction. Within the planning area, energy, utility, residential, and commercial development; livestock and wildlife grazing; wind; and agriculture have contributed to the introduction and spread of invasive, non-native plant species. For all actions on public lands that involve surface disturbance or rehabilitation, steps are required to prevent the introduction and spread of noxious weeds. These requirements include using weed-free seed mixtures and weed seed-free hay, mulch, and straw. In addition, the FFO mission for invasive weed management is to detect new invasive weed populations, prevent the spread of new invasive weed populations, manage existing populations, and eradicate invasive populations (Farmington RMP 2003b). This alternative could contribute moderately to potential cumulative invasive, non-native species impacts.

3.4.5. Impacts from Alternative C

Direct and Indirect Impacts

Within the GRRA, effects from invasive, non-native species would be low for the short and long term. Under this alternative, traffic levels would likely remain similar to current use, including interstate traffic. Travel, in general, within the planning area could result in the establishment of new populations of invasive, non-native weeds within the planning area; however under this alternative the smaller proposed transportation system would reduce the extent of this invasion potential. Maintaining a travel network, even a relatively small one compared to the other alternatives, could still increase the likelihood of weed establishment and spread. Designation of a smaller number of routes and the closure of unauthorized routes, under this alternative, would reduce the risk of weed establishment and spread. The increased ability of BLM to monitor the smaller travel network would also result in better weed control and proactive prevention of weed establishment. BLM would also be able to target high-risk routes (routes that are documented as having multiple invasive species populations or a particularly aggressive species) for more intense monitoring.

Cumulative Impacts

Spatial scale is the GRRA because its boundary defines a discrete area with heavy recreational use and an extensive network of trails that contribute to the risk of non-native and invasive species introduction. Within the planning area, energy, utility, residential, and commercial development; livestock and wildlife grazing; wind; and agriculture have contributed to the introduction and spread of invasive, non-native plant species. For all actions on public lands that involve surface disturbance or rehabilitation, steps are required to prevent the introduction and spread of noxious weeds. These requirements include using weed-free seed mixtures and weed seed-free hay, mulch, and straw. In addition, the FFO mission for invasive weed management is to detect new invasive weed populations, prevent the spread of new invasive weed populations, manage existing populations, and eradicate invasive populations (BLM 2003b). This alternative could contribute minimally to potential cumulative invasive, non-native species impacts.

3.5. Wildlife

3.5.1. Affected Environment

General Wildlife

The objectives of the FFO wildlife management program are to “ensure optimum populations and a natural abundance and diversity of fish and wildlife values by restoring, maintaining, and enhancing

habitat conditions for consumptive and non-consumptive uses" (BLM 2003a). The piñon-juniper woodland and shrublands found within the planning area provides habitat for a variety of vertebrate and invertebrate species.

The spatial scale for analysis of wildlife populations is limited to the GRRA boundary to encompass existing wildlife habitat directly and indirectly impacted by recreation and travel in the area. This boundary also allows for accurate analysis and management of habitat fragmentation due to proposed travel networks.

The following is a list of the more significant wildlife species that have been detected at various times throughout the GRRA:

- Mule deer *(Odocoileus hemionus)* (scat and tracks)
- Common raven *(Corvus corax)*
- *Gambel's Quail (Callipepla gambelii)*
- *Northern Harrier (Circus cyaneus)*
- *Pinyon Jay (Gymnorhinus cyanocephalus)*
- *Ringtail (Bassariscus astutus)*
- *Bobcat (Lynx rufus)*
- *Coyote (Canis latrans)*
- *Sage Sparrow (Amphispiza belli)*
- *Juniper Titmouse (Baeolophus ridgway)*

The number of individuals within each of the species listed above has fluctuated over the years as the amount of habitat fragmentation in the GRRA and surrounding area has increased due to natural gas development, human encroachment, vegetation treatments and OHV use. Table 33 displays the results of the La Plata Breeding Bird Survey (USGS 2013) during the period 1990 through 2012.

Table 33. La Plata Breeding Bird Survey: 1990-2012

Species	Number Observed	
	2012	Average (1990-2012)
Pinyon Jay	6	35.5
Sage Sparrow	5	11.6
Gambel's Quail	11	32.7
Juniper Titmouse	1	3.3

It is recognized that habitat fragmentation and the associated anthropogenic activity may not be the sole cause of the apparent declines noted above but various researchers have found a correlation between fragmentation and certain species population decline (Knick and Rotenberry 1995; Knick 1996; Gillihan 2006). Given that some areas in the GRRA have road densities of 7.7 miles per square mile or greater it seems plausible that this may be a factor.

There are historic prairie dog colonies within the GRRA, however, none have been active for two years or more and are unlikely to become active due to the areas high use.

Jalbotzy et al. (1997) found that travel corridors (such as roads and trails) had six major categories of effects on wildlife. These included individual disruption, social disruption, habitat avoidance, habitat disruption or enhancement, direct or indirect mortality, and population effects. Deer, pronghorn, bighorn sheep, and many other species are most susceptible to human disturbance during winter and early spring when energy reserves are lowest and the energy and nutritional demands of pregnant females are highest. This is also the period when OHV activity is highest and frequent disturbance from this activity could lead to increased energy expenditures and stress that can increase winter mortality (Salwasser, 1980) and reduce production and survival of young.

Rost and Bailey (1979) found an inverse relationship to habitat use by deer and elk with distance to roads. Further, the USDI (1997) reported: As road density increases, the influence on habitat

effectiveness increases exponentially, such that at road densities of 3 miles per square mile, habitat effectiveness is reduced by about 30 percent." Much of the GRRA meets or exceeds this road density. Given this, and the need to accommodate intensive mechanized recreational activity, the potential to increase or maintain big game numbers in the GRRA is unlikely.

Raptors and other game birds may also be impacted during the breeding and nesting period due to frequent disturbance from OHV activity that may lead to abandonment of nests as well as their destruction. A large diversity of other birds that nest on the ground or in shrubs would be subject to similar impacts. These species include loggerhead shrike, northern harriers, short-eared owls, sage sparrows, Brewer's sparrows, and sage thrashers. Another study demonstrated that a riparian area open to OHV use supported significantly fewer species and lower numbers of birds than a similar area that was closed to all vehicles (Weinstein 1978). A study conducted within the Owyhee Front found that numbers of snakes and lizards generally increased as the distance from OHV trails increased and that OHV impacts on reptiles, especially snakes, are greatest within washes (Munger et al 2003).

The impacts of mountain biking on various species of wildlife have been reported by some researchers to be comparable to or even less than those associated with hiking (Sprung 2004, Taylor and Knight 2003, and others). Other researchers claim that impacts, including the response of big game species to mountain bikes have been shown to be comparable to those of other off-road vehicles or are intermediate between those of motorized vehicle use and hiking and horseback riding (Vanderman 2004).

Migratory Birds

Executive Order 13186 dated January 17, 2001 calls for increased efforts to more fully implement the Migratory Bird treaty Act of 1918. In keeping with this mandate, the FFO issued an interim policy to minimize unintentional take as defined by the Executive Order 13186 and to better optimize migratory bird efforts related to FFO activities (BLM 2010). In keeping with this policy, a list of priority birds of conservation concern which occur in similar eco-regions as the GRRA was compiled through a review of existing bird conservation plans including:

- USFWS Birds of Conservation Concern
- New Mexico Partners in Flight New Mexico Bird Conservation Plan
- Comprehensive Wildlife Conservation Strategy for New Mexico
- Gray Vireo Recovery Plan
- The North American Waterbird Conservation Plan
- Recovery plans and conservation plans/strategies prepared for federally-listed candidate species

The selected species have a known distribution in the FFO and may be affected by various types of perturbations. These species and a brief assessment of their habitat are identified in Table 34.

Table 34. Migratory Birds with Potential to Occur in the Project Area

Species Name	Habitat Associations	Potential to Occur in the Project Area
Bendire's thrasher (*Toxostoma bendirei*)	On the Colorado Plateau, inhabits open sagebrush with scattered junipers; sparse or degraded understory, lower elevations. Avoids riparian areas and arroyos with dense shrub cover	An area of open sagebrush and degraded understory makes the area suitable for Bendire's thrasher.
Black-throated sparrow (*Amphispiza bilineata*)	Xeric habitats dominated by open shrubs with areas of bare ground.	Open habitat and a large number of washed in the planning area could provide suitable habitat.
Brewer's sparrow (*Spizella breweri*)	Closely associated with sagebrush, preferring dense stands broken up with grassy areas.	Scattered sagebrush cover could provide suitable habitat.
Gray vireo (*Vireo vicinior*)	In northern NM, stands of piñon pine and Utah juniper 5800 - 7200 feet; open with a shrub component and mostly bare ground; antelope bitterbrush, mountain mahogany, Utah serviceberry and big sagebrush often present. Broad, flat or gently sloped canyons, in areas with rock outcroppings, or near ridge-tops.	Areas of dense piñon-juniper cover could provide suitable habitat for the species.
Loggerhead shrike (*Lanius ludovicianus*)	Open country interspersed with improved pastures, grasslands, and hayfields. Nests in sagebrush areas, desert scrub, and woodland edges.	Desert scrub in the planning area could provide suitable habitat for the species, although significant grassy areas are lacking.
Mountain bluebird (*Sialia currucoides*)	Open piñon-juniper woodlands, mountain meadows, and sagebrush shrublands; requires larger trees and snags for cavity nesting.	Desert scrub in the planning area could provide suitable habitat for the species; although nest habitat lacking.
Mourning dove (*Zenaida macroura*)	Open country, scattered trees, and woodland edges. Feeds on ground in grasslands and agricultural fields. Roost in woodlands in the winter. Nests in trees or on ground.	Desert scrub in the planning area could provide suitable habitat for the species.
Sage sparrow (*Amphispiza belli*)	Large and contiguous areas of tall and dense sagebrush. Negatively associated with seral mosaics and patchy shrublands and abundance of greasewood.	Sagebrush cover in the planning area could provide suitable habitat for this species
Sage thrasher (*Oreoscoptes montanus*)	Shrub-steppe dominated by big sagebrush.	Sagebrush cover in the planning area could provide suitable habitat for this species
Scaled quail (*Callipepla squamata*)	Brushy arroyos, cactus flats, sagebrush or mesquite plains, desert grasslands, Plains grasslands, and agricultural areas. Good breeding habitat has a diverse grass composition, with varied forbs and scattered shrubs.	Desert scrub in the planning area could provide suitable habitat for the species.
Swainson's hawk (*Buteo swainsoni*)	A mixture of grassland, cropland, and shrub vegetation; nests on utility poles and in isolated trees in rangeland. Nest densities higher in agricultural areas.	Desert scrub in the planning area could provide suitable habitat for the species.
Vesper sparrow (*Pooecetes gramineus*)	Dry montane meadows, grasslands, prairie, and sagebrush steppe with grass component; nests on ground at base of grass clumps.	Desert scrub in the planning area could provide suitable habitat for the species.

3.5.2. Impacts from the No Action Alternative

Direct and Indirect Impacts

General Wildlife

Many species of terrestrial wildlife would continue to be adversely impacted by the unrestricted use of 196 miles of existing routes by motorized and non-motorized vehicles, and the use of 38 miles of trails for non-motorized recreation. These impacts would increase as recreation use levels increase. Direct impacts may include temporary displacement of animals as vehicles pass nearby, disruption of breeding, nesting and foraging activities, death or injury from collisions with or being run over by vehicles, and increased exposure of eggs and young to predation and the elements due to flushing and avoidance or abandonment of areas near heavily used trails and roads.

Temporarily, noise and activities associated with recreation use as well as continued energy development (including construction, drilling, and reclamation) may deter additional wildlife and/or their prey from utilizing the planning area and the immediate vicinity. For the long term, there would be audial and visual disturbances associated with continued usage of the GRRA. Recreation use would continue to increase over the long term, potentially desensitizing local wildlife to noises and sights of humans; however, it would also result in the continued loss of habitat and vegetation, fragmentation of habitat, and potentially lead to abandonment of the area by wildlife.

Migratory Birds

It is difficult to predict the effects of the continued use of the GRRA on migratory birds. The increased activity, noise, and disturbed vegetation associated with recreation and other uses could result in the increased usage of the immediate area by some migratory bird species, while decreasing usage by other species. Studies have shown mixed impacts of oil and gas development on nesting migratory birds. According to a study by Ortega and Francis (2007), the presence of oil and gas compressors affected bird species differently; however, there was no difference in overall nest density on plots with and without compressors. A study by Holmes and King (2006) found that the sage sparrow had lower nest survival in an area with ongoing gas development; however, the Brewer's sparrow had higher nest survival rates in a developed gas field when compared with populations in an undeveloped control area.

Cumulative Impacts

Within the San Juan Basin, cumulative impacts to wildlife result from vegetation disturbance and from activities that produce visual and audial disturbances. Such disturbance results from oil and gas development, OHV traffic, road traffic, grazing, and other development activities. Habitat loss and fragmentation likely reduce the carrying capacity for wildlife, although the exact level of reduction cannot be quantified. Roads, and the human activities associated with them, can disrupt wildlife, including amphibians, reptiles, small and large mammals, birds, and ungulates (BLM 2003a).

3.5.3. Impacts from Alternative A (Preferred Alternative)

Direct and Indirect Impacts

General Wildlife

Many species of terrestrial wildlife would continue to be adversely impacted by the proposed roads and trails that would be open to OHV use (232.1 miles) and the use of 157 miles of trails for motorized and non-motorized recreation. These impacts would increase as recreation use levels increase. Direct impacts may include temporary displacement of animals as vehicles pass nearby, disruption of breeding, nesting and foraging activities, death or injury from collisions with or being run over by vehicles, and increased exposure of eggs and young to predation and the elements due to flushing and avoidance or abandonment of areas near heavily used trails and roads.

Temporarily, noise and activities associated with recreation facility development and use as well as continued energy development (including construction, drilling, and reclamation) may deter additional wildlife and/or their prey from utilizing the planning area and the immediate vicinity. Developing recreation facilities would help to minimize the number of user-created parking or pull off areas within the GRRA. This would also serve to restrict areas of high use and intense activity (e.g., parking, unloading) to localized spots that would allow wildlife to avoid those areas.

For the long term, there would be audial and visual disturbances associated with continued usage of the GRRA. Recreation use would continue to increase over the long term, potentially desensitizing local wildlife to noises and sights of humans; however, it would also result in the continued loss of habitat and vegetation, fragmentation of habitat, and potentially lead to abandonment of the area by wildlife. Under this alternative, however, approximately 90 miles of routes would be closed to OHV use and decommissioned over time and another 37.5 miles would be restricted to permitted or administrative use only, reducing the frequency of travel on these routes. This would help to reduce the total amount of fragmentation within the area, increase the overall available vegetation, and help to limit the audio and visual effects that human presence has on wildlife species.

Migratory Birds

It is difficult to predict the effects of the continued use of the GRRA on migratory birds. The increased activity, noise, and disturbed vegetation associated with recreation and other uses could result in the increased usage of the immediate area by some migratory bird species, while decreasing usage by other species. However, under this alternative there would be fewer roads and trails open for public use, reducing the overall amount of disturbance to nesting or roosting bird species.

Monitoring of designated roads and trails would help to reduce the proliferation of new routes within the planning area thereby reducing the overall effect on wildlife species. In areas where active nests are documented, a temporary seasonal timing restriction on the route could reduce the potential for nest abandonment or tampering.

Cumulative Impacts

The cumulative impacts analysis area includes the San Juan Basin. This analysis area encompasses a geographically distinct area that would be used by wildlife species the occupy and move in and out of the project area. Within the San Juan Basin, cumulative impacts to wildlife result from vegetation disturbance and from activities that produce visual and audial disturbances. Such disturbance results from oil and gas development, OHV traffic, road traffic, grazing, and other development activities. Habitat loss and fragmentation likely reduce the carrying capacity for wildlife, although the exact level of reduction cannot be quantified. Roads, and the human activities associated with them, can disrupt wildlife, including amphibians, reptiles, small and large mammals, birds, and ungulates (BLM 2003a). Under this alternative, there would continue to be long-term impacts to wildlife as described above. However, decommissioning of closed routes would help to off-set this disturbance routes are returned to their natural state, decreasing fragmentation and increasing vegetative variety.

3.5.4. Impacts from Alternative B

Direct and Indirect Impacts

General Wildlife

Many species of terrestrial wildlife would continue to be adversely impacted by the proposed roads and trails that would be open to OHV use (281.5 miles) and the use of 165 miles of trails for motorized and non-motorized recreation. These impacts would increase as recreation use levels increase. Direct impacts may include temporary displacement of animals as vehicles pass nearby, disruption of breeding, nesting and foraging activities, death or injury from collisions with or being run over by vehicles, and increased exposure of eggs and young to predation and the elements due to flushing and avoidance or abandonment of areas near heavily used trails and roads.

Temporarily, noise and activities associated with recreation facility development and use as well as continued energy development (including construction, drilling, and reclamation) may deter additional wildlife and/or their prey from utilizing the planning area and the immediate vicinity. Developing recreation facilities would help to minimize the number of user-created parking or pull off areas within the GRRA. This would also serve to restrict areas of high use and intense activity (e.g., parking, unloading) to localized spots that would allow wildlife to avoid those areas. Under this alternative, the open area would be expanded, creating a greater impact on wildlife than all other alternatives.

For the long term, there would be audial and visual disturbances associated with continued usage of the GRRA. Recreation use would continue to increase over the long term, potentially desensitizing local wildlife to noises and sights of humans; however, it would also result in the continued loss of habitat and vegetation, fragmentation of habitat, and potentially lead to abandonment of the area by wildlife. Under this alternative, however, approximately 84 miles of routes would be closed to OHV use and decommissioned over time and another 3.5 miles would be restricted to permitted or administrative use only, reducing the frequency of travel on these routes. This would help to reduce the total amount of fragmentation within the area, increase the overall available vegetation, and help to limit the audio and visual effects that human presence has on wildlife species.

Monitoring of designated roads and trails would help to reduce the proliferation of new routes within the planning area thereby reducing the overall effect on wildlife species. With the large number of routes being proposed under this alternative, this would be less effective at identifying issues impacting wildlife.

Migratory Birds

It is difficult to predict the effects of the continued use of the GRRA on migratory birds. The increased activity, noise, and disturbed vegetation associated with recreation and other uses could result in the increased usage of the immediate area by some migratory bird species, while decreasing usage by other species. However, under this alternative a larger number of routes would be usable by the public then under alternatives A and C, potentially increasing the overall amount of disturbance to nesting or roosting bird species.

Monitoring of designated roads and trails would help to reduce the proliferation of new routes within the planning area thereby reducing the overall effect on wildlife species. In areas where active nests are documented, a temporary seasonal timing restriction on the route could reduce the potential for nest abandonment or tampering.

Cumulative Impacts

Within the San Juan Basin, cumulative impacts to wildlife result from vegetation disturbance and from activities that produce visual and audial disturbances. Such disturbance results from oil and gas development, OHV traffic, road traffic, grazing, and other development activities. Habitat loss and fragmentation likely reduce the carrying capacity for wildlife, although the exact level of reduction cannot be quantified. Roads, and the human activities associated with them, can disrupt wildlife, including amphibians, reptiles, small and large mammals, birds, and ungulates (BLM 2003a). Under this alternative, there would continue to be long-term impacts to wildlife as described above and new route proliferation would likely continue. Decommissioning of closed routes would help to off-set this disturbance routes are returned to their natural state, decreasing fragmentation and increasing vegetative variety but would likely not compensate for newly created route development over time.

3.5.5. Impacts from Alternative C

Direct and Indirect Impacts

General Wildlife

Many species of terrestrial wildlife would continue to be adversely impacted by the proposed roads and trails that would be open to OHV use (60 miles) and the use of 42 miles of trails for non-motorized recreation. These impacts would increase as recreation use levels increase. Direct impacts may include

temporary displacement of animals as vehicles pass nearby, disruption of breeding, nesting and foraging activities, death or injury from collisions with or being run over by vehicles, and increased exposure of eggs and young to predation and the elements due to flushing and avoidance or abandonment of areas near heavily used trails and roads.

Temporarily, noise and activities associated with recreation facility development and use as well as continued energy development (including construction, drilling, and reclamation) may deter additional wildlife and/or their prey from utilizing the planning area and the immediate vicinity. Developing recreation facilities would help to minimize the number of user-created parking or pull off areas within the GRRA. This would also serve to restrict areas of high use and intense activity (e.g., parking, unloading) to localized spots that would allow wildlife to avoid those areas. Under this alternative, the open area would be re-designated as limited to designated roads and trails. This would, in the long term, restore a large percentage of 3,800 acres back to a more natural habitat.

For the long term, there would be audial and visual disturbances associated with continued usage of the GRRA. Recreation use would continue to increase over the long term, potentially desensitizing local wildlife to noises and sights of humans; however, it would also result in the continued loss of habitat and vegetation, fragmentation of habitat, and potentially lead to abandonment of the area by wildlife. Under this alternative the largest number of routes would be closed to OHV use and decommissioned over time. This would help to reduce the total amount of fragmentation within the area, increase the overall available vegetation, and help to limit the audio and visual effects that human presence has on wildlife species.

Migratory Birds

It is difficult to predict the effects of the continued use of the GRRA on migratory birds. The increased activity, noise, and disturbed vegetation associated with recreation and other uses could result in the increased usage of the immediate area by some migratory bird species, while decreasing usage by other species. However, under this alternative there would be fewer roads and trails open for public use, reducing the overall amount of disturbance to nesting or roosting bird species.

Monitoring of designated roads and trails would help to reduce the proliferation of new routes within the planning area thereby reducing the overall effect on wildlife species. In areas where active nests are documented, a temporary seasonal timing restriction on the route could reduce the potential for nest abandonment or tampering.

Cumulative Impacts

Within the San Juan Basin, cumulative impacts to wildlife result from vegetation disturbance and from activities that produce visual and audial disturbances. Such disturbance results from oil and gas development, OHV traffic, road traffic, grazing, and other development activities. Habitat loss and fragmentation likely reduce the carrying capacity for wildlife, although the exact level of reduction cannot be quantified. Roads, and the human activities associated with them, can disrupt wildlife, including amphibians, reptiles, small and large mammals, birds, and ungulates (BLM 2003a). Under this alternative, there would continue to be long-term impacts to wildlife as described above. However, decommissioning of closed routes and the open area would help to off-set this disturbance routes are returned to their natural state, decreasing fragmentation and increasing vegetative variety.

3.6. Special Management Species (SMS)

3.6.1. Affected Environment

BLM SMS include BLM Sensitive Species, BLM/FFO Special Management Species (SMS); New Mexico State listed species, and other species with special at-risk status. In accordance with BLM Manual 6840, the FFO prepared a list of SMS to focus species management efforts toward maintaining habitats under a multiple use mandate. The BLM manages certain sensitive species not federally listed as threatened or endangered in order to prevent or reduce the need to list them as threatened or endangered in the future. The authority for this policy and guidance is established by ESA Title II of the Sikes Act, as amended;

FLPMA; and Department of Interior Manual 235.1.1A. Table 35 provides an evaluation of the potential for SMS to occur in the GRRA. The spatial scale for analysis of SMS populations is limited to the GRRA boundary to more accurately show the current environment.

Table 35. Special Management Species (SMS) with Potential to Occur in the GRRA

Species Name	Conservation Status		Habitat Associations	Potential to Occur in Analysis Area
	BLM/ USFWS	State of NM		
Birds				
Golden Eagle (*Aquila chrysaetos*)	SMS		In the West, mostly open habitats in mountainous, canyon terrain. Nests primarily on cliffs and trees.	The surrounding planning area contains suitable habitat for foraging, but nesting habitat marginal.
Ferruginous hawk *(Buteo regalis)*	SMS		Grasslands and semi-desert shrub; occasionally piñon-juniper edge habitat. Nest on rock spires in NW New Mexico.	Planning area contains suitable piñon-juniper edge habitat for foraging with some nesting habitat.
Prairie falcon *(Falco mexicanus)*	SMS		Arid, open country, grasslands or desert scrub, rangeland; nests on cliff ledges, trees, power structures.	The surrounding planning area contains suitable habitat for foraging and nesting.
Mountain plover *(Charadrius montanus)*	SMS		Semi deserts, grasslands, open arid areas, bare fields, breeds in open plains or prairie.	Planning area does not contain flat, open grasslands for suitable habitat.
Yellow-billed cuckoo *(Coccyzus americanus*)	SMS BLM-S FWS-C		Low to mid-elevation riparian woodlands, deciduous woodlands, and abandoned farms and orchards. Rare in the San Juan River valley.	Planning area does not contain riparian areas for suitable habitat.
American peregrine falcon (*Falco peregrinus anatum*)	SMS FWS-SC	NM-T	Open country near lakes or rivers with rocky cliffs and canyons. Tall city bridges and buildings also inhabited.	The planning area lacks suitable habitat for nesting. The closet active nest is approximately 2 miles to the West.
Bald eagle (*Haliaeetus leucocephalus)*	SMS BLM-S	NM-T	Near lakes, rivers and cottonwood galleries. Nests near surface water in large trees. May forage terrestrially in winter.	Planning area does not contain suitable habitat for nesting, foraging opportunities possible.
Western Burrowing owl *(Athene cunicularia)*	SMS BLM-S FWS-SC		Associated with prairie dog towns. In dry, open, short-grass, treeless plains	Planning area does contain suitable habitat for foraging and nesting. Historic prairie dog colonies occur in the planning area but not active.
Plants				
Brack's hardwall cactus (*Sclerocactus cloveriae* ssp. *brackii*)	SMS BLM-S FWS-SC	NM-E	Sandy clay slopes of the Nacimiento Formation in sparse semi desert, piñon-juniper grasslands and open arid areas of badland habitat (5,000-6,000 ft.).	Areas within the planning area meet suitable habitat requirements for this species.

Species Name	Conservation Status		Habitat Associations	Potential to Occur in
Aztec gilia (*Aliciella formosa*)	SMS BLM-S FWS-SC	NM-E	Arid and sparsely vegetated Badland /Salt desert scrub communities in soils of the Nacimiento Formation (5,000-6,000 feet).	Areas within the planning area meet suitable habitat requirements for this species.
Mancos Saltbush (*Proatriplex pleiantha)*	BLM-S	NM-SOC	Desert badlands of Colorado Plateau on saline clay soils of the Mancos and Fruitland shale formations; 5,000-5,500 ft.	Areas within the planning area meet suitable habitat requirements for this species.
San Juan milkweed (*Asclepias sanjuanensis)*	BLM-S	NM-SOC	Sandy loam soils, usually in disturbed sites, in juniper savanna and Great Basin desert scrub; 5,000-5,500 ft.	Areas within the planning area meet suitable habitat requirements for this species
NM-T = State of New Mexico Threatened Species; NM-E = State of New Mexico Endangered Species; NM-SOC=State of New Mexico SOC; BLM-S BLM Sensitive Species; FWS-SC = USFWS SOC; SMS = FFO Special Management Species.				

The GRRA provides potential habitat for American peregrine falcon (Falco peregrinus anatum), prairie falcon (Falco mexicanus), golden eagle (Aquila chrysaetos), and to a lesser degree ferruginous hawk (Buteo regalis). According to the most recent FFO raptor nest GIS data, there is one historic nest territory of a golden eagle located within or adjacent to the current GRRA. While habitat for nesting may be present, there are no known active (within 10 years) SMS raptor nests within the proposed boundaries.

The planning area does contain designated potential habitat area for Brack's hardwall cactus (Sclerocactus cloverae var. brackii) and/or Aztec gilia (Aliciella formosa) (Figure 34). Most of the habitat for these species, as documented in Table 35, is located in the northwest portions of the GRRA (RMZ 2); the proposed boundaries would encompass less than 1 percent of the entire area of mapped habitat in the FFO. No cross country travel would be permitted within SMS Brack's cactus and/or Aztec gilia mapped habitat under this plan. The spatial scale for this analysis is limited to the largest proposed boundary of the GRRA.

3.6.2. Impacts from the No Action Alternative

Direct and Indirect Impacts

Due to the current high activity level over many years within the GRRA, most wildlife have presumably adapted to human caused disturbance levels. Currently, there is a high level of habitat fragmentation from human development including trails, roads, range improvements, oil and gas development, and power lines. Other disturbance factors include noise from OHV, compressors, oil and gas traffic, grazing, various community events. The OHV use within the GRRA likely has the highest amount of impact to SMS. Different types of recreation and OHVs may offer dissimilar impacts to wildlife and plant species. These impacts to plants and wildlife are difficult to quantify and would not be prudent for this plan due to the variety of recreation users within the GRRA.

Use of all existing roads and trails and play areas would continue to impact SMS habitats by causing accelerated erosion of soils, crushing of vegetation, including SMS, and soil compaction. Additionally, proliferation of user-created trails would continue potentially increasing the overall impact to SMS and their habitat.

Cumulative Impacts

Within the GRRA, cumulative impacts to SMS result from habitat loss and from activities that produce visual and audial disturbances. Such disturbance results from oil and gas development, OHV traffic, road traffic, grazing, and other development activities. Habitat loss and fragmentation reduce the amount of quality habitat for "at risk" species, although the exact level of impact is difficult to quantify.

3.6.3. Impacts from Alternative A (Preferred Alternative)

Direct and Indirect Impacts

Occupied habitat for Aztec gilia and Brack's cactus occur within the GRRA area (Figure 34) and have been documented adjacent to roads and trails proposed by this alternative. The soils where these species occur are susceptible to erosion which would adversely affect the ability of these plants to persist. Under this alternative, there is approximately 6,700 acres of Brack's cactus and Aztec gilia mapped habitat, 600 acres in RMZ 1 and 6,100 acres in RMZ 2. Closing 90 miles of routes to all use and reducing motorized routes from 232.1 to 104.6 miles would result in moderate improvements in habitat conditions for these species, as well as other SMS wildlife. These improvements would include reducing physical disturbance of habitats and populations at and in the vicinity of roads and trails, and reducing the amount of sediment erosion and compaction that could occur. In addition, trails would be routed away from Brack's cactus and Aztec gilia habitat with no new routes designated within prime habitat.

Reducing the amount of disturbance under this alternative would likely benefit nesting birds and other SMS by concentrating the designated trails and users while eliminating any cross country travel. In addition, if SMS species are identified in the area proposed management prescription GRRA-A-MA-4 would initial a monitoring protocol that would help to reduce potential recreation impacts to nesting raptor species. Under this alternative, closing trails and roads and reducing motorized routes may benefit SMS by creating areas of fewer disturbances. Gunnison's prairie dogs would likely have a higher success of (re)establishment. Prairie dogs and their towns are considered to be important prey and habitat for a variety of other species. One group of species that benefit is raptors that depend on prairie dogs as a primary or secondary food source. Burrowing owls depend on prairie dog towns for breeding and protection from predators. No significant impacts to any other SMS are anticipated by this alternative.

Cumulative Impacts

Within the GRRA, direct impacts to SMS would be reduced by limiting OHV and non-motorized use to designated roads and trails and reducing the overall number of routes available. However, disturbances in the area, including oil and gas development, residential and commercial development, livestock grazing, and agriculture, could result in the reduction or modification of potential SMS habitats.

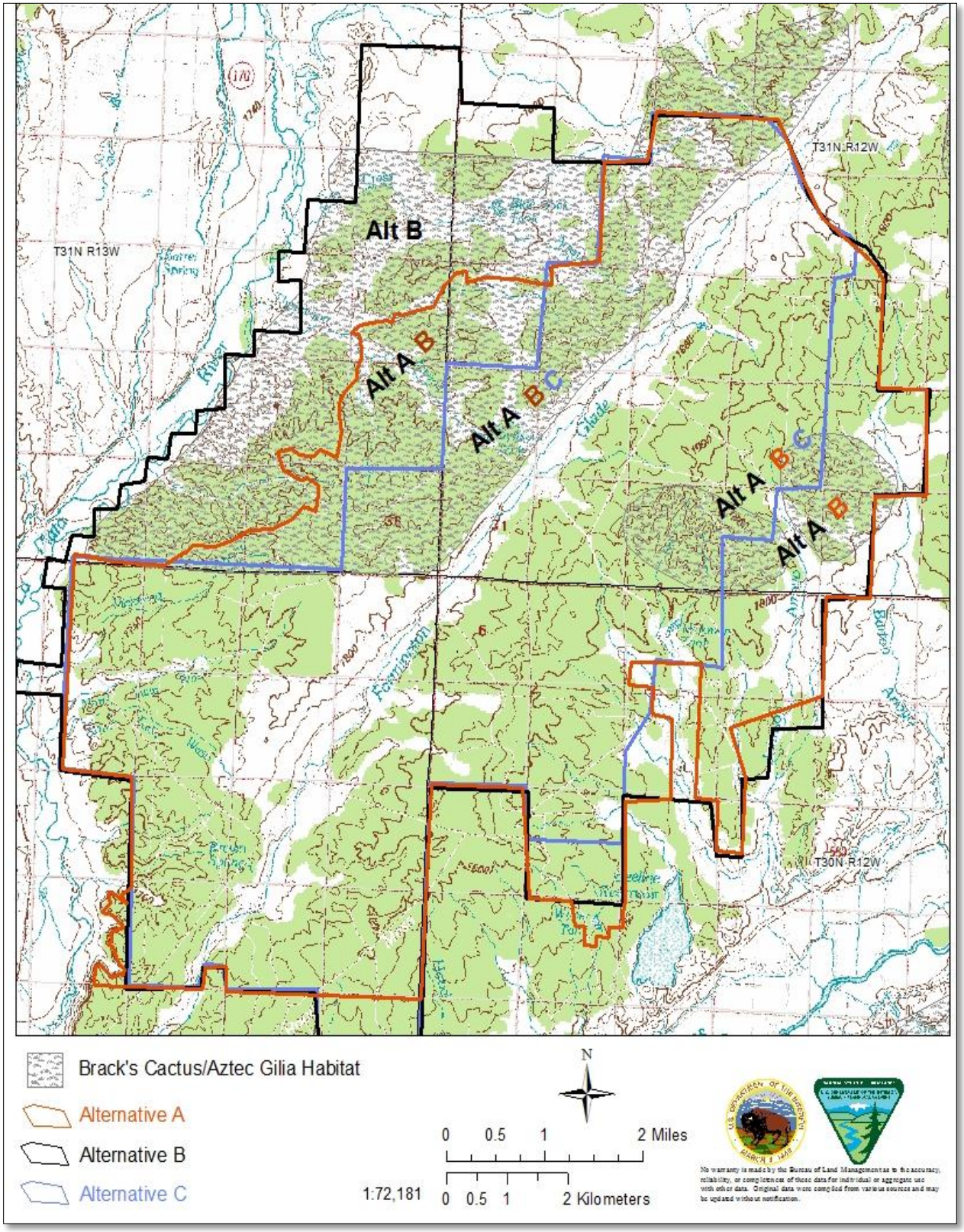
3.6.4. Impacts from Alternative B

Direct and Indirect Impacts

Occupied habitat for Aztec gilia and Brack's cactus occur within the GRRA area (Figure 34) and have been documented adjacent to routes and trails proposed by this alternative. The soils where these species occur are susceptible to erosion which would adversely affect the ability of these plants to persist. Under this alternative, 10,900 acres of Brack's cactus and Aztec gilia mapped habitat would be within RMZ 2 of the GRRA. Closing 84 miles of roads and trail to all use and reducing motorized routes from 281.5 to 194 miles would result in limited improvements in habitat conditions for all wildlife species including SMS. These improvements would include reducing physical disturbance of habitats and populations at and in the vicinity of roads and trails, and reducing the amount of sediment erosion and compaction that could occur. In addition, locating these trails away from high potential habitat would reduce the disturbance of nesting birds and other SMS.

While the reduction of the amount of roads and trails under this alternative would have some benefit to nesting birds and other SMS, these beneficial impacts are negotiable. In addition, if SMS species are identified in the area proposed management prescription GRRA-B-MA-3 would initial a monitoring protocol that would help to reduce potential recreation impacts to nesting raptor species. Gunnison's prairie dogs may have a higher success of (re)establishment. Prairie dogs and their towns are considered to be important prey and habitat for a variety of other species. One group of birds that benefit from prairie dogs are raptors that depend on prairie dogs as a primary or secondary food source. Burrowing owls depend on prairie dog towns for breeding and protection from predators. No significant impacts to any other SMS are anticipated by this alternative.

Figure 34. Brack's Cactus and Aztec Gilia Habitat within GRRA Under All Alternatives



Cumulative Impacts

Within the planning area, direct impacts to SMS could be increased regardless of limiting OHV and non-motorized use to designated roads and trails. The overall number of routes available would increase under this alternative potentially increasing the proliferation of user-created routes. The continued development of the area, including oil and gas development, residential and commercial development, livestock grazing, and recreation use, could result in the reduction or modification of potential SMS habitats.

3.6.5. Impacts from Alternative C

Direct and Indirect Impacts

Occupied habitat for Aztec gilia and Brack's cactus occur within the GRRA area (Figure 34) and have been documented adjacent to roads and trails proposed by this alternative. The soils where these species occur are susceptible to erosion which would adversely affect the ability of these plants to persist. Under this alternative, there is approximately 3,900 acres of Brack's cactus and Aztec gilia mapped habitat in the GRRA, approximately 700 acres within RMZ 1 and 3,200 acres in RMZ 2.

Closing 97 miles of routes and trail to all use, reducing motorized routes, and re-designating the open area to a limited to designated routes would result in moderate improvements in habitat conditions for all SMS wildlife species. These improvements would include reducing physical disturbance of habitats and populations at and in the vicinity of roads and trails and reducing the amount of sediment erosion and compaction that could occur. In addition, locating these trails away from high potential habitat would reduce the disturbance of nesting birds and other SMS.

Reducing the amount of disturbance under this alternative, particularly with RMZ 1, would likely benefit nesting birds and other SMS by concentrating the designated trails and users while eliminating any cross country travel. Under this alternative, closing trails and roads and reducing motorized routes may benefit SMS by creating areas of fewer disturbances. Gunnison's prairie dogs would have higher success of (re)establishment. Prairie dogs and their towns are considered to be important prey and habitat for a variety of other species. One group of species that benefit are raptors that depend on prairie dogs as a primary or secondary food source. Burrowing owls depend on prairie dog towns for breeding and protection from predators. No significant impacts to any other SMS are anticipated by this alternative.

Cumulative Impacts

Within the planning area, direct impacts to SMS would be reduced by limiting OHV and non-motorized use to designated roads and trails and reducing the overall number of routes available. This alternative would also benefit SMS by removing the open area and not expanding the GRRA boundary into additional critical habitat. However, disturbances in the area, including oil and gas development, residential and commercial development, livestock grazing, and agriculture, could result in the reduction or modification of potential SMS habitats.

3.7. Cultural Resources

3.7.1. Affected Environment

The FFO is located within the archaeologically rich San Juan Basin of northwest New Mexico. In general, the prehistory of the San Juan Basin can be divided into five major periods: Paleo-Indian (ca. 10000 B.C. to 5500 B.C.), Archaic (ca. 5500 B.C. to A.D. 400), Basketmaker II-III and Pueblo I-IV periods (A.D. 1-1540), and the Historic (A.D. 1540 to present), which includes Native American as well as later Hispanic and Euro-American settlers. Within these periods there are distinctive categories of sites based on temporal and cultural affiliations. Numerically speaking the Basketmaker/Pueblo and Historic are the most abundant followed by the Archaic and Paleo-Indian. Detailed description of these various periods and select phases within each period is provided in the 2003 Farmington PRMP/FEIS and will not be

reiterated here. Additional information is also included in an associated documented, Cultural Resources Technical Report (SAIC 2002b).

The BLM defines cultural resource/cultural property (i.e., sites) as follows:

> a definite location of human activity, occupation, or use identifiable through field inventory (survey), historical documentation, or oral evidence. The term includes archaeological, historic, or architectural sites, structures, or places with important public and scientific uses, and may include definite locations (sites or places) of traditional cultural or religious importance to specified social and/or cultural groups. Cultural resources are concrete, material places and things that are located, classified, ranked, and managed through the system of identifying, protecting, and utilizing for public benefit … [and] may be but are not necessarily eligible for the National Register (BLM Manual 8100-The Foundations for Managing Cultural Resources).

Cultural resources vary considerably, and can include but are not limited to simple artifact scatters, the remains of various types of domiciles with a myriad of associated domestic features, ceremonial/religious features, rock art and inscriptions, and roads and trails.

The significance of cultural resources associated with federal actions is normally but not exclusively based on its eligibility to be listed on the National Register of Historic Places (NRHP). The NRHP is the nation's official list of properties with national, state, and local significance to American history, architecture, archaeology, engineering, and culture. These properties are manifest as districts, sites, buildings, structures, and objects significant in prehistory and history. There are four criteria of evaluation/significance under which a property may be found eligible for the National Register that can be summarized as follows: a) associated with important events, b) associated with important persons, c) embody distinctive characteristics of a type, period, or method of construction, or represent the work of a master, or possesses high artistic values, and d) have yielded or may be likely to yield information important in history or prehistory. If a property meets one or more of the criteria of evaluation, it must also retain historic integrity by possessing several of the seven aspects of integrity: location, design, setting, materials, workmanship, feeling, and association. East Side Rincon Site (LA 3131) is listed on the NRHP and lies partially within the current GRRA. There are no properties listed on the NRHP within the proposed GRRA alternatives.

Traditional Cultural Properties (TCPs) is a term that has emerged in historic preservation management and the consideration of Native American religious concerns. TCPs are cultural resources that have values that transcend, for instance, the values of scientific importance that are normally ascribed to cultural resources such as archaeological sites. The National Park Service has defined TCPs as follows:

> A traditional cultural property can be defined generally as one (a property) that is eligible for the National Register because of its association with cultural practices or beliefs of a living community that (a) are rooted in that community's history, and (b) are important in maintaining the continuing cultural identity of the community. (Parker and King 1998:1)

Native Americans are the "communities" most likely to identify TCPs, although TCPs are not restricted to this group. Some TCPs are well known, while others may only be known to a small group of traditional practitioners, or otherwise only vaguely known.

TCPs may or may not coincide with archaeological sites and artifact loci. Some tribes view archaeological sites with which they have cultural affiliation as TCPs. TCPs may fall under the purview of one or more pieces of legislation or Executive Orders. These authorities govern access and use of scared sites, possession of sacred items, protection and treatment of human remains, and the protection of archaeological resources ascribed with religious or historic importance.

Identification of TCPs included reviewing existing published and unpublished literature (e.g. Van Valkenburgh 1941, 1974; Brugge 1993; Kelly et al 2006) and ongoing BLM tribal consultation efforts. The

Navajo Nation Historic Preservation Department was contacted specifically about the GRRA and did not identify any TCPs in the area. The Navajo Nation, Ute Mountain Ute, Southern Ute Tribe, Jicarilla Apache, Hopi and all the New Mexico Pueblos were contacted multiple times regarding a proposed major transmission line that passes through the existing GRRA (San Juan Basin Energy Connect: SJBEC). No TCPs were identified in the GRRA.

The spatial scale for this analysis is limited to the largest proposed boundary of the GRRA. In June 2013, GIS data from the New Mexico Cultural Resource Information System (NMCRIS) identified previous archaeological surveys covering approximately 13 percent of the GRRA in Alternative A (3,524 acres) to 15 percent of the GRRA in Alternatives B and C (4,625 and 3,131 acres, respectively). The number of inventories acres is most likely slightly larger as not all cultural surveys have been entered into GIS data. Most of these surveys were completed in association with the analysis and approval of energy related activities since the early 1970s, and as such it is not uncommon to find avoided cultural resource sites located along the margins of these developments. Some cultural resources surveys have been completed on recreation facilities including portions of bike trails in 1995 (Gaudy 1995) and the Brown Spring OHV Competition Area (Robinson, Nathan, and Wharton 2003; Robinson and Wharton 2004). These locations are well dispersed throughout the various environmental and topographic settings found within the planning area.

NMCRIS data shows that there are 203 documented cultural resource sites within the existing GRRA and between 186 and 284 documented cultural resource sites within the GRRA alternatives (Table 36). These sites are predominantly Native American and prehistoric/pre-Columbian in age. The high percentage of site of an unknown age or cultural affiliation represents sites for which no diagnostic artifacts or features were identified at the time of recording. The majority of these are likely prehistoric/pre-Columbian Native American sites.

Table 36. Number of Documented Sites by Alternative

Alternative	Archaic	Basketmaker-Puebloan	Navajo	Anglo - Hispanic	Unknown	Total
A	12	84	12	30	84	222
B	13	90	21	44	116	284
C	9	61	13	31	72	186

Within the GRRA, there are no fewer than 52 "features" associated with known sites (Table 37). Features represent human non-portable activity that generally has a vertical characteristic to it in relation to site stratigraphy. Features include, but are not limited to, structures (i.e., something made up of a number of parts that are held or put together in a particular way), facilities (i.e., something created to serve a particular function), and other cultural remains such as middens, stains, pits, rock alignments, etc., observed within a site.

A review of 1881 General Land Office (GLO) original survey maps covering the planning area show several "roads" within the GRRA including what are identified as the "La Plata Road" and "Road from Farmington to Fort Lewis." No other modern developments were identified.

At the northern end of all alternatives lies the legislatively designated "Armijo Route" of the Old Spanish National Historic Trail (OSNHT). On November 6, 1829 Santa Fe merchant Antonio Armijo led 30-60 men and pack mules on an 86 day journey from Abiquiu to San Gabriel Mission. He left San Gabriel Mission on March 1, 1830 arriving home on April 25, 1830, having completed the first round trip trade caravan between New Mexico and California. Armijo apparently used this route only once, and subsequently routes farther to the north took precedence.

Table 37. Known Cultural Resource Features by Alternative

Feature Type	Alternative			Feature Type	Alternative		
	A	B	C		A	B	C
Dugout	0	1	0	Hearth	44	91	47
Forked stick hogan	9	10	9	Horno/Oven	0	2	0
Hogan	1	3	1	Ring midden	0	1	0
House foundation	0	1	0	Roasting pit	1	5	1
Isolated room	10	17	10	Fire-cracked rock conc.	16	37	17
Log cabin	2	3	2	Ash/charcoal stain	0	1	0
Pithouse	1	4	1	Irrigation ditch/system	1	2	1
Ramada/Shelter	1	1	1	Corral	6	8	6
Roomblock	3	3	3	Garden plot/Grid garden	0	2	0
Sweat lodge	1	2	1	Road/Trail	4	4	4
Tent base	1	6	1	Lithic quarry	1	1	1
Wall	3	3	3	Mine shaft/tunnel	4	4	4
Structure foundation	0	3	0	Mine waste	2	2	2
Structure extant	0	1	0	Quarry	0	1	0
Bin / Cist	1	2	1	Spring control structure	1	1	1
Cairn	9	10	9	Water tank	7	9	7
Depression	3	6	3	Water catchment device	1	2	1
Dump	15	40	15	Water control device	2	2	2
Midden	9	11	9	Well	2	2	2
Mound	6	8	6	Windmill	1	1	1
Rock alignment, undefined	10	21	10	Graffiti	4	4	4
Pit, undefined	3	3	3	Petroglyph	3	4	3
Post/post hole	2	2	2	Rockshelter	1	1	1
Utility/communication feat.	0	1	0	Wood concentration	2	2	2
Ash stain	7	15	7	Culturally modified tree	0	1	0
Burned rock midden	1	2	1				
Charcoal stain	18	22	19	**Total Features**	**219**	**391**	**224**

Armijo's journal (Hafen and Armijo 1947) indicates that he entered Largo Canyon on November 12 and reached the San Juan River, presumably at the mouth of Largo Canyon on November 15. The party rested on the 16th, and resumed travel reaching the Animas River on the 17th and the La Plata River on the 18th. Other than a reference by Armijo that they were "at the springs on the bank of the Plata River" on the 18th, there is no indication in Armijo's journal of the course he followed or where those springs were located. Hafen and Armijo (1947: 93) only states that "they doubtless crossed the San Juan and took a northwest course to the La Plata River in the vicinity of the present village of La Plata" without explanation or clarification. GLO maps from 1881 do not identify any springs along La Plata River. All that is certain is that on the 16th Armijo was at Largo Canyon and on the 18th he and his party were somewhere along the La Plata River.

The OSNHT was designated as a National Historic Trial in 2002. The Old Spanish Trail is a term used largely after the period of significant use and the name Spanish Trail is attributed to John C. Fremont in 1845. During the period of significance (1829-1847) the trail went by the name El Camino de California and El Camino de Nuevo Mexico (Merlin, Marshall, Roney 2011:6). The location of this route within the GRRA has not been verified on the ground and its actual location may or may not be co-located with the GRRA.

Archaeological survey focused on identifying the OSNHT/Armijo Route in the GRRA where the corridor of the San Juan Basin Energy Connect (SJBEC) project and the designated route of the OSNHT intersect yielded negative results (Okun and Kalosky 2013). Table 38 displays the number of miles of the OSNHT in the GRRA under each alternative by land ownership.

Table 38. Number of Miles of the OSNHT in the GRRA by Land Ownership Under Each Alternative

Alternative	BLM-Managed Lands	New Mexico State Managed Lands
A	1.8	1.1
B	1.9	1.1
C	1.8	1.1

3.7.2. Impacts from the No Action Alternative

Direct and Indirect Impacts

Impact to cultural resources eligible for the NRHP is defined as "alteration to the characteristics of a historic property qualifying it for inclusion in or eligibility for the National Register [36 CFR Part 800.16(i)]." When the characteristics of a historic property that qualify it for inclusion in the National Register are directly or indirectly altered so as to diminish its integrity the effect is considered adverse [36 CFR Part 800.5 (a)(1)]. This commonly includes physical destruction or damage to all or part of the property, but may also include the introduction of audible, atmospheric, or visual elements that diminish the integrity of the property's significant historic features. Determining effects requires identification efforts, normally field surveys. Pursuant to 36 CFR.4 (b) (2), an agency may use a phased process to conduct identification and evaluation efforts, such as during route evaluations on a large land area such as the GRRA.

The use of existing routes within the planning area would continue and, over time, use levels are projected to increase. The effects of using existing routes that may interact with cultural resources, including the OSNHT, is dependent on variables such as site type, proximity of the route to cultural resources, presence or absence of features on the route footprint, type of activity such as motorized or non-motorized, and duration of the activity in the proximity to the resource. Many sites are unlikely to be affected by continued use of simple single-track routes by pedestrians, equestrians, and bicyclists. Motorized activity is potentially the more likely to create effects, potentially adverse, especially in areas designated as open. Places where existing routes cross the OSNHT ROW corridor would continue to be used but it would be unlikely to see additional, potentially adverse, impact to the trail corridor beyond what already exists.

In addition to continued use, new unplanned user-created social trails would likely be developed unchecked, increasing the overall number of routes in the long-term. Physical encroachment upon unidentified cultural resources by new user-created trails may affect cultural resources. New users created trails also have the potential to negatively affect the OSNHT ROW corridor. This could come in the form of new trails that cross in a perpendicular fashion to the corridor or trails that are developed down-line (parallel to) the OSNHT corridor. As new unplanned routes are created this may result in increased access to the area, which may increase the potential for unauthorized removal of or alteration to cultural resources in the vicinity. Continuing current management practices under this alternative may eventually lead to adverse effects to both documented and undocumented cultural site.

Cumulative Impacts

There may be a potential increase in effects to cultural resources under this alternative as compared to the other alternatives, particularly as new, unplanned user-created routes continue to be developed, potentially increasing the long-term effect of recreation travel on cultural resources. Long term effects to cultural resources would be moderate to high compared to the Alternatives A and C.

3.7.3. Impacts from Alternative A (Preferred Alternative)

Direct and Indirect Impacts

Potential direct and indirect effects are similar to those discussed in the No Action Alternative. However, under this alternative routes would be monitored once every three years. This would help to reduce the number of new user-created routes which would result in BLM identifying impacts to cultural resources in

a timelier manner. This level of monitoring would also reduce future potential impacts to the OSNHT ROW corridor by preventing new user-created trails from impacting the corridor.

Under this alternative all recreation activity would be restricted to designated roads and designated trails. During route evaluations, which may or may not require cultural resource surveys depending on the nature of the route and the availability of previous cultural resource survey data, routes found to interact with known cultural sites may be closed or limited to designated use (such as administrative use). This process would occur in consultation with the SHPO, Tribal Historic Preservation Office (THPO), and others. Within this alternative, 25 percent of the known sites lie within 75 feet of a designated road and 11 percent lie within 50 feet of a designated trail (Table 39).

With regard to RMZ 3, it is unlikely that all or even a majority of the acreage would be disturbed by recreational activity as there are some places inaccessible to any vehicle. In consultation with the SHPO, THPO, and others; any inventory or route evaluation for RMZ 3 would be focused on those areas most likely or historically used for such activity. Even in an open area, motor vehicles may not be operated in a manner causing or likely to cause significant, undue damage to or disturbance of the soil, wildlife, wildlife habitat improvements, cultural or vegetative resources or other authorized uses of the public lands (43 CFR 8341).

Table 39. Proximity of Known Cultural Sites to Roads and Trails

RMZ	Alternative A	Alternative B	Alternative C
Sites within 75 feet of designated roads			
RMZ 1	12	N/A	14
RMZ 2	29	48	25
RMZ 3	15	21	0
Total	**56**	**69**	**39**
Sites within 50 feet of designated trails			
RMZ 1	7	0	9
RMZ 2	12	20	12
RMZ 3	5	8	0
Total	**24**	**28**	**21**

This alternative would reduce the amount of new unplanned user-created routes as these routes would not be signed or placed on travel maps as an open route effectively closing them to public use. This would reduce access and potential adverse effects to undocumented cultural sites over the long-term.

Cumulative Impacts

The cumulative effects for cultural resources are the boundary for the GRRA. This represents the area where past, present, and reasonably foreseeable future activities has the potential directly and indirectly affect the same cultural resources that would be impacted by the proposed plan. There would be a general decrease in effects to cultural resources under this alternative as compared to the No Action Alternative. New unplanned user-created routes would be limited, reducing the overall effect of recreation travel on cultural resources. Long term effects to cultural resources would be low compared to the No Action Alternative.

3.7.4. Impacts from Alternative B

Direct and Indirect Impacts

Potential direct and indirect effects are similar to those discussed in the No Action Alternative and Alternative A. However, under this alternative routes would be monitored once every three years. This would help to reduce the number of new user-created routes which would result in BLM identifying impacts to cultural resources in a timelier manner. This level of monitoring would also reduce future potential impacts to the OSNHT ROW corridor by preventing new user-created trails from impacting the corridor.

Under this alternative, all recreation activity would be restricted to designated roads and designated trails, however there would be a larger number of routes designated compared to Alternatives A and C. This alternative focuses on keeping the maximum number of routes open for public use. During route evaluations, which may or may not require cultural resource surveys depending on the nature of the route and the availability of previous cultural resource survey data, routes found to interact with known cultural sites may be closed or limited to designated use (such as administrative use). This process would occur in consultation with the SHPO, THPO, and others. Within this alternative 24 percent of the known sites lie within 75 feet of a designated road and 10 percent lie within 50 feet of a designated trail (Table 39).

With regard to RMZ 3, it is unlikely that all or even a majority of the acreage would be disturbed by recreational activity as there are some places inaccessible to any vehicle. In consultation with the SHPO, THPO, and others; any inventory and route evaluation for RMZ 3 would be focused on those areas most likely or historically used for such activity. Even in an open area, motor vehicles may not be operated in a manner causing or likely to cause significant, undue damage to or disturbance of the soil, wildlife, wildlife habitat improvements, cultural or vegetative resources or other authorized uses of the public lands (See 43 CFR 8341).

This alternative would increase the overall access within the GRRA including increased encounters with cultural resources. Though new user-created routes would continue to be discouraged under this alternative, new routes would be harder to identify given the high density of routes proposed under this alternative. New users created trails also have the potential to negatively affect the OSNHT ROW corridor. This could come in the form of new trails that cross in a perpendicular fashion to the corridor or trails that are developed down-line (parallel to) the OSNHT corridor. This alternative would increase the potential of recreation activities having effects on cultural sites over the long-term.

Cumulative Impacts

The cumulative effects of this alternative would be similar to the No Action Alternative. There would be a potential increase in effects to cultural resources under this alternative as compared to the other alternatives. New user-created routes would continue to be developed, increasing the long-term effects of recreation travel on cultural resources. In addition, the higher level of access could result in increased effects to cultural sites within the GRRA. Long term effects to cultural resources would be moderate to high compared to the Alternatives A and C.

3.7.5. Impacts from Alternative C

Direct and Indirect Impacts

Potential direct and indirect effects are similar to those discussed in the No Action Alternative and Alternative A and B.

Under this alternative all recreation activity would be restricted to designated roads and designated trails. This alternative provides for the fewest number of routes being designated as open to the public. During route evaluations, which may or may not require cultural resource surveys depending on the nature of the route and the availability of previous cultural resource survey data, routes found to interact with known cultural sites may be closed or limited to designated use (such as administrative use). This process would occur in consultation with the SHPO, THPO, and others. Within this alternative 21 percent of the known sites lie within 75 feet of a designated road and 11 percent lie within 50 feet of a designated trail (Table 39).

This alternative would reduce the amount of new user-created routes as these routes would not be signed or placed on travel maps as an open route effectively closing them to public use. It would also reduce the total amount of access throughout the planning area, effectively reducing impacts to cultural resources.

Cumulative Impacts

There would be a decrease in effects to cultural resources under this alternative as compared to the all other alternative. No new user-created routes would be created as the reduced number of open routes

would be more easily monitored by BLM or volunteer staff. This would reduce the overall impact of recreation travel on cultural resources. Long term impacts to cultural resources would be low compared to the all other alternative.

3.8. Paleontological Resources

3.8.1. Affected Environment

The BLM manages paleontological resources for their scientific, educational, and recreational values. Paleontological resources found on BLM-managed lands are considered part of our national heritage and are afforded protection under two authorities, the Federal Lands Policy and Management Act of 1976 (FLPMA) and the National Environmental Policy Act (NEPA). These authorities require that paleontological resources be considered for any federal undertaking.

The Omnibus Public Land Management Act of 2009 (P.L. 111-011), Title VI, Subtitle D on paleontological resources preservation, otherwise known as the Paleontological Resources Preservation Act (PRPA), identifies paleontological resources as an important scientific and heritage resource. It also provides for civil and criminal penalties for the misuse of paleontological resources and their associated data from federal lands.

Other guidance used by the BLM to manage paleontological resources includes: the BLM's 8270 - Paleontological Resource Management Manual; the BLM H-8270-1 - General Procedural Guidance for Paleontological Resource Management; IM 2008-009 - Potential Fossil Yield Classification (PFYC) System for Paleontological Resources on Public Lands; IM 2009-011 - Assessment and Mitigation of Potential Impacts to Paleontological Resources. The management of paleontological resources is also addressed in the 2003 BLM Farmington Field Office RMP.

The BLM's PFYC System is a predictive modeling tool that was developed to provide baseline guidance for assessing geologic units and their potential for containing paleontological resources. It is intended to be utilized at beginning to intermediate points in analyses and is used to determine the need for further mitigation assessments or actions (BLM 2009). The PFYC System is based on the fact that occurrences of paleontological resources are often closely tied to the geologic units that contain them. This classification system does not reflect rare or isolated occurrences of significant fossils or individual localities; the system reflects the relative occurrence on a formation- or member-wide basis. However, it is recognized that local differences have to be taken into account. Under the PFYC System, geologic units are classified based on their relative abundance of vertebrate fossils or scientifically significant invertebrate/ plant fossils and their sensitivity to adverse impacts. The PFYC system ranges from a PFYC 1 to PFYC 5, with PFYC 1 having a low probability of containing paleontological resources and PFYC 5 indicating a geologic formation that is known to contain abundant paleontological resources.

The GRRA is located within the paleontologically rich area of the San Juan Basin in northwestern New Mexico. Under the PFYC system, all lands within the FFO were designated as Class 5 (Very High Potential) for paleontological resources. Class 5 areas require an assessment of paleontological resources at the project level (BLM 2009).

Specifically, the GRRA is located within the Nacimiento Formation, a geologic unit ranked as PFYC Class 5 (BLM 2008d). The Nacimiento Formation is a heterogeneous, non-marine formation composed of shale, siltstone, and sandstone. This formation was deposited in floodplain, fluvial, and lacustrine settings during the early and middle Paleocene (approximately 64.5 to 61.0 million years ago). The formation outcrops very low in the section, deep in the canyons where years of erosion have exposed it. Many fossils are known from the Nacimiento Formation. Fossils belonging to a number of different organisms have been found here, including plants (mostly dicotyledonous angiosperms), gastropods, freshwater bivalves, cartilaginous fish and bony fish, salamanders, turtles, champsosaurs, amphisbaenians, lizards, snakes, crocodilians, birds, and a variety of archaic mammals. Mammalian groups represented in the fossils include multituberculates, didelphid marsupials, insectivorans, plesiadapiforms, carnivorans, taeniodonts, mesonychids, condylarths, and cimolestans. Fauna recovered from this formation are the basis for the Puercan and Torrejonian North American Land Mammal Ages.

The spatial scale for this analysis is limited to the largest proposed boundary of the GRRA. Four paleontological sites have been documented in the GRRA. At least one of the documented paleontological sites has a high potential to be a significant find for this area. Further study of this identified site is required before a final determination can be made.

3.8.2. Impacts from the No Action Alternative

Direct and Indirect Impacts

Under the No Action Alternative, no additional paleontological surveys will be conducted for routes or trails. The current travel system could have direct effects on fossil localities as new user-create routes are developed. New and existing routes could also have the indirect effect of changing erosion patterns within the planning area. Additionally, as new routes are created, there could be an increase in accessibility to the area. Increased accessibility could result in increased human activity in the area, which could lead to looting or vandalism of paleontological resources in the area.

Future development of recreation facilities and/or designation of new travel routes within the planning area also have the potential to impact paleontological resources directly and indirectly. Unidentified or irretrievable fossils could be directly damaged by disturbances to bedrock or alluvium. Indirectly, development could alter erosional patterns and increased human access to fossils. These impacts are not quantifiable without a paleontology survey. Any future projects proposed within the project area would be required to have an appropriate level of paleontology survey completed.

Cumulative Impacts

There may be a potential increase in effects to paleontological resources under this alternative as compared to the other alternatives. Existing routes as well as new, unplanned user-created routes continue to be utilized or developed potentially increasing the long-term effect of recreation travel on paleontology resources. Long term effects to paleontology resources would be moderate to high compared to the Alternatives A and C. Currently unidentified paleontological localities and the fossils they contain could be directly damaged by disturbances to bedrock or alluvium. Indirectly, development has altered erosional patterns and increased human access to fossils. These impacts are not quantifiable.

3.8.3. Impacts from Alternative A

Direct and Indirect Impacts

The effects of using routes designated under this alternative is dependent on variables such as site type, proximity of the route to paleontology resources, type of activity such as motorized or non-motorized, and duration of the activity in the proximity to the resource. Many locations are unlikely to be affected by continued use of simple single-track routes by pedestrians, equestrians, and bicyclists. OHV activity is likely to create adverse effects on paleontology resources as compared to non-motorized activities. These can include unburying or scattering of sites when visitors spin their wheels and compaction on and along routes that could alter erosion activities. As use of the GRRA increases over time, it is likely that there will be an increase in the impact of recreation use on paleontology resources.

Direct effects of this alternative to fossil localities could result from ground-disturbing activities or the disturbance of the stratigraphic context in which the fossils are located. Alterations to the physical integrity of bedrock or potential fossil-yielding alluvium could occur, which could have a direct effect on unidentifiable or irretrievable fossil resources. Future development of recreation facilities and/or designation of new travel routes within the planning area also have the potential to impact paleontological resources directly and indirectly. Unidentified or irretrievable fossils could be directly damaged by disturbances to bedrock or alluvium. Indirectly, development could alter erosional patterns and increased human access to fossils. These impacts are not quantifiable without a paleontology survey. Any future projects proposed within the project area would be required to have an appropriate level of paleontology survey completed.

With the designation of a trail system, Alternative A would have less impact on paleontology resources as compared to the No Action Alternative and Alternative B. This alternative would result in designated routes being monitored at least once every three years, allow BLM to proactively evaluate and maintain routes, thereby reducing the potential to have off site resource impacts. In addition, a designated transportation system will limit the location and type of access to areas in the GRRA, potentially protecting paleontology resources from being vandalized or looted.

Cumulative Impacts

Future additions to the transportation system and the development of recreation facilities could lead to additional impacts to paleontology resources. Coupled with the continued development of industrial sites (oil & gas well pads) in the planning area and the issuance of new ROW associated with industrial development or utilities (SJBEC), the impact to paleontology resources under this alternative would be minimal. In general, this alternative would have fewer potential impacts than the No Action Alternative and Alternative B.

3.8.4. Impacts from Alternative B

Direct and Indirect Impacts

Under this alternative, all recreation activity would be restricted to designated roads and designated trails, however there would be a larger number of routes designated compared to Alternatives A and C. The effects of using routes designated under this alternative is dependent on variables such as site type, proximity of the route to paleontology resources, type of activity such as motorized or non-motorized, and duration of the activity in the proximity to the resource. Many locations are unlikely to be affected by continued use of simple single-track routes by pedestrians, equestrians, and bicyclists. OHV activity is likely to create adverse effects on paleontology resources as compared to non-motorized activities. These can include unburying or scattering of sites when visitors spin their wheels and compaction on and along routes that could alter erosion activities. As use of the GRRA increases over time, it is likely that there will be an increase in the impact of recreation use on paleontology resources.

Direct effects of this alternative to fossil localities could result from ground-disturbing activities or the disturbance of the stratigraphic context in which the fossils are located. Alterations to the physical integrity of bedrock or potential fossil-yielding alluvium could occur, which could have a direct effect on unidentifiable or irretrievable fossil resources. Future development of recreation facilities and/or designation of new travel routes within the planning area also have the potential to impact paleontological resources directly and indirectly. Unidentified or irretrievable fossils could be directly damaged by disturbances to bedrock or alluvium. Indirectly, development could alter erosional patterns and increased human access to fossils. These impacts are not quantifiable without a paleontology survey. Any future projects proposed within the project area would be required to have an appropriate level of paleontology survey completed.

Even with the designation of a trail system, Alternative B would have greater impact on paleontology resources as compared to the Alternative A and Alternative C due to the larger number of miles available for public use. In addition, under this alternative, the likelihood of new user-created routes proliferating is higher than the other action alternatives. BLM would not be able to monitor all routes in three years as they would in the other action alternatives potentially increasing the effects of recreation use on paleontology resources. In addition, the larger transportation network would result in more access, likely increasing the potential for vandalism or looting of paleontology sites.

Cumulative Impacts

Future permitted additions to the transportation system and the development of recreation facilities could lead to additional impacts to paleontology resources. User-created routes that are likely to continue to develop under this alternative have the potential to create the greatest effect on paleontology resources. In addition, the continued development of industrial sites (oil & gas well pads) in the planning area and the issuance of new ROW associated with industrial development or utilities (SJBEC) would have a

moderately negative affect on paleontology resources under this alternative. In general, this alternative would have more potential impacts than Alternative A and Alternative C.

3.8.5. Impacts from Alternative C

Direct and Indirect Impacts

The effects of using routes designated under this alternative is dependent on variables such as site type, proximity of the route to paleontology resources, type of activity such as motorized or non-motorized, and duration of the activity in the proximity to the resource. Many locations are unlikely to be affected by continued use of simple single-track routes by pedestrians, equestrians, and bicyclists. OHV activity is likely to create adverse effects on paleontology resources as compared to non-motorized activities. These can include unburying or scattering of sites when visitors spin their wheels and compaction on and along routes that could alter erosion activities. As use of the GRRA increases over time, it is likely that there will be an increase in the impact of recreation use on paleontology resources.

Direct effects of this alternative to fossil localities could result from ground-disturbing activities or the disturbance of the stratigraphic context in which the fossils are located. Alterations to the physical integrity of bedrock or potential fossil-yielding alluvium could occur, which could have a direct effect on unidentifiable or irretrievable fossil resources. Future development of recreation facilities and/or designation of new travel routes within the planning area also have the potential to impact paleontological resources directly and indirectly. Unidentified or irretrievable fossils could be directly damaged by disturbances to bedrock or alluvium. Indirectly, development could alter erosional patterns and increased human access to fossils. These impacts are not quantifiable without a paleontology survey. Any future projects proposed within the project area would be required to have an appropriate level of paleontology survey completed.

With the designation of a trail system, Alternative C would have the least impact on paleontology resources compared to all other alternatives. This alternative would designate the smallest transportation network resulting in designated routes being monitored at least once every three years. This would allow BLM to proactively evaluate and maintain routes, thereby reducing the potential to have off site resource impacts. In addition, under this alternative, the designated transportation system would be the most restrictive, providing additional protection of paleontology resources from vandalism or looting.

Cumulative Impacts

Future additions to the transportation system and the development of recreation facilities could lead to additional impacts to paleontology resources. Coupled with the continued development of industrial sites (oil & gas well pads) in the planning area and the issuance of new ROW associated with industrial development or utilities (SJBEC), the impact to paleontology resources under this alternative would be less than all other alternatives. In general, this alternative would have the fewest potential impacts to paleontology resources.

3.9. Lands and Realty

3.9.1. Affected Environment

Land Tenure

The objective of the Lands and Realty Program is to facilitate the acquisition, exchange, or disposal of public lands in order to provide the most efficient management of public resources. The program is responsible for, granting ROWs and easements on public lands and acquiring easements on non-public lands where necessary.

Currently there is one approved (NMNM 022943-01) and one pending (NMNM 121029) R&PP lease within the boundaries of the GRRA. The COF has a held a lease for approximately 500 acres for the Lions Wilderness Park since 1976. The lease was renewed in 2005 and will expire in 2026.

The pending lease is for 980 acres which the COF applied for in 2008. The processing of this lease has been suspended until the GRRA R&TMP is approved. The lease would initially be approved for a five-year term to allow the COF to demonstrate it will develop the lease according to their POD. Once the lessee has developed the lease, the lease may be issued for a longer term, up to a maximum of 25 years.

The BLM acquired an easement in the GRRA from the NMSLO in 1996 (NMNM 091467). This easement is for the portions of GRRA that cross three sections of lands that belong to the State of New Mexico (Section 16 and 32 of Township 31 North, Range 12 West and Section 2 of Township 30 North, R. 13 West).

Currently, there are approximately 790 acres of private land within the boundaries of the GRRA. One of the management prescriptions from the 2003 Resources Management Plan is to acquire easement and non-BLM inholdings. There are not any pending proposals to acquire or exchange federal lands for the non-BLM inholdings in the GRRA.

Land Use Authorizations

The FFO issues ROWs under the authority of the Mineral Leasing Act of 1920 as amended for oil and gas related projects and FLPMA for ROWs that are not associated with oil and gas development. Currently, there are several hundred active rights-of-way that have been issued over the years for a variety of purposes. The majority of these ROWs are associated with oil and gas development. Table 40 identified the number of ROWs within the GRRA boundaries.

Table 40. Number and Type of ROWs within the GRRA Planning Area

Type of ROW	Quantity
Pipeline	267
Oil & Gas Site	8
Power Line	25
Telephone Line	1
Road	27
Other	14

In the 1996 GRTS RMPA, the GRRA was designated a ROW avoidance area. This management action was subsequently carried forward into the 2003 RMP and is currently enforceable in the GRRA. This planning effort carries forward the management prescription from the 1996 GRTS RMPA and 2003 RMP as the following management allocation:

GRRA-CAA-A- 2. Manage the GRRA as a ROW avoidance area. ROWs would be allowed only if the:

- ROWs is located away from the trail system; or ROWs is located within or adjacent to other ROWs;
- ROWs provides for the safety of area users.

The following ROWs would not be allowed:

- Surface pipelines;
- Trenches left open overnight without mitigation such as fencing and warning signs posted at trail and/or road crossings.

For additional analysis of the potential impacts that this management allocation has, refer to the 2003 RMP/FEIS.

3.9.2. Impacts from the No Action Alternative

Direct and Indirect Impacts

Within the GRRA, ROWs would continue to be managed by the FFO. There would be no changes to the valid and existing rights that have been granted the holder of the ROWs. Those uses would continue on the ground with terms and conditions or stipulations that have been approved with the ROW grant.

The No Action Alternative would not approve the pending 980 acre COF R&PP lease by the FFO. This decision would not change the status of the land. Leases issued under the authority of R&PP Act are not a conveyance. The existing lease may be conveyed to the COF at a later time at the discretion of the FFO. Under this alternative, land would still remain as BLM managed lands.

Cumulative Impacts

Under the No Action Alternative, future oil and gas well pads may be developed and ROWs issued for well pads, roads, pipeline corridors and other utilities (e.g., electricity). In addition, the SJBEC project will continue to consider the GRRA as a primary corridor for the large utility transmission line. The approval of this project would result in a new ROW that would encompass the corridor as well as associated roads or other support infrastructure. All future approved projects would result in a small increase in use within the GRRA.

No R&PP leases would be issued under this alternative. The current COF R&PP lease would continue to be managed as a lease and not conveyed to COF ownership. This would leave BLM as the primary land owner with the COF having managerial rights to developments and facilities located on their current lease.

3.9.3. Impacts from Alternative A (Preferred Alternative)

Direct and Indirect Impacts

Within the GRRA, ROWs would continue to be managed by the FFO. There would be no changes to the valid and existing rights that have been granted the holder of the ROWs. Those uses would continue on the ground with terms and conditions or stipulations that have been approved with the ROW grants.

The approval of the Preferred Alternative would permit the FFO to approve the pending 980-acre R&PP lease (NMNM 121029). The size of the lease may be reduced at the BLM discretion and still allow the COF to accomplish it goals of connecting trails, providing open space, and a neighborhood park.

The lease would not change the ownership of the land; it would allow the COF to develop the lands according to the approved POD. The R&PP lease would remain as public lands and recognize the valid and existing rights that have been granted prior to the execution of the lease. Once the lease has been developed in accordance with the POD the land could be conveyed to the COF at the discretion of the FFO.

The preferred alternative would permit the conveyance of the approximately 500-acre existing lease (NMNM 022943 01) at the discretion of the BLM. Conveyance of public lands under the R&PP usually requires a lease prior to conveying the land with a patent.

Cumulative Impacts

Granting an R&PP lease and issuing ROWs would increase the activity in the GRRA. The amount of activity and surface disturbance from these actions is not known until the actions are proposed and approved. The effect on recreation would be managed with stipulations and mitigation. Assessing any potential effects of actions that are not proposed or planned is speculative. These impacts would be assessed at the site-specific level with project specific NEPA analyses when these projects are proposed.

3.9.4. Impacts from Alternative B

Direct and Indirect Impacts

Within the GRRA, ROWs would continue to be managed by the FFO. There would be no changes to the valid and existing rights that have been granted the holder of the ROWs. Those uses would continue on the ground with terms and conditions or stipulations that have been approved with the ROW grant.

Alternative B would deny the application for the pending 980-acre R&PP lease. Ownership and management of the proposed lease area would continue to be done by the BLM under current guidelines.

Expanding the boundaries of the GRRA would not have an effect on land tenure, land use authorizations or land ownership. The areas included in this alternative are public lands which contain valid and existing rights. This would not add any additional management requirements to land use authorizations.

The existing 500-acre lease would continue to be managed as a lease and not conveyed to the COF. There would be no change to the terms and condition of the lease. The management would continue under current term and conditions.

Cumulative Impacts

The future issuance of ROWs would increase the activity in the GRRA; however, as an R&PP lease would not be granted, the activity level would only increase moderately. The amount of activity and surface disturbance from these actions is not known until the actions are proposed and approved. The effect on recreation would be managed with stipulations and mitigation. The effects are difficult to quantify at this point.

3.9.5. Impacts from Alternative C

Direct and Indirect Impacts

Within the GRRA, ROWs would continue to be managed by the FFO. There would be no changes to the valid and existing rights that have been granted the holder of the ROWs. Those uses would continue on the ground with terms and conditions or stipulations that have been approved with the ROW grant.

Alternative C would reduce the size of the R&PP lease from 980 acre to 700 acres. This would reduce the size of the lease by 280 acres. The reduction in size of the lease would still accomplish the goals of the COF to connect trails, provide open space and establish a neighborhood park. An additional 1,100 acres would be identified for future R&PP lease or conveyance. The management of the area would continue to be done by the BLM until the property is eventually conveyed at the discretion of the FFO.

Cumulative Impacts

Granting an R&PP lease and issuing ROWs would increase the activity in the GRRA. The amount of activity and surface disturbance from these actions is not known until the actions are proposed and approved. The effect on recreation would be managed with stipulations and mitigation. The effects are difficult to quantify at this point.

3.10. Transportation and Travel

3.10.1. Affected Environment

The GRRA is surrounded by private, State of New Mexico (State lands), and NMDGF lands. This area can be access using CR 1980 from the north and south and CR 3536 from the east. Within the GRRA, the existing BLM road network consists primarily of low standard dirt route that are linked to the two major county roads bisecting the area which, in turn, connect into the local highway systems. Most of these routes were developed to provide access for specific activities, such as oil and gas development, constructing power transmission lines, and installing pipelines to support the oil and gas industry.

BLM routes are needed to serve both functional and recreational needs. Over the years, some routes have been improved to accommodate changes in the types of vehicles using them and to respond to the growing use of the public lands for recreation activities. Routes are still needed for such purposes as access for power line and oil and gas facility maintenance, but they are also needed for serving a variety of recreational uses.

In preparing for this TMP, existing routes were inventoried as discussed in Section 2.1.3. The inventory identified a total of approximately 196 miles of existing routes (primitive roads and trails) within the current boundary of the GRRA. This does not include routes on surrounding private lands or other ownerships that lead onto BLM-managed lands. The total mileage also excludes the approximately 14 miles of non-BLM-managed roads that are managed under county jurisdiction which are not affected by decisions made in this plan and will remain open to the public under all of the alternatives according to county statutes. The mileages of existing routes by travel designation are summarized in Table 9.

In general, motorized recreational OHV use has increased, resulting in some resource concerns on public lands in the planning area (Ouren, *et al.*, 2007). First, the increasing capability of motorized vehicles allows easier access to remote parts of the planning area, thereby increasing the likelihood of impacts on otherwise protected resources. Second, as the popularity of recreational OHV use continues to grow, demand for new routes increases. Last, the expansion of unauthorized cross-country OHV use is creating additional resource damage in the GRRA.

The management of motorized activities within the planning area includes monitoring and maintaining trails, maintaining a database of monitoring use, ongoing education of OHV-related issues, issuing citations and warnings for violations, and coordinating with user groups, local officials, and other agencies to help educate visitors to the GRRA.

Mechanized travel, such as mountain biking, is becoming increasingly popular on public lands, and several areas in the FFO are considered premium destinations. Throughout the planning area, mechanized use is limited to designated routes, unless otherwise specified (such as within an open area). Mechanized use is primarily occurring on old motorized routes, livestock trails, and user-created trails, as well as on planned single-track routes. In the planning area, the RAR mountain bike race has been held annually for the past 20 plus years, making it the oldest continuously held mountain bike race in the country. In 1996, it was also identified as a spectacular multiple use trail by IMBA in their Golden Partnership Agreement with the BLM (BLM 1996, American Trails, 2007).

Hiking and horseback riding have been increasing on all of the public lands within the planning area. The population growth and sprawl of communities located around the planning area have added overflow pressure to the public lands in the vicinity. Horseback riding is common but dispersed throughout the planning area on trails and roads. No routes have been specifically constructed for equestrian use, but equestrian use occurs on routes that were constructed for other types of travel or uses (Sherriff's Posse Trail).

The spatial scale for this analysis is limited to the largest proposed boundary of the GRRA. Throughout the planning area, OHV and mechanized use is expected to increase as local populations and communities expand. This will cause increased pressure on local recreation areas, including the GRRA. Visitor experiences are likely to shift as popular areas and trails in the GRRA become more congested and encounters with other visitors become more frequent.

3.10.2. Impacts from the No Action Alternative

Direct and Indirect Impacts

Under the No Action Alternative, the existing BLM transportation system within the GRRA would be unaltered. Use and travel by motorized and non-motorized vehicles would be allowed on all existing routes (approximately 196 miles) except where specifically prohibited (such as within riparian areas). A high potential exists for new user-created routes to be developed through use by visitors and others.

The “limited to existing routes” designation would also continue. The current policies allowing the use of bicycles and other mechanized vehicles off existing routes and driving motorized vehicles off routes to park, camp, or retrieve game would be unchanged. Currently, approximately196 miles of motorized routes and 38 miles of designated trails are located in the planning area. These routes be recognized as existing, legal routes and become the “designated route system” for the GRRA. New routes could be developed and incorporated into the existing transportation system through future planning efforts.

In general, all types of recreation, except equestrian use, would increase over time and as new machinery (both motorized and mechanized) is developed. This will increase the pressure on the route system within the GRRA, likely resulting in an increase in the number of user-created routes. Use of the current system as well as future developed routes (authorized or unauthorized) will continue to have negative impacts on all resources within the planning area.

Under the No Action Alternative, the environmental impacts from the increased use of poorly located and designed routes would steadily grow over time. Conflicts resulting from the incompatible uses of routes would also steadily increase. Existing routes that currently have low levels of motorized and mechanized use could steadily experience growing levels of activity, resulting in greater impacts to the resources and an increase in user created routes will continue to increase over time. It is impossible to predict the number of user conflicts that would occur at any given time or over a given period. However, it is possible to assess the potential risk of user conflict. In general, user conflicts are much more likely when routes are used by both motorized and non-motorized users. Therefore, the higher the number of routes shared by both user groups, the higher risk of conflict. Table 41 provides a summary of the total number of routes that are designated for motorized and non-motorized use.

Table 41. Miles of Designated Trail Available by Vehicle Type in No Action Alternative

No Action Alternative				
Miles of Designated Trail Available By Vehicle Type				
4WD	**ATV**	**Motorcycle**	**Bicycle**	**Equestrian**
(Vehicles > 60 inches in width)	(Vehicles < 60 inches in width)	(Vehicles < 36 inches in width)	(Vehicles < 24 inches in width)	
No designated trails	No designated trails	Designated Motorcycle = 38 miles	Designated Bicycle = 38 miles	No designated trails
Total Miles Available for Use = 0 miles	**Total Miles Available for Use = 0 miles**	**Total Miles Available for Use = 38 miles**	**Total Miles Available for Use = 38 miles**	**Total Miles Available for Use = 0miles**
		This is the shared single-track RAR Trail.	This is the shared single-track RAR Trail.	

Under the No Action Alternative, impacts to the management of the transportation system would also steadily grow over time. A need for route maintenance would result from this alternative. However, as recreation uses on public lands increase with frequency, the number of miles of routes that would require regular maintenance would also gradually increase. Increased reconstruction and maintenance efforts would be needed to mitigate the deterioration of routes that were not designed for sustained or high levels of use, but experience increased amounts of traffic. The closure and rehabilitation of some routes would also be required where severe resource impacts or conflicts with other uses occur.

Under this alternative, OHV and mechanized use is expected to increase as local populations and communities expand. This increase in use will likely result in increased congestion on routes and at staging/parking areas, the proliferation of user-created routes, and a decrease in visitor satisfaction as

maps and signage become inaccurate. Visitor experiences will, in general, stay the same due to the fact that current maps are not accurate, little signage exists, and visitors have been conditioned to expect a chaotic network of routes.

Cumulative Impacts

Cumulative impacts under this alterative include an increase in the transportation system from permitted and un-permitted (user-created) routes. As the GRRA is 100 percent leased for oil and gas development, new wells and associated roads and pipelines will continue to be staked and developed. Additionally, the SJBEC project and other utility ROW will be developed and new routes developed or existing routes enhanced to support these ROWs. These permitted routes would be open, under this alternative, to public use. Non-permitted activities such as the use of user-created routes will result in an ever expanding transportation network. Management of this type of network would be difficult, reducing BLMs ability to proactively mitigate resource concerns along routes.

3.10.3. Impacts from Alternative A (Preferred Alternative)

Direct and Indirect Impacts

The implementation of Alternative A would establish a travel management plan with a system of routes with designated travel uses that would generally benefit the overall management of the transportation system for planning, construction and maintenance needs. The existing BLM transportation system within the GRRA would be modified with additional designated routes and closures. The use of motorized and mechanized modes of travel would be limited to designated routes.

Under this alternative, 104.6 miles of motorized and non-motorized routes would be designated and managed for public use. Approximately 127 miles of routes would be limited to permitted or administrative use or closed for public use. In addition, approximately 157 miles of trails would be designated under this alternative (Table 9), of which 126 miles would be open or limited to some form of OHV use and 31 miles would be limited to non-motorized travel methods. Under Alternative A, all routes would become designated for OHV or non-motorized uses, as compared to the No Action Alternative where existing routes would continue to be open for all uses. For a complete summary of the mileages by the individual travel designations for each alternative, see Table 9 in Section 2.2.1.

Under Alternative A, the existing routes that are causing or have the potential to cause environmental impacts due to poor location or resource issues would be restricted (i.e., limited) to a specific type of travel, rerouted to mitigate the impacts, or closed. Many existing routes that are experiencing or that would potentially experience environmental impacts from increasing recreation use would be designated for the appropriate uses or closed to prevent further degradation of resources. New trails would be constructed as to not negatively impact the resources in the affected areas and would follow the guidelines for trail placement (Appendix A).

Conflicts resulting from the incompatible uses of routes would likely steadily increase over time. Existing routes that currently have low levels of motorized and mechanized use could steadily experience growing levels of activity, resulting in greater impacts to the resources. It is impossible to predict the number of user conflicts that would occur at any given time or over a given period. However, it is possible to assess the potential risk of user conflict. In general, user conflicts are much more likely when routes are used by both motorized and non-motorized users. Therefore, the higher the number of routes shared by both user groups, the higher risk of conflict. Table 42 provides a summary of the total number of routes that are designated for motorized and non-motorized use.

Management of the transportation system under Alternative A, as compared to the No Action Alternative or Alternative B, would become easier as routes would be designated and undocumented routes would be considered closed. This would allow the evaluation and monitoring of all routes at least once every three years, resulting in a quicker response time to negative, harmful, or damaging issues (such as erosion issues or unstable sections of trial). In addition, this alternative would see an increase in signage

for designated routes and an increase in visitor information at major staging/parking areas. New facilities would strive to accommodate the current level of use, as well as future increases in use.

Cumulative Impacts

Cumulative impacts under this alterative include an increase in the transportation system from future permitted routes. As the GRRA is 100 percent leased for oil and gas development, new wells and associated roads and pipelines will continue to be staked and developed. Additionally, the SJBEC project and other utility ROW will be established and new routes developed or existing routes enhanced to support these ROWs. New permitted routes would be evaluated according to the Route Evaluation Form to determine if they would be included as part of the public transportation network. Non-permitted activities such as the use of user-created routes will be automatically considered closed, not added to the overall transportation network. Long-term management of this transportation network will be easier as compared to the No Action Alternative or Alternative B.

Table 42. Miles of Designated Trail Available by Vehicle Type in Alternative A

Alternative A				
Miles of Designated Trail Available By Vehicle Type				
4WD	**ATV**	**Motorcycle**	**Bicycle**	**Equestrian**
(Vehicles > 60 inches in width)	(Vehicles < 60 inches in width)	(Vehicles < 36 inches in width)	(Vehicles < 24 inches in width)	
Designated 4WD = 22 miles	Designated ATV = 54 miles + Designated 4WD = 22 miles	Designated Motorcycle = 50 miles + Designated ATV = 54 miles + Designated 4WD = 22 miles	Designated Bicycle = 28 miles + Designated Motorcycle = 50 miles + Designated ATV = 54 miles + Designated 4WD = 22 miles	Designated Equestrian = 3 miles + Designated Bicycle = 28 miles + Designated Motorcycle = 50 miles + Designated ATV = 54 miles + Designated 4WD = 22 miles
Total Miles Available for Use = 22 miles	**Total Miles Available for Use = 76 miles**	**Total Miles Available for Use = 126 miles**	**Total Miles Available for Use = 154 miles**	**Total Miles Available for Use = 157 miles**
Includes 4WD trail.	Includes ATV and 4WD trails.	Includes 4WD, ATV, and Motorcycle trails.	Includes 4WD, ATV, Motorcycle, and Bicycle trails.	Includes 4WD, ATV, Motorcycle, Bicycle, and Equestrian trails.

Due to the size of the designated transportation system under this alternative, BLM would be able to accomplish a moderate level of implementation more quickly as compared to Alternative B and the No Action alternative. Signs would be installed at a more sufficient density ratio to aid in accurate navigation as compared to Alternative B. Available funding could be utilized to accomplish more implementation activities than under Alternative B or the No Action Alternative. BLM would be able to successfully and proactively manage travel under this alternative as compared to Alternative B or the No Action alternative. Visitor satisfaction would likely be consistent with current satisfaction levels under this alternative. It is possible that this alternative could result in OHV users seeking out new areas to recreate that would have fewer management constraints.

3.10.4. Impacts from Alternative B

Direct and Indirect Impacts

The implementation of Alternative B would establish a travel management plan with a system of routes with designated travel uses that would generally benefit the overall management of the transportation system for planning purposes. The existing BLM transportation system within the GRRA would be modified with additional designated routes but fewer closures would occur under this alternative. The use of motorized and mechanized modes of travel would be limited to designated routes.

Under this alternative, 194 miles of motorized and non-motorized routes would be designated and managed for public use. Of these, 193 would be available for full sized vehicle use (i.e., 4WD, 102” or greater in width) and 84 miles would be closed to OHV use. Approximately 165 miles of trails would be designated under this alternative (Table 9), of which 162 miles would be open or limited to some form of OHV use and 3 miles would be limited to equestrian use. Under Alternative B, routes would be designated for OHV or non-motorized uses, as compared to the No Action Alternative where existing routes would continue to be open for all uses. For a complete summary of the mileages by the individual travel designations for each alternative, see Table 9 in Section 2.2.1.

Under Alternative B, the designated routes would have fewer restrictions place on them as compared to the other alternatives (e.g., more miles are open for a wider variety of OHV use). Those routes that are causing or have the potential to cause environmental impacts because due to poor location or new resource issues would be restricted (i.e., limited) to a specific type of travel, rerouted to mitigate the impacts, or closed. New trails would be constructed as to not negatively impact the resources in the affected areas and would follow the guidelines for trail placement (Appendix A).

Under Alternative B, the environmental impacts from the increased use of poorly located and designed routes would steadily grow over time. Conflicts resulting from the incompatible uses of routes would likely steadily increase. Existing routes that currently have low levels of motorized and mechanized use could steadily experience growing levels of activity and an increase in user created routes will continue to increase over time, resulting in greater impacts to the resources. It is impossible to predict the number of user conflicts that would occur at any given time or over a given period. However, it is possible to assess the potential risk of user conflict. In general, user conflicts are much more likely when routes are used by both motorized and non-motorized users. Therefore, the higher the number of routes shared by both user groups, the higher risk of conflict. Table 43 provides a summary of the total number of routes that are open to both motorized and non-motorized use.

Under this alternative, impacts to the management of the transportation system would also steadily grow over time. A need for route maintenance would result from this alternative. However, as recreation uses on Public Lands increase with frequency, the number of miles of routes that would require regular maintenance would also gradually increase. Increased reconstruction and maintenance efforts would be needed to mitigate the deterioration of routes that were not designed for sustained or high levels of use, but experience increased amounts of traffic. The closure and rehabilitation of some routes would also be required where severe resource impacts or conflicts with other uses occur.

The impacts to the management of the transportation system would increase substantially under this alternative. Due to the higher amount of routes and trails identified in this alternative as available to OHV

and non-motorized use; maintenance, construction, improvements or closures activates would take longer to perform under this alternative than any other alternative. Additionally, signage would be installed over a longer period of time and at reduced densities (e.g., one sign every 500 feet or more as compared to smaller distances). Installation of parking areas and trailhead facilities would also take longer under this alternative than others. These delays could result in unsatisfactory experiences for many visitors to the area as the transportation network would have fewer signs, routes and trails would have less overall maintenance, and less information would be available to visitors as they travel throughout the area.

Table 43. Miles of Designated Trail Available by Vehicle Type in Alternative B

Alternative B				
Miles of Designated Trail Available By Vehicle Type				
4WD	**ATV**	**Motorcycle**	**Bicycle**	**Equestrian**
(Vehicles > 60 inches in width)	(Vehicles < 60 inches in width)	(Vehicles < 36 inches in width)	(Vehicles < 24 inches in width)	
Designated 4WD = 22 miles	Designated ATV = 62 miles + Designated 4WD = 22 miles	Designated Motorcycle = 78 miles + Designated ATV = 62 miles + Designated 4WD = 22 miles	Designated Bicycle = 0 miles + Designated Motorcycle = 78 miles + Designated ATV = 62 miles + Designated 4WD = 22 miles	Designated Equestrian = 3 miles + Designated Bicycle = 0 miles + Designated Motorcycle = 78 miles + Designated ATV = 62 miles + Designated 4WD = 22 miles
Total Miles Available for Use = 22 miles	**Total Miles Available for Use = 84 miles**	**Total Miles Available for Use = 162 miles**	**Total Miles Available for Use = 162 miles**	**Total Miles Available for Use = 165 miles**
Includes 4WD trail.	Includes ATV and 4WD trails.	Includes 4WD, ATV, and Motorcycle trails.	Includes 4WD, ATV, Motorcycle, and Bicycle trails.	Includes 4WD, ATV, Motorcycle, Bicycle, and Equestrian trails.

Cumulative Impacts

Cumulative impacts under this alterative include an increase in the transportation system from future permitted routes. As the GRRA is 100 percent leased for oil and gas development, new wells and associated roads and pipelines will continue to be staked and developed. Additionally, the SJBEC project and other utility ROW will be established and new routes developed or existing routes enhanced to support these ROWs. New permitted roads would be open to public use. Non-permitted activities such as

the use of user-created routes would result in an ever expanding transportation network. Management of this type of network would be difficult, reducing BLMs ability to proactively mitigate resource concerns along routes.

Due to the size of the designated transportation system under this alternative, BLM would have a prolonged implementation schedule as compared to other alternatives. In addition, all maintenance and monitoring costs would be higher due to the larger number of miles that would need to be maintained and it is highly likely that user-created routes would continue to proliferate as monitoring would not occur as frequently as in Alternatives A and C. Resources such as signs would be dispersed over a larger area, reducing their density ratio and potentially impacting accurate navigation throughout the planning area. Available funding would be utilized to target priority projects such as staging area signs and map development rather than being use to maintain or monitor routes or trails. BLM would have a low level of proactive management under this alternative compared to any other alternative. Visitor use would likely be more dispersed than with Alternatives A and C but overall satisfaction would likely be less under this alternative because implementation (i.e., development of facilities and installation of signs, etc.) would be prolonged.

3.10.5. Impacts from Alternative C

Direct and Indirect Impacts

The implementation of Alternative C would establish a travel management plan with a system of routes with designated travel uses that would benefit the overall management of the transportation system for planning, construction, and maintenance needs more than other alternatives. The existing BLM transportation system within the GRRA would be highly restricted with a higher percentage of additional designated routes and closures. The use of motorized and mechanized modes of travel would be limited to designated routes.

Under this alternative, 75 miles of motorized and non-motorized routes would be designated and managed for public use. Of these, all would be limited to designated uses. Approximately 117 miles of routes would be limited to permitted or administrative use or closed for public use. In addition, approximately 82 miles of trails would be designated under this alternative (Table 9), of which all would be limited to some form of OHV use and 41 miles would be limited to non-motorized travel methods. Under Alternative C, all routes would become designated for OHV or non-motorized uses, as compared to the No Action Alternative where existing routes would continue to be open for all uses. For a complete summary of the mileages by the individual travel designations for each alternative, see Table 9 in Section 2.2.1.

Under Alternative C, the existing routes that are causing or have the potential to cause environmental impacts because due to poor location or new resource issues would be rerouted to mitigate the impacts, or closed. Many existing routes that are experiencing or that would potentially experience environmental impacts from increasing recreation use would be designated for the appropriate uses or closed to prevent further degradation of resources. New trails would be constructed as to not negatively impact the resources in the affected areas and would follow the guidelines for trail placement (Appendix A).

Conflicts resulting from the incompatible uses of routes would likely steadily increase over time. Designated routes that currently have low levels of motorized and mechanized use could steadily experience growing levels of activity, resulting in greater impacts to the resources. It is impossible to predict the number of user conflicts that would occur at any given time or over a given period. However, it is possible to assess the potential risk of user conflict. In general, user conflicts are much more likely when routes are used by both motorized and non-motorized users. Therefore, the higher the number of routes shared by both user groups, the higher risk of conflict. Table 44provides a summary of the total number of routes that are open to both motorized and non-motorized use.

This alternative would have the least impacts to the management of the transportation system. Fewer routes and trails are designated under this alternative, increasing BLMs ability to maintain and monitor them as compared to all other alternatives. Alternative C would identify the immediate need for additional

maintenance, construction, closure and improvements to support the designated travel management system. Additional signage would be installed to designate the allowable travel uses on designated routes and visitor information would be posted at all major staging/parking areas. The installation of gates, barricades, and other closure devices would be needed to reinforce the travel restrictions. The construction of user facilities, such as parking areas and trailhead facilities would be made to accommodate increased recreation usage.

Table 44. Miles of Designated Trail Available by Vehicle Type in Alternative C

Alternative C				
Miles of Designated Trail Available By Vehicle Type				
4WD	**ATV**	**Motorcycle**	**Bicycle**	**Equestrian**
(Vehicles > 60 inches in width)	(Vehicles < 60 inches in width)	(Vehicles < 36 inches in width)	(Vehicles < 24 inches in width)	
Designated 4WD = 21 miles	Designated ATV = 35 miles + Designated 4WD = 21 miles	Designated Motorcycle = 26 miles + Designated ATV = 35 miles + Designated 4WD = 21 miles	Designated Bicycle = 38 miles + Designated Motorcycle = 26 miles + Designated ATV = 35 miles + Designated 4WD = 21 miles	Designated Equestrian = 3 miles + Designated Bicycle = 38 miles + Designated Motorcycle = 26 miles + Designated ATV = 35 miles + Designated 4WD = 21 miles
Total Miles Available for Use = 21 miles	**Total Miles Available for Use = 56 miles**	**Total Miles Available for Use = 82 miles**	**Total Miles Available for Use = 120 miles**	**Total Miles Available for Use = 123 miles**
Includes 4WD trail.	Includes ATV and 4WD trails.	Includes 4WD, ATV, and Motorcycle trails.	Includes 4WD, ATV, Motorcycle, and Bicycle trails.	Includes 4WD, ATV, Motorcycle, Bicycle, and Equestrian trails.

Cumulative Impacts

Cumulative impacts under this alterative include an increase in the transportation system from future permitted routes. As the GRRA is 100 percent leased for oil and gas development, new wells and associated roads and pipelines will continue to be staked and developed. Additionally, the SJBEC project and other utility ROW will be established and new routes developed or existing routes enhanced to support these ROWs. New permitted routes would be evaluated according to the Route Evaluation Form to determine if they would be included as part of the public transportation network. Non-permitted

activities such as the use of user-created routes will be automatically considered closed, not added to the overall transportation network. Long-term management of this transportation network will be easier as compared to all other alternatives.

Due to the size of the designated transportation system under this alternative, BLM would be able to accomplish a higher level of implementation more quickly as compared to all other alternatives. Signs would be installed at a more appropriate density ratio to aid in accurate navigation than as compared to all other alternative. Available funding could be utilized to accomplish more implementation activities under Alternative C than any other alternative due to the smaller area and smaller transportation network. BLM would have a higher level of proactive management under this alternative than any other alternative. However, visitor satisfaction would likely be less under this alternative than all others due to the restrictions placed on travel. It is possible that this alternative would result in OHV users seeking out new areas to recreate that would have fewer management constraints.

3.11. Recreation

3.11.1. Affected Environment

The GRRA is a popular destination for a variety of recreation activities, including, but not limited to, OHV use, mountain biking, motorcycle trail riding, and hiking. Surrounded by the cities of Aztec and Farmington and communities of Flora Vista and La Plata, it is a convenient 'back yard' recreation area to a large percentage of the local populations. Recreation use of all types is heaviest in the spring and fall months when weather conditions are still relatively cool and higher elevation trail use areas are still under snow or are too muddy for use. Current recreation use is primarily unstructured and dispersed in nature with limited facility development.

The NRRSM for the GRRA shows the this area falls into a middle/rural classification for the physical setting which indicated that there are frequently used roads in the area (e.g., oil and gas development access roads), the area is close to highways and municipal roads and the visual characteristic of the landscape is considerably altered by industrial facilities throughout the area and residential development along the perimeter. Current facilities are of a primitive nature, not well defined and lacking information kiosk.

The social setting as indicated by the NRRSM for the GRRA shows this area falls into a back/middle country classification. This indicates that while the area supports frequent visitation, only occasional encounters with other visitors occur. Overall, group sizes encountered are relatively small but the sound of people can be regularly heard. Current evidence of recreational use shows that there are areas of vegetation removal and soil compaction (play areas and along routes), but in general these area are small.

The operational setting as documented by the NRRSM shows that the GRRA falls into the back/middle/front country classifications. This indicated that the area supports a wide variety of recreation activities and opportunities, has a greater level of rules and regulations, routes and areas may have restrictions or limitations associated with them but that there is little informational material available to the public (e.g., on-ground personnel, maps, and information kiosks).

Overall recreation demand is likely to increase at a rate similar to population growth. The overall timing of use (heavy weekend traffic and busy spring and fall weekends) will continue. BLM's management capacity including fiscal resources and personnel is expected to remain at a level similar to the current situation. General land use patterns near and adjacent to the planning area will continue. As changes are implemented, the public will become gradually aware of new or different recreation opportunities in the GRRA.

Recreation Demands and Trends

Based on observations by BLM staff, issuance of camping permits, and input received by the BLM during the development for the 2003 Farmington RMP, as well as comments received during the GRRA planning

process, the GRRA has seen increasing levels of use from all types of recreationists. The increase in recreation use is partly due to the increase in recreational vehicle ownerships and the increasing development adjacent to the GRRA. Over time, it is expected that many undeveloped private parcels adjacent to the GRRA will be developed or subdivided, further increasing the amount of local use. Factors such as an aging population and less disposable income for many residents have led to increased levels of outdoor recreation close to home (SCORP 2010).

There are only a few activity-based restrictions on recreation opportunities (e.g., prohibitions or closures) in the GRRA. Some of these are a direct result of the 2003 Farmington RMP, but more commonly these restrictions arise from supplementary rules. Supplementary rules are currently in effect for camping within the planning area by permit only, prohibiting the discharge of firearms except for licensed hunters of game birds on identified lands, and limiting all motorized and mechanical vehicles to designated routes (*Fed. Reg. Vol. 62, No. 183, Sept. 22, 1997)*. In addition, the demand for connected trail systems and trail-based recreation activities has increased as had the desire for facilities such as restrooms, camping areas and picnicking areas (SCORP 2010).

Special Recreation Permits

A variety of commercial, competitive, and organized group uses occur within the planning area. These uses are administered under SRPs, which allow specified recreational uses of public lands and related waters. The permits are issued to manage visitor use, protect natural and cultural resources, and provide for the health and safety of visitors.

Currently, only a handful of SRPs are permitted with in the GRRA. These include several competitive events, commercial outfitters, and organized groups. No vending permits have been issued in the past five years. Examples of permits issued within the GRRA are the RAR Mountain Bike Race, X-terra Triathlon, and Farmington Police Department School Resources Program. While there are a number of SRPs in the planning area that are renewed annually, it is likely that there are a many activates that require an SRP that are occurring without authorization.

3.11.2. Impacts from the No Action Alternative

Direct and Indirect Impacts

The No Action Alternative will result in a continuation of current trends regarding the recreation setting as described in Section 2.1.2.

The physical setting will be characterized primarily by primitive roads supporting oil and gas development throughout the GRRA and two county roads that provide the majority of access. Recreation infrastructure will continue at the current level with no new developments incorporated into the GRRA beyond basic signage. Recreation-related impacts will continue to grow and remain highly visible at dispersed OHV play areas and popular gathering points such as Brown Springs. These impacts will continue to increase in size and visibility as sites experience increased and sustained use. Capacity at day use and staging locations will continue to be determined by the size of pre-existing roadside pullouts rather than the quantity or quality of recreation opportunities available at that site. As signs of recreation-related impacts become apparent at individual locations, the sites will be evaluated for closure and rehabilitation without a long-term plan.

The social setting will likely see an increase in group sizes as users become more willing to congregate more frequently due to the fewer restrictions. The social setting will continue to feature visitors from similar socioeconomic backgrounds with a small increase in the number of visitors from outside the local area. Recreation use will be concentrated on weekends during the spring (March-June) and fall (August – November) high use periods. The largest crowds will be encountered during these periods. Perceptions of crowding and unreported or reported use conflict will remain moderately high.

The operational setting will continue to be characterized by the limited, infrequent presence of BLM personnel during the high use recreation seasons. Managerial controls will come mostly in the form of signage on trails and major staging areas outlining prohibited activities.

Overall, the NRRSM desired future conditions would not be met as additional facilities would not be authorized under this alternative. The RAR trail would continue to be the only designated trail system within the GRRA. No new trail development would occur under this alternative for either OHV or non-motorized uses. Information kiosks previously installed would be filled with information relevant to the GRRA.

Increased visitor use would not be managed for and would likely create increase pressure on existing route infrastructure. Conflicts between users would likely increase, with subsequent decreased quality of recreational experience. The amount of conflict that would occur is impossible to predict, however, it is reasonable to assume recreational experience is generally of a lower quality for both motorized and non-motorized users when they share the same route. The amount of decreased quality of that recreational experience is highly variable based on user attitude and behavior. However, a general estimate of the potential loss in recreational experience can be estimated by the number of existing and/or designated routes that are shared by both motorized and non-motorized recreationists. Table 41 in the Transportation Section indicates that 38 miles of the trails under this alternative can be shared by both motorized and non-motorized recreationists. Additionally, BLM would be unable to proactively manage recreation within the planning area including identifying new user-created routes, enforcing current rule and regulations, and apply for management funding.

Under the No Action Alternative, no restrictions will be placed on SRPs (e.g., group sizes that trigger the need for an SRP). The need to apply for an SRP will follow the current handbook and other relevant guidance. The application process will follow the current FFO guidelines and all fees will be established by the Director of the Interior.

Cumulative Impacts

The long-term impact of this alternative on recreation experiences would likely be positive for OHV users and negative for all other users. OHV opportunities would be kept at current levels and would not place restrictions on the approximately 200 miles of routes currently available for use. This would reduce BLM's ability to proactively manage and monitor the travel network, meet visitor needs (facilities) and make education and enforcement difficult. User-created routes are likely to proliferate, impacting non-motorized visitors, natural and cultural resources, and adjacent private property owners.

3.11.3. Impacts from Alternative A (Preferred Alternative)

Direct and Indirect Impacts

Impacts to the Recreation Setting

All aspects of the recreation setting (including physical, social and operational) will be altered to some degree under Alternative A. Primary changes will include modified parking areas, development of facilities and trails; increased management controls and the visibility of regulations; greater proximity to other users especially for trail use and developed day use areas.

These setting changes affect the type and distribution of recreation opportunities available within the planning area, the levels and patterns of visitor use and the quality recreational experiences desired by the visiting public. Management actions which improve opportunities for visitors seeking one form of recreation (i.e. trail-based opportunities) may diminish opportunities for visitors seeking other forms (i.e. dispersed riding). Similarly, finite management resources spent enhancing one opportunity will not be available to enhance another.

The physical setting within the planning area will be altered on a site-specific level as new facilities are installed, trailheads and trails are modified, and signage is installed throughout the area. In general, the

physical setting will become more managed and defined for the visitor. The overall experience of travelling throughout the planning area will be that of a well identified looped trail system.

The majority of routes within the recreation area will see some degree of alteration, regardless of alternative. This could include increased signage, maintenance or rerouting of various sections and an increase in the number of physical barriers to mechanical or vehicle traffic. Changes to the physical setting will also result in changes to the carrying capacity for varying uses (day use, overnight use, etc.).

The physical setting will also be affected as signage throughout the GRRA will change and become more consistent and visible. Proposed reclamation of closed routes and mitigation on designated routes will increase the amount of native vegetation visible from roadways and other facilities and decrease the number of user-created trails that will be encountered.

The social setting within the planning area is dictated by overall rate and type of use. Group size and the timing of use (i.e. weekdays vs. weekends) has a large influence on social setting characteristics including crowding and conflict between users. Proximity to other users at certain locations will increase as they are developed. The overall distribution of visitors is likely to become more concentrated as access is restricted and visitors are steered towards developed locations and designated trails.

Dumping, audible shooting and vandalism affect the physical and social aspects of the recreation setting. Under alternatives A and C, these activities are expected to decrease. Closing known shooting areas and limiting access on roads to individual sites known for dumping or shooting will result in fewer locations for these activities to occur.

All action alternatives will change the nature of the operational setting through establishment of additional rules and protocol for visitors. Managerial controls will come mostly in the form of signage on trails and major staging areas outlining prohibited activities.

Overall, the NRRSM desired future conditions would be met as additional facilities are developed as authorized under this alternative. An extensive trail network system would be designated for the majority of recreation activities found within the GRRA. New trails could be identified in the future and, following appropriate levels of review, incorporated into the trail system. Information kiosks currently located within the GRRA would be filled with information relevant to the GRRA, including trail maps and regulation information.

Increased visitor use would be managed for however; it would likely create increase pressure on designated route infrastructure due to the decrease in the designated travel network. Within Alternative A, there is some separation of trails for motorized and non-motorized recreation. However, conflicts between users could increase if non-motorized users decided to utilize motorized trails, which would subsequently decreased the quality of recreational experience. The amount of conflict that would occur is impossible to predict, however, it is reasonable to assume recreational experience is generally of a lower quality for both motorized and non-motorized users when they share the same route. The amount of decreased quality of that recreational experience is highly variable based on user attitude and behavior. However, a general estimate of the potential loss in recreational experience can be estimated by the number of existing and/or designated routes that are shared by both motorized and non-motorized recreationists. Table 42 in the Transportation Section indicates that 126 miles of the trails under this alternative can be shared by both motorized and non-motorized recreationists.

Visitor use would likely increase as new trails are created and word spreads about the opportunities available within the GRRA. With an increase in visitor use, facilities and routes are likely to become more congested and overall visitor experiences will change. Use conflicts would continue to be an issue in areas where there is competition for non-motorized and motorized use on roads and trails and at other recreation facilities, such as staging areas. Individual conflicts are temporary and localized, but would continue to have long-term adverse effects on the visitor experience.

Cumulative Impacts

The long-term impacts under this alternative are likely to be positive for the majority of recreation users. With a designated route system, appropriate signage, visitor education and accurate maps, BLM will be able to be proactive in managing and monitoring the route network in the planning area and provide for visitor services (facilities). Impacts to resources are likely to be reduced as monitoring would identify potential issues and allow BLM to adaptively mitigate such issues before they become problems. Overall visitor satisfaction will likely be positive due to the number and amount of recreation opportunities available to OHV and non-motorized users.

3.11.4. Impacts from Alternative B

Direct and Indirect Impacts

Impacts to the Recreation Setting

All aspects of the recreation setting (including physical, social and operational) will be altered to some degree under Alternative B. Primary changes will include modified parking areas, development of facilities and trails; visibility of regulations; greater proximity to other users especially for trail use and developed day use areas.

These setting changes affect the type and distribution of recreation opportunities available within the planning area, the levels and patterns of visitor use and the quality recreational experiences desired by the visiting public. Management actions which improve opportunities for visitors seeking one form of recreation (i.e. trail-based opportunities) may diminish opportunities for visitors seeking other forms (i.e. dispersed riding). Similarly, finite management resources spent enhancing one opportunity will not be available to enhance another.

The physical setting within the planning area will be altered on a site-specific level as new facilities are installed, trailheads and trails are modified, and signage is installed throughout the area. Not all routes identified in this alternative would see the same levels of modification. Due to the higher total miles of routes available for use, designated trails and high use areas would receive priority for any level of development (trail maintenance, signage, and facilities). In general, the physical setting will become more managed and defined for the visitor, however the overall experience of travelling throughout the planning area will still likely cause confusion to infrequent visitors.

Fewer routes within the recreation area will identified for alterations. These alterations could include increased signage, maintenance or rerouting of various sections and an increase in the number of physical barriers to mechanical or vehicle traffic. Changes to the physical setting will also result in changes to the carrying capacity for varying uses (day use, overnight use, etc.).

Overall, the physical setting will be affected as signage throughout the GRRA changes to become more consistent and visible. The naturalness of the area will continue at current levels as fewer routes are reclaimed. User-created routes are expected to continue to be created and will be less quickly identified and closed under this alternative as compared to the other action alternatives.

The social setting within the planning area is dictated by overall rate and type of use. Group size and the timing of use (i.e. weekdays vs. weekends) has a large influence on social setting characteristics including crowding and conflict between users. Proximity to other users at certain locations will increase as they are developed. The overall distribution of visitors is likely to be more dispersed under this alternative as more routes are available for use. Some visitor concentrated is anticipated to occur as visitors are steered towards developed facilities (staging/parking areas and trailheads).

Dumping, audible shooting and vandalism affect the physical and social aspects of the recreation setting. Under this alternative, these activities are expected to remain fairly consistent to current conditions. The larger number of routes designated for use will decrease BLMs ability to monitor all routes and areas on a consistent basis. Closing known shooting areas and limiting access on roads to individual sites will result

in fewer locations for these activities to occur, however, it is likely that other areas will be impacted as these areas identified and closed.

All action alternatives will change the nature of the operational setting through establishment of additional rules and protocol for visitors. Managerial controls will come mostly in the form of signage on trails and major staging areas outlining prohibited activities.

Overall, the NRRSM desired future conditions for the physical setting would be met as additional facilities are developed as authorized under this alternative. Though an extensive trail network system would be designated for the majority of recreation activities found within the GRRA, the social setting for the areas would still be maintained at the current back country classification. As new trails could be identified in the future and incorporated into the trail system, this would further enhance the back country classification. Information kiosks currently located within the GRRA would be filled with information relevant to the GRRA, including a trail map and regulation information and would meet the desired future condition for the operational setting.

Increased visitor use would be difficult to manage for and would likely create increase pressure on designated route infrastructure. Conflicts between users would likely increase, with subsequent decreased quality of recreational experience. However, due to the large network of designated routes available for use, these increases are likely to be minimal. The amount of conflict that would occur is impossible to predict, however, it is reasonable to assume recreational experience is generally of a lower quality for both motorized and non-motorized users when they share the same route. The amount of decreased quality of that recreational experience is highly variable based on user attitude and behavior. However, a general estimate of the potential loss in recreational experience can be estimated by the number of existing and/or designated routes that are shared by both motorized and non-motorized recreationists. Table 43 in the Transportation Section indicates that 162 miles of the trails under this alternative are shared by both motorized and non-motorized recreationists. Additionally, BLM would be unable to proactively manage recreation within the planning area including identifying new user-created routes, enforcing current rule and regulations, and apply for management funding.

Visitor use would likely increase as new trails are created and word spreads about the opportunities available within the GRRA. With an increase in visitor use, facilities are likely to become more congested and overall visitor experiences will change. Use conflicts would continue to be an issue in areas where there is competition for non-motorized and motorized use on roads and trails and at other recreation facilities, such as staging areas. Individual conflicts are temporary and localized, but would continue to have long-term adverse effects on the visitor experience.

Cumulative Impacts

The long-term impact of this alternative on recreation experiences would likely be positive for OHV users and negative for all other users. OHV opportunities would expand under this alternative, reducing BLM's ability to proactively manage and monitor the travel network, meet visitor needs (facilities) and would make education and enforcement difficult. Overall visitor satisfaction will likely be positive due to the number and amount of recreation opportunities available to OHV and non-motorized users.

3.11.5. Impacts from Alternative C

Direct and Indirect Impacts

Impacts to the Recreation Setting

All aspects of the recreation setting (including physical, social and operational) will be altered to some degree under Alternative A. Primary changes will include modified parking areas, development of facilities and trails; increased management controls and the visibility of regulations; greater proximity to other users especially for trail use and developed day use areas.

These setting changes affect the type and distribution of recreation opportunities available within the planning area, the levels and patterns of visitor use and the quality recreational experiences desired by

the visiting public. Management actions which improve opportunities for visitors seeking one form of recreation (i.e. trail-based opportunities) may diminish opportunities for visitors seeking other forms (i.e. dispersed riding). Similarly, finite management resources spent enhancing one opportunity will not be available to enhance another.

The physical setting within the planning area will be altered on a site-specific level as new facilities are installed, trailheads and trails are modified, and signage is installed throughout the area. In general, the physical setting will become more managed and defined for the visitor. The overall experience of travelling throughout the planning area will be that of a well identified looped trail system.

The majority of routes within the recreation area will see some degree of alteration, regardless of alternative. This could include increased signage, maintenance or rerouting of various sections and an increase in the number of physical barriers to mechanical or vehicle traffic. Changes to the physical setting will also result in changes to the carrying capacity for varying uses (day use, overnight use, etc.).

The physical setting will also be affected as signage throughout the GRRA will change and become more consistent and visible. Proposed reclamation of closed routes and mitigation on designated routes will increase the amount of native vegetation visible from roadways and other facilities and decrease the number of user-created trails that would be encountered.

The social setting within the planning area is dictated by overall rate and type of use. Group size and the timing of use (i.e. weekdays vs. weekends) has a large influence on social setting characteristics including crowding and conflict between users. Proximity to other users at certain locations will increase as they are developed. The overall distribution of visitors is likely to become more concentrated as access is restricted and visitors are steered towards developed locations and designated trails.

Dumping, audible shooting and vandalism affect the physical and social aspects of the recreation setting. Under alternatives A and C, these activities are expected to decrease. Closing known shooting areas and limiting access on roads to individual sites known for dumping or shooting will result in fewer locations for these activities to occur.

All action alternatives will change the nature of the operational setting through establishment of additional rules and protocol for visitors. Managerial controls will come mostly in the form of signage on trails and major staging areas outlining prohibited activities.

Overall, the NRRSM desired future conditions would be met as additional facilities are developed as authorized under this alternative. A trail network would be designated for the majority of recreation activities found within the GRRA. New trails could be identified in the future and, following appropriate levels of review, incorporated into the trail system. Information kiosks currently located within the GRRA would be filled with information relevant to the GRRA, including a trail map and regulation information.

Visitor use would decrease as fewer trails are designated under this alternative. It is possible that visitors may start avoiding the area due to the limited amount of trail and the presence of a non-motorized (closed to OHV use) area. Even with this decrease in visitor use, facilities and routes are likely to become more congested and overall visitor experiences will be impacted as fewer routes creates a higher concentration of users. Conflicts between users would likely increase, with subsequent decreased quality of recreational experience. The amount of conflict that would occur is impossible to predict, however, it is reasonable to assume recreational experience is generally of a lower quality for both motorized and non-motorized users when they share the same route. The amount of decreased quality of that recreational experience is highly variable based on user attitude and behavior. However, a general estimate of the potential loss in recreational experience can be estimated by the number of existing and/or designated routes that are shared by both motorized and non-motorized recreationists. Table 44 in the Transportation Section indicates that 82 miles of the trails under this alternative are shared by both motorized and non-motorized recreationists

Cumulative Impacts

The long-term impacts of this alternative would include increasing BLMs ability to monitor and maintain a designated network of routes on public lands. Higher monitoring level will also allow BLM to proactively manage recreation and visitor needs. However, the reduction in total area and number of routes open to OHV users will likely increase congestion on designated routes, decreasing visitors experiences throughout the area. Non-motorized users will likely have an increase in positive recreation experiences as they would have an area that would be closed to OHV use.

3.12. Livestock Grazing

3.12.1. Affected Environment

Livestock grazing is authorized by FLPMA, the Taylor Grazing Act of 1937 and the Public Rangelands Improvement Act of 1978. The principle objective of the rangeland program is to promote healthy, sustainable rangeland ecosystems; to accelerate restoration and improvement of public rangeland to properly functioning condition; to promote the orderly use, improvement and development of the public lands. Additional information on the FFOs grazing program can be found on pages 3-54 and 3-55 of the 2003 Farmington PRMP/FEIS.

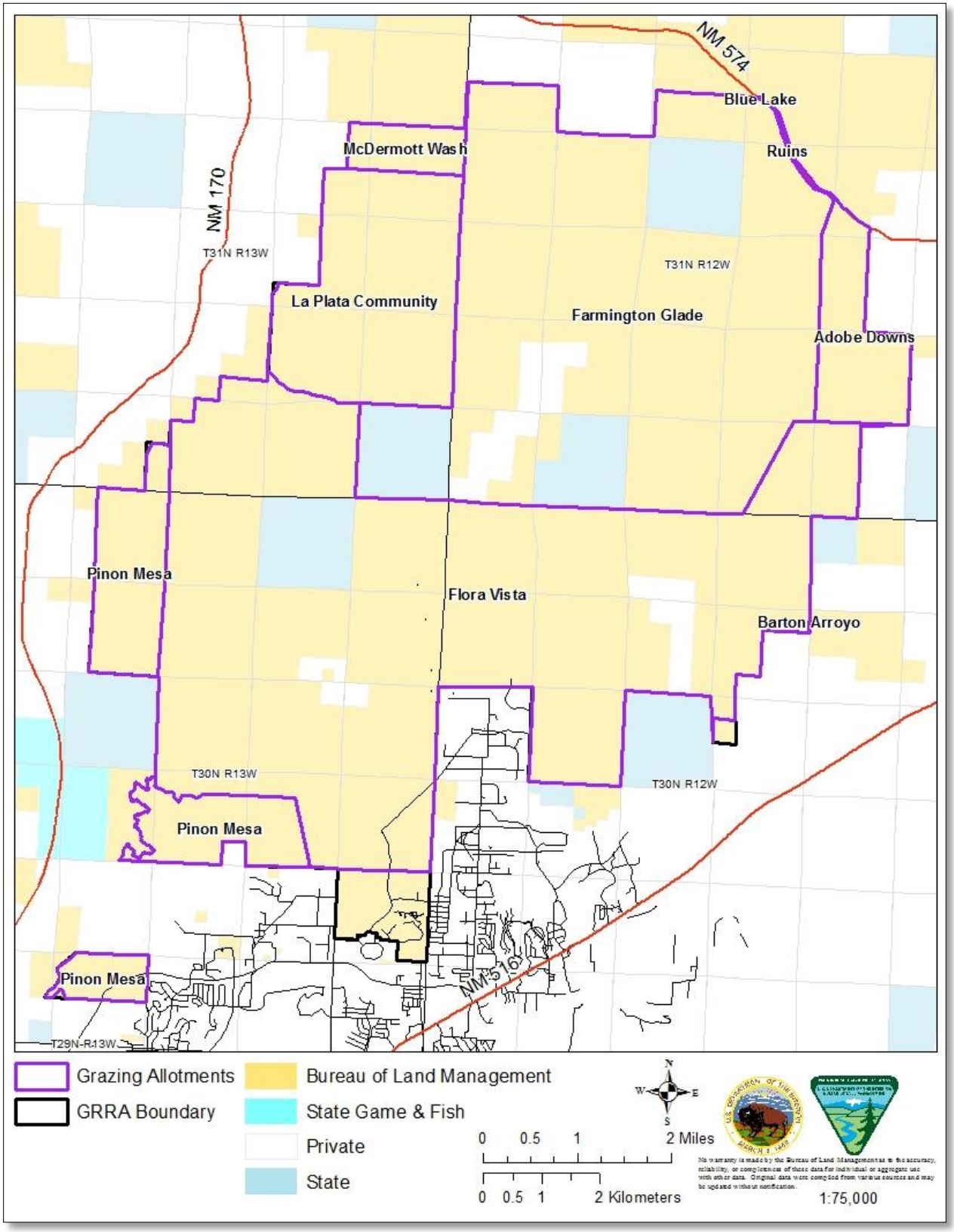
The GRRA planning area includes portions of six livestock grazing allotments administrated by the FFO (Figure 35). Generally, grazing occurs during the spring, fall or winter within these areas by cattle and sheep. A variety of range improvements exist within GRRA including fences, cattle guards, springs, reservoirs and water catchments. Grazing permittees are responsible for the maintenance of these improvements as assigned by their grazing permit. In most cases there is access to these improvements via a primitive road. Table 45 provides additional information about the grazing allotments found within the GRRA planning area.

Table 45. Livestock Authorizations by Allotment

Allotment	Season of Use	Type of Livestock
5010 – Pinion Mesa	12/1-4/30	Cattle
5140 – Flora Vista	11/3-5/13	Sheep
5016 – Farmington Glade	11/1-5/31	Cattle
5017 - McDermott Wash	10/1-4/30	Cattle
5018 – La Plata Community	11/1-4/30	Cattle
5019 – Adobe Downs	11/1-5/31	Cattle

BLM grazing permits are issued for no more than ten years. Existing grazing permittees are given the opportunity to renew the permit and are given preference when applying for renewal. Grazing permits are tied to base property to which BLM has attached “preference” for a grazing permit. During the grazing permit renewal process grazing allotments are monitored and evaluated for conformance with the terms and conditions of the permit, rangeland health is evaluated, and a NEPA analysis is done to analyze the impacts of the action of renewing, changing or not issuing a grazing permit. Livestock stocking rates are adjusted annually by the permittee, in coordination with the permittee, or by the BLM when necessary to accommodate drought or other impacting conditions. In the last five years, none of the allotments have been stocked to the full permit numbers. On average, permits have been stocked to approximately 65% or less than the permitted numbers.

Figure 35. Range Allotments in the Planning Area



During the rangeland health evaluation process, a series of elements is considered to determine whether or not the lands are meeting fundamentals of rangeland health. If lands are found to not be meeting, the authorized officer must determine the causal factors for not meeting. If lands are not meeting and the causal factors for not meeting have been identified, the authorized officer must take corrective action to work towards meeting the fundamentals of rangeland health. If livestock grazing is determined to be the causal factor, the authorized officer should take corrective action to work towards meeting the fundamentals. Prior to 1998, the BLM evaluated allotments for grazing permit renewal in similar fashion, however, the data collected and data analyzed have changed. All of the grazing allotments that are in or overlap the Glade recreation area meet the fundamentals of rangeland health. While portions of those allotments may not meet, the overall allotments meet the standards for rangeland health. Portions of the lands in the Glade Recreation Area that do not meet the standards for rangeland health have been identified, however the causal factors for not meeting include but are not limited too; succession of vegetative communities (late seral stage plant communities), increased erosion caused by trails and soils disturbance, historical (1930-1970's) grazing management, lack of natural or prescribed fire, and invasive plants (cheatgrass, knapweed).

Additionally, the FFO continually implements range improvement projects to improve or maintain the fundamentals of rangeland health. Many of the improvements done include vegetation treatments such as; prescribed fire, range seeding, sagebrush and juniper thinning, weed spraying and mechanical thinning to improve desired plant species. All range improvements are done with limited budgets and priorities must be made when planning projects.

In general livestock management and recreation uses can occur in harmony if use levels are not excessive and range improvements are not damaged. Annually, the FFO receives complaints from grazing permittees and private landowners about cross country travel (new disturbance), trash dumping, fences being cut repetitively, gates being left open and vandalism. Grazing permittees are responsible for fence maintenance and control of their livestock. In the Flora Vista grazing allotment, there are occasional incidents involving livestock herding dogs and the recreating public. The greater the trail system and the amount of users the greater the potential is for impacts to vegetation and overall livestock management. Potential impacts to vegetation that would be detrimental to livestock management is the reduction in cover of forage species, reduction in overall vegetative cover and an increase in undesirable species such as noxious weeds. Potential impacts to livestock include intentional harassment, unintentional disruptions especially during calving period and disruption of overall management. Potential impacts to range improvements include vandalism of a capital investment and actions influencing the purpose of the improvement which is to improve grazing management by improving livestock distribution and utilization levels of forage species. Gates left open by users can be an impact to livestock management by influencing pasture rotations and causing trespass issues. Trails and routes passing through fences should be equipped with a cattle guard of some type to prevent unwanted livestock movement.

3.12.2. Impacts from the No Action Alternative

Direct and Indirect Impacts

Current recreation activities have some negative impact on livestock grazing management. Occasionally, gates along interior and exterior fence lines are left open when gates need to be closed to control livestock grazing. In addition, gates are occasionally found closed when they are to be left open while livestock grazing permittees are making pasture moves. Local landowners have reported rising problems with recreational trail users trespassing onto their private lands from adjacent public lands in the GRRA and the continual cutting of fence lines throughout the area. The predicted increase in recreation use would lead to an increase of these types of incidents and would more seriously impact livestock grazing management in the future.

Cumulative Impacts

The cumulative impacts analysis area for grazing includes those portions of the existing grazing allotments that overlap with the GRRA boundary. This allows for the disclosure of the cumulative impacts on livestock grazing for all past, present, and reasonably foreseeable future actions that could impact the

same grazing allotments that the proposed plan alternatives would impact. A continuation of the current situation under the No Action Alternative would continue to impact livestock grazing management. Route proliferation would impact rangeland health conditions and increase the interactions between recreation users and livestock. As recreational use increase, livestock distribution, impacts to range improvements and gate compliance would be expected to worsen. Increased route proliferation could eventually disturb and cause the loss of vegetation to the point that livestock grazing permits could have to be reduced or cancelled in order to maintain some rangeland health. Excessive route proliferation and unmanaged land use would result in not being able to maintain any land health standards.

3.12.3. Impacts from Alternative A (Preferred Alternative)

Direct and Indirect Impacts

Livestock management would benefit the most under Alternatives A and C in comparison to the No Action Alternative and Alternative B by reducing the amount, intensity and scope of recreation-related impacts to livestock. The overall degree of cattle disturbance from recreation would decrease and livestock distribution would increase. Trail closures would benefit livestock management simply by reducing the overall intensity and scope of recreation activities that would occur within the grazing allotments. Trail closures would allow for improved cattle distribution simply by reducing the amount of human/livestock interaction and disturbance within each grazing pasture and allotment. Trail closures would reduce the risk of motorized and non-motorized encounters on many trails throughout the planning area. Although accidents between users and livestock have been reported, the potential for future accidents would be reduced. The creation of administrative access-only routes would decrease recreation interactions with cattle at water sources allowing for fewer disturbances of cattle while at water and overall improved livestock distribution.

The development of parking/staging areas would reduce the impacts to livestock operations by limiting site expansion and concentrating recreational staging and off-loading in these areas.

Cumulative Impacts

Under this alternative, impacts to livestock grazing management would not be expected to increase as recreation users would be limited to designated routes. Route proliferation would be reduced increasing rangeland health conditions over the long term and decreasing the interactions between recreation users and livestock. Even as recreational use increases, there would be a minimal impact to livestock distribution and rangeland improvements. Rangeland health, or landscape health, would best be accomplished by this alternative. Even if recreation participation increases, managed recreation would allow for continued maintenance and improvement of the land to meet land health standards. Livestock grazing may have to be adjusted annually based on environmental conditions, but not adjusted because of a loss of grazing lands.

3.12.4. Impacts from Alternative B

Direct and Indirect Impacts

Impacts to grazing under this alternative would be similar to the No Action Alternative. Current recreation activities have some negative impact on livestock grazing management. Occasionally, gates along interior and exterior fence lines are left open when gates need to be closed to control livestock grazing. In addition, gates are occasionally found closed when they are to be left open while livestock grazing permittees are making pasture moves. Local landowners have reported rising problems with recreational trail users trespassing onto their private lands from adjacent public lands in the GRRA and the continual cutting of fence lines throughout the area. The predicted increase in recreation use would lead to an increase of these types of incidents and would more seriously impact livestock grazing management in the future. Unmanaged recreation use that impacts private lands and private and federal financial investments (range improvements), would reduce the priority and benefit of such investments. Land health would likely deteriorate and land health standards would not be maintained or achievable. Livestock grazing permits would have to be reduced or cancelled.

Cumulative Impacts

Under this alternative, there would be an increase in impacts to impact livestock grazing management. Route proliferation would impact rangeland health conditions and increase the interactions between recreation users and livestock. As recreational use increase, livestock distribution, impacts to range improvements and gate compliance would be expected to worsen.

3.12.5. Impacts from Alternative C

Direct and Indirect Impacts

Impacts to grazing under this alternative would be similar to Alternative A. Livestock management would benefit the most under Alternatives A and C in comparison to the No Action Alternative and Alternative B by reducing the amount, intensity and scope of recreation-related impacts to livestock. The overall degree of cattle disturbance from recreation would decrease and livestock distribution would increase. Trail closures would benefit livestock management simply by reducing the overall intensity and scope of recreation activities that would occur within the grazing allotments. Trail closures would allow for improved cattle distribution simply by reducing the amount of human/livestock interaction and disturbance within each grazing pasture and allotment. Trail closures would reduce the risk of motorized and non-motorized encounters on many trails throughout the planning area. Although accidents between users and livestock have been reported, the potential for future accidents would be reduced. The creation of administrative access-only routes would decrease recreation interactions with cattle at water sources allowing for fewer disturbances of cattle while at water and overall improved livestock distribution.

The development of parking/staging areas would reduce the impacts to livestock operations by limiting site expansion and concentrating recreational staging and off-loading in these areas.

Cumulative Impacts

Under this alternative, impacts to livestock grazing management would not be expected to increase as recreation users would be limited to designated routes. Route proliferation would be reduced increasing rangeland health conditions over the long term and decreasing the interactions between recreation users and livestock. Even as recreational use increases, there would be a minimal impact to livestock distribution and rangeland improvements. Even if recreation participation increases, managed recreation would allow for continued maintenance and improvement of the land to meet land health standards. Livestock grazing may have to be adjusted annually based on environmental conditions, but not adjusted because of a loss of grazing lands.

3.13. Social and Economic Features

3.13.1. Affected Environment

Population

The study area is located entirely in San Juan County, New Mexico. As shown in Table 46, the county has a population of approximately 130,170 as of 2010. The largest city in the region is Farmington, New Mexico (population 45,895 in 2010). Table 47 provides the population for various towns located proximate to the study area.

Table 46. Study Area Population Trends

Location	2000	2010	Percent Change 2000-2010	Projected 2020	Projected Percent Change 2010-2020
San Juan County	113,801	130,170	14.4	146,388	12.5
New Mexico	1,819,046	2,065,826	13.6	2,351,724	13.8
Source: Geospatial and Population Studies Group 2012, US Census Bureau 2000b					

Table 47. Study Area Population Centers

State	Population 2010
Farmington	45,895
Aztec	6,763
Bloomfield	8,112
Source: US Census Bureau 2010b	

In 2010, the population density in San Juan County (23.6 persons 4 per square mile) was higher than that of the state average in New Mexico (17.0 persons per square mile). The study area as a whole is sparsely populated compared to the national average of 79.6 persons per square mile (US Census Bureau 2010b). As shown in Table 42, over the next 10 years, population growth in San Juan County may slow slightly relative to the previous decade.

Income and Employment

As shown in Table 48, Study Area Income and Employment, the median household income and per capita income for San Juan County has generally followed the statewide trend, based on both 2000 and 2010 census data. Unemployment rates increased between 2000 and 2011, similar to state and national trends. San Juan County unemployment rates have remained slightly above the New Mexico state average as shown in Table 48.

Table 48. Study Area Income and Employment

Year	San Juan County	New Mexico
Median Household Income in Dollars		
2000	33,762	34,133
2010	43,783	43,820
Per Capita Income in Dollars		
2000	14,282	17,261
2010	31,232	22,996
Unemployment Rate (annual percent)		
2000	5.8	5.0
2010	9.1	7.9
2011	7.8	7.4
Source: US Census Bureau 2000a, 2010b; BLS 2012		

Per capita income is usually derived from two primary sources; labor and non-labor. Non-labor income is money earned from investments (such as dividends, interest, and rent) and transfer payments (such as government retirement, disability insurance benefits, and unemployment insurance benefits). The rate of non-labor income in San Juan County is lower than that of New Mexico's average (34.7 and 38 percent respectively; Headwaters Economics 2012).

Table 49 shows the largest labor income employment sectors in the study area. These include retail trade, construction, health care, accommodation and food services, and government employment. The mining and energy development sector, specifically oil and gas development, represents a substantial source of employment in San Juan County, with approximately 13 percent of total private employment related to this sector. Additional jobs in construction may be related to mining or energy development. Substantial portions of the oil and gas industry, especially support activities such as excavation, trucking, and servicing, may also be conducted by sole proprietors, which are not accounted for in the table.

Some local oil and gas industry experts believe that peak oil and gas production in the San Juan Basin occurred in the late 1990s (EPS 2011). Based on this information, the long-term outlook (15 to 30 years and beyond) suggests a slow overall decline in production volume, revenues, and employment. Over shorter timeframes, the San Juan Basin will likely continue to experience temporary spikes in exploration and production as oil and gas commodity prices change with global demand and economic cycles, consistent with the history of the area (EPS 2011).

Table 49. Study Area Employment by Sector (2010)

	San Juan County		New Mexico	
	Jobs	Percent of Total Jobs	Jobs	Percent of Total Jobs
Total Employment	62,508	100	1,064,452	100
Farm Employment	1,887	3	24,710	2
Non-farm Employment	60,621	97	1,039,742	98
Private Non-farm Employment	49,071	79	822,436	77
Private Non-Farm Jobs				
Forestry, Fishing, and Related	(D)	NA	5,327	1
Mining and Energy Development	6,575	13	25,938	3
Utilities	1,117	2	4,560	1
Construction	4,880	10	62,460	8
Manufacturing	1,942	4	35,711	4
Wholesale Trade	1,980	4	26,803	3
Retail Trade	7,335	15	111,810	14
Transportation and Warehousing	1,545	3	23,705	3
Information	(D)	NA	16,867	2
Finance and Insurance	1,440	3	36,640	4
Real Estate and Rental and Leasing	(D)	NA	39,701	5
Professional, Scientific, and Technical	1,755	4	79,161	10
Management of Companies and Enterprises	262	1	5,511	1
Administrative and Waste Management	1,967	4	55,493	7
Educational Services	719	1	16,699	2
Health Care and Social Assistance	6,436	13	120,088	15
Arts, Entertainment, and Recreation	1,003	2	23,407	3
Accommodation and Food Services	4,316	9	81,622	10
Other Services	3,284	7	50,933	6
Government	11,550	24	217,306	26
Federal-Civilian	1,704	3	33,722	4
Military	352	1	17,136	2
State Government	472	1	60,274	13
Local Government	9,022	18	106,174	7

(D) Not shown to avoid disclosure of confidential information, but the estimates for this item are included in the total.
Source: Bureau of Economic Analysis 2012

There is sparse documentation for the number of visitors to northwest New Mexico that make use of the GRRA. The New Mexico Department of Tourism estimates that visitor travel expenditures increased by about 77 percent between 1989 and 1999, from $2.0 billion to $3.6 billion throughout the state. Though visitation rates are not collected for the planning area, BLM staff note a moderate, steady increase in the use of developed and dispersed recreation sites throughout the area. The Farmington Convention and Visitor Bureau, through visitor surveys, indicated that the most popular visitor destination in the region is Navajo Lake Reservoir.

Housing

San Juan County had 10 percent vacancy rate for housing units in 2010 (Table 50). San Juan County had a lower vacancy rate than the New Mexico average.

Table 50. Study Area Housing Data (2010)

Location	Total Housing Units	Total Occupied Units	Total Vacant Units	Percent Occupied Units	Percent Vacant Units
San Juan County	49,341	44,404	4,937	90.0	10.0
New Mexico	901,388	791,395	109,993	97.8	12.2
Source: US Census Bureau 2010a					

The majority of vacant units are used for seasonal or recreational use as shown in Table 51.

Table 51. Study Area Housing Data (2010) – Vacant Housing Units

Location	For Rent	Rented, Not Occupied	For Sale Only	Sold, Not Occupied	For Seasonal, Recreational, or Occasional Use	All Other Vacant
San Juan County	1,155	84	419	149	1,329	1,801
New Mexico	22,150	1,303	11,050	2,143	36,612	36,735
Source: US Census Bureau 2010a						

Within San Juan County, growing OHV use and other forms of motorized recreation are generally perceived as having degraded the quiet atmosphere of the surrounding area. During weekends, particularly in the spring and fall, intensive motorized recreation use has resulted in periods of high decibel noise, vehicle-generated dust, littering, trespass on adjacent private lands, harassment and displacement of livestock, and damage to fences, troughs, and pipelines on both private and public lands. Non-motorized recreational users are perceived as generating much less noise, and somewhat lower levels of dust, but can otherwise are thought to create many of the same problems as listed above, including damage to livestock facilities and trespass.

Taxes

Taxes collected and distributed at the local level include sales tax, lodging tax and ad valorem taxes. In addition, payments in lieu of taxes (PILT) are contributed to local governments from federal and tribal governments.

Sales and Lodging Taxes

Sales taxes are generally imposed on all retail sales, leases and rentals of most goods, as well as on taxable services. In New Mexico, state sales tax is set at 5.13 percent. Counties have additional sales taxes of up to 3.43 percent. In San Juan County, the additional sales tax is 1.18 percent, for a total sales tax in the county of 6.13 percent. County tax revenues for 2010 were $33,217,840 (San Juan County 2012). Municipalities can impose additional sales taxes over and above state and county sales tax rates.

Lodging taxes are imposed on room rentals or accommodations, including bed and breakfasts and short-term or vacation home rentals. San Juan County does not have a lodging tax, but the COF imposes a lodging tax of 5 percent. The COF collected approximately $1,068,354 in lodging taxes in 2011. Similarly, in Bloomfield and Aztec the lodging tax rate is set at 3 percent, and total receipts were $13,628 and $10,497, respectively, in 2011 (Bureau of Business and Economic Research 2011).

Ad Valorem Taxes

Ad valorem taxes are levied based on the assessed value of property. Personal property taxes are one type of ad valorem tax; taxes can also be levied on commercial real estate, oil and gas production, or equipment (such as that required for oil and gas development). Property taxes for a given municipality in New Mexico are determined by a formula based on the appraised value of a home.

In New Mexico, the property assessment ratio is 33.33 percent of the full assessed value. Mill levy rates vary by county and municipality based on the budgets submitted by counties, schools, cities and the

voters through the approval of bond issues (New Mexico Taxation and Revenue Department 2012). Ad valorem tax revenue for San Juan County in 2010 was $21,800,443 for property taxes and $10,480,170 for oil and gas taxes (San Juan County 2012). For the state of New Mexico in 2009, ad valorem taxes were distributed with approximately 4 percent to the state debt service, 31 percent to counties, 14 percent to municipal services, 32 percent to local school districts, and 10 percent to higher education. Rates of distribution vary for residential, non-residential, and ad valorem taxes.

Payments in Lieu of Taxes

PILT are payments to local governments that help offset losses in property taxes due to nontaxable lands within their boundaries. Federal PILT payments to San Juan County amounted to $2,054,090 in Fiscal Year 2010 (San Juan County 2012).

Public Utilities

In San Juan County, New Mexico, electricity and transmission services are supplied primarily by the Farmington Electric Utility System, which is owned and operated by the COF. The service territory includes 1,718 square miles and encompasses the COF, most of the populated area of San Juan County (including the cities of Bloomfield, Aztec, and the San Juan River Valley west from the city to the Navajo reservation). The utility also provides transmission services for the City of Aztec and to Tri-State Generation and Transmission Association. As of fiscal year 2009 the utility served 43,606 customers in total (COF 2012).

3.13.2. Impacts from the No Action Alternative

Direct and Indirect Impacts

Designation of all existing routes as the defined transportation system would not increase the amount of route miles available; however it is likely that over time an increase in the intensity of recreational use would increase proportionately to a probable on-going increase in the sales and use of recreational vehicles. Continued unmanaged noise, dust, and increased use of public land resources for motorized recreation could reasonably be expected to generally degrade the quality of life in the county and increase BLM and local government costs to monitor, regulate, and control the increase in visitors. Concerns related to private land trespass and routes directly adjacent to private lands impacting these lands would not be eliminated by this alternative as the routes that now generate to these issues would remain open for use.

Potential conflict between users would provide some risk to human health and safety. The highest risk to public health and safety is in the form of potential collisions between motorized and non-motorized users. Approximately 38 miles of the routes under this alternative would be shared by motorized and non-motorized users and would present this risk.

A consequence of the increase in intensity of use could be the displacement of some users to other locations if the higher levels of use detracted from their experience and/or resulted in a sense of overcrowding.

3.13.3. Impacts from Alternative A (Preferred Action)

Direct and Indirect Impacts

The creation of a maintained, designated route system; a 54 percent reduction in the miles of routes available for motorized use; the placement of informational, regulatory, educational and directional signs; and the establishment of designated staging areas with safe, off-highway parking could be reasonably expected to result in reductions in dust, noise, vandalism and trespass problems that are currently affecting local residents and permittees during periods of high recreation use.

However it is likely that over time there would be an increase in the intensity of motorized recreational use of the study area, as a result of the proportional increase in the population of the study area. A

consequence of the increase in intensity of use could be the displacement of some users to other locations if the higher levels of use detracted from their experience and/or resulted in a sense of overcrowding.

Potential conflict between users would provide some risk to human health and safety. The highest risk to public health and safety is in the form of potential collisions between motorized and non-motorized users. Approximately 126 miles of the routes under this alternative would be shared by motorized and non-motorized users and would present this risk.

It can be reasonably anticipated that implementation of the preferred alternative would result in continued, more well regulated, use of the GRRA by multiple user groups. This continued and perhaps increased use of the study area by recreationists would benefit local businesses such as lodging vendors, restaurants, and fuel and supply vendors. Local land owners and permittees may have fewer problems with trespass, facility damage, and livestock harassment, resulting in improved local relations between recreationists, residents, and the BLM.

3.13.4. Impacts from Alternative B

Direct and Indirect Impacts

Under this alternative, there would only be about a 31 percent reduction in routes available for motorized use. Although these routes would be formally sanctioned, the BLMs and local governments cost to monitor, regulate, and control the increase in visitors would increase substantially. Concerns related to private land trespass and routes directly adjacent to private lands impacting these lands would not be affected by this alternative as the routes that generate these issues would remain open for use, except in a limited number of circumstances (i.e. riparian areas). The placement of informational, regulatory, educational and directional signs; and the establishment of designated staging areas with safe, off-highway parking are anticipated to result in reductions in dust, noise, vandalism and trespass problems that are currently affecting local residents and permittees during periods of high recreation use.

Potential conflict between users would provide some risk to human health and safety. The highest risk to public health and safety is in the form of potential collisions between motorized and non-motorized users. Approximately 162 miles of the routes under this alternative would be shared by motorized and non-motorized users and would present this risk.

It can be reasonably anticipated that the increased number of routes under this alternative may result in an increase in the number and variety of users. Currently identified issues of concern to adjacent landowners and permittees would continue, and might be exacerbated by an increased number of users on routes that are currently causing concern. The continued and perhaps increased incidence of trespass, facilities damage, and livestock harassment would result in continued adverse economic impacts to adjacent land owners and permittees.

3.13.5. Impacts from Alternative C

Direct and Indirect Impacts

The creation of a maintained, designated route system; a 61 percent reduction in the miles of routes open to motorized use; the placement of informational, regulatory, educational and directional signs; and the establishment of designated staging areas with safe, off-highway parking are expected to result in reductions in dust, noise, vandalism and trespass problems that are currently affecting local residents and permittees during periods of high recreation use.

Potential conflict between users would provide some risk to human health and safety. The highest risk to public health and safety is in the form of potential collisions between motorized and non-motorized users. Approximately 82 miles of the routes under this alternative would be shared by motorized and non-motorized users and would present this risk.

It is anticipated that this alternative would likely result in a long-term increase in the intensity of motorized recreational use of the study area, proportional to an on-going increase in regional population. As this alternative provides the fewest miles of routes available, it can be anticipated that the intensity and levels of use on these miles would be the highest of any of the alternatives as the same number of users would be concentrated on the fewest miles of routes. A consequence of the increase in intensity of use could be the displacement of some users to other locations if the higher levels of use detracted from their experience and/or resulted in a sense of overcrowding. A concentration of more motorized vehicle users on fewer routes might result in increased safety concerns, and could be reasonably expected to increase the noise and dust along open routes.

It can be reasonably anticipated that implementation of this alternative may result in continued use of the GRRA by multiple user groups. This continued and perhaps increased use of the study area by recreationists would benefit local businesses such as lodging vendors, restaurants, and fuel and supply vendors. Use of local business may alter over time if the recreational user types shift in type and number. For example, the decreased number and length of routes for motorized vehicle use may result in fewer motorized recreational users, but an increase in pedestrian or equestrian recreational users. This in turn might be anticipated to result in lower local fuel and OHV parts sales, but increased use of local lodging, camping supply, and livestock supply vendors. Local land owners and permittees may have fewer problems with trespass, facility damage, and livestock harassment, resulting in improved local relations between recreationists, residents, and the BLM.

3.14. Environmental Justice

3.14.1. Affected Environment

On February 11, 1994, President Clinton issued Executive Order 12898, Federal Actions to Address Environmental Justice in Minority and Low-Income Populations. This executive order requires federal agencies to identify and address disproportionately high or adverse human health and environmental effects of federal programs, policies, and activities on minority and low-income populations. Consideration of environmental justice concerns includes race and ethnicity data and the poverty status of populations.

Persons are included in the minority category if they identify themselves as belonging to any of the following racial groups: (1) Hispanic, (2) Black or African American, (3) American Indian or Alaska Native, (4) Asian, or (5) Native Hawaiian or Other Pacific Islander. The Council on Environmental Quality guidance proposes that minority populations should be identified where either (1) the minority population of the affected area exceeds 50 percent, or (2) the minority population percentage of the affected area is meaningfully greater than the minority population percentage in the general population or other appropriate unit of geographic analysis. For this analysis, meaningfully greater is defined as 20 percent or higher than the reference population of the relevant state (i.e., New Mexico) for county population levels and relevant county (San Juan) for census tracts.

Table 52 shows the study area population broken down by racial and ethnic background at the county level. The percentage of people of minority race or ethnic background in San Juan County, New Mexico is 57.5 percent, meaning that there is a substantial minority population in San Juan County that may be affected by the proposed action.

Twelve percent of San Juan County residents and eighteen percent of New Mexico residents live at or below the federally determined poverty level (2010a US Census data). When the population for whom poverty status has been determined is examined, no study area county or census tract contains a population with greater than 50 percent of the population in poverty or a poverty level more than 20 percent above the reference state or county population. As such, there are no low income populations requiring consideration at the county level as described in the Council on Environmental Quality guidelines.

Table 52. Study Area Race and Ethnicity (2010)

Race and Ethnicity	San Juan County		New Mexico	
	Number	Percent	Number	Percent
Hispanic or Latino Origin (any race)	24,776	19.1	953,403	46.3
White	11,794	9.1	574,066	27.9
Black or African American	139	0.1	7,088	0.3
American Indian and Alaskan Native	1,319	1.0	17,854	0.9
Asian	39	<0.1	564	<0.1
Native Hawaiian and Other Pacific Islander	10	<0.1	564	<0.1
Some Other Race	9,384	7.2	304,753	14.8
Two or More	2,091	1.6	47,175	2.3
White (Non-Hispanic/Latino origin)	55,254	42.5	833,810	40.5
Black or African American (Non-Hispanic/Latino origin)	617	0.05	35,462	1.7
American Indian or Alaskan Native (Non-Hispanic/Latino origin)	46,321	35.6	175,368	8.5
Asian (Non-Hispanic/Latino origin)	445	0.03	2,630	1.3
Native Hawaiian or Other Pacific Islander (Non-Hispanic/Latino origin)	64	0.0	1,246	0.1
Some Other Race (Non-Hispanic/Latino origin)	117	0.1	3,750	0.2
Two or More Races (Non-Hispanic/Latino origin)	2,450	1.9	29,835	1.4
Total Population	**130,044**	**100.0**	**2,059,179**	**100.0**

3.14.2. Impacts from the No Action Alternative

Direct and Indirect Impacts

Designation of all existing routes as the defined transportation system would not increase the amount of route miles available. This may benefit minority populations in the area through additional job opportunities and generation of sales tax that help fund city and county services. Noise and dust associated with increased use of the GRRA may adversely impact minority populations that visit the GRRA or live or work in the immediate vicinity. However, these adverse impacts would be temporary and minor. Concerns related to private land trespass and routes directly adjacent to private lands impacting these lands would not be eliminated by this alternative as the routes that now generate to these issues would remain open for use.

A consequence of the increase in intensity of use could be the displacement of some users to other locations if the higher levels of use detracted from their experience and/or resulted in a sense of overcrowding. The future use areas for such displaced users cannot be accurately defined if the areas to which users are displaced are located within minority communities, there may be adverse impacts associated with this additional recreational activity.

3.14.3. Impacts from Alternative A (Preferred Alternative)

Direct and Indirect Impacts

The creation of a maintained, designated route system; a 54 percent reduction in the miles of routes open to motorized use; the placement of informational, regulatory, educational and directional signs; and the establishment of designated staging areas with safe, off-highway parking would result in reductions in localized dust, noise, vandalism and trespass problems that may affect local residents and permittees during periods of high recreation use. The implementation of this alternative may have beneficial impacts for minority communities in the area through providing an enhanced recreational experience for those who visit the GRRA, increasing safety, and reducing noise and dust.

However it is likely that over time an increase in the intensity of recreational use would increase proportionately to the on-going increase in the sales and use of recreational vehicles.

3.14.4. Impacts from Alternative B

Direct and Indirect Impacts

Under this alternative, there would only be about a 31 percent reduction in routes available for motorized use. Because this alternative emphasizes OHV recreation, this alternative would benefit those in local minority communities who prefer OHV recreation.

The placement of informational, regulatory, educational and directional signs; and the establishment of designated staging areas with safe, off-highway parking would result in reductions in dust, noise, vandalism and trespass problems that are currently affecting local residents and permittees during periods of high recreation use. The implementation of this alternative would have beneficial impacts for minority communities in the area through providing an enhanced recreational experience for those who visit the GRRA, increasing safety, and reducing noise and dust.

3.14.5. Impacts from Alternative C

Direct and Indirect Impacts

The creation of a maintained, designated route system; a 61 percent reduction in the miles of routes open to motorized use; the placement of informational, regulatory, educational and directional signs; and the establishment of designated staging areas with safe, off-highway parking would result in reductions in dust, noise, vandalism and trespass problems that are currently affecting local residents and permittees during periods of high recreation use. The implementation of this alternative would have beneficial impacts for minority communities in the area through providing an enhanced recreational experience for those who visit the GRRA, increasing safety, and reducing noise and dust.

It is likely that over time an increase in the intensity of recreational use would increase proportionately to the on-going increase in the sales and use of recreational vehicles. As this alternative provides the fewest miles of routes available, it can be anticipated that the intensity and levels of use on these miles would be the highest of any of the alternatives as the same number of users would be concentrated on the fewest miles of routes. A consequence of the increase in intensity of use could be the displacement of some users to other locations if the higher levels of use detracted from their experience and/or resulted in a sense of overcrowding.

3.14.6. Environmental Justice Determinations

The BLM has evaluated the alternatives described above for disproportionate adverse effects on minority, Tribal, and low-income populations within the study area. Analyses of the 2010 Census Bureau data for minority and low-income populations has identified minority populations within the study area that may be affected by the proposed action. There were no low-income populations identified that required further consideration.

Further analysis of the effects of the proposed action and alternatives on the minority populations in the study area resulted in a determination by the BLM that there would be no disproportionate adverse effects resulting from the implementation of the Preferred Alternative (A). In addition, none of the other alternatives were determined to have disproportionate adverse effects on local minority populations.

It was determined by the BLM that implementation of the preferred alternative might result in the dislocation of some current and future users to other areas as user intensity within the GRRA increases, regardless of which alternative is implemented. These dislocated users may utilize areas that directly or indirectly impact minority or low-income populations at some point in the future.

The BLM cannot currently accurately determine where such dislocated recreational users might go. Although this is a reasonably foreseeable consequence of the intended action, such future impacts in unknown areas cannot be usefully addressed in this planning effort. If and when there are future analyses

of impacts to other recreational use areas, the issue of dislocated users and their environmental justice effects on minority and low income communities would be addressed at that time.

4. SUPPORTING INFORMATION

4.1. Consultation and Coordination

Table 53 lists the tribes, agencies, organizations, and business consulted in the preparation of the GRRA R&TMP.

Table 53. Entities Consulted

Tribes	
Jicarilla Apache Nation	Southern Ute Indian Tribe
Navajo Nation	Ute Mountain Ute Tribe
Agencies	
City of Aztec – Mayor Sally Burbridge	New Mexico State Land Office
City of Bloomfield – Mayor Scott Eckstein	New Mexico State Police
City of Farmington – Mayor Tommy Roberts	San Juan County
New Mexico Department of Game and Fish	San Juan County Fire Department
New Mexico Department of Game and Fish Off-Highway Vehicle Program	United States Department of Energy
New Mexico Historic Preservation Division	United States Fish and Wildlife Service
New Mexico Off-Highway Vehicle Advisory Board	Farmington Metropolitan Planning Organization
New Mexico State Highway Department	San Juan County
Elected Officials	
New Mexico Senator Jeff Bingaman	Councilor Dan Darnell - City of Farmington
New Mexico Representative Ben Lujan	Councilor Gayla McCulloch - City of Farmington
New Mexico Representative Steve Pearce	Councilor Jason Sandel - City of Farmington
New Mexico State Representative James R. J. Strickler	Councilor Mary Fischer City of Farmington
Organizations	
Blue Ribbon Coalition	New Mexico Off-Highway Vehicle Alliance
Diné Care	Nature Conservancy
Earthworks	San Juan Citizens Alliance
Independent Petroleum Association of New Mexico	Sportsmen for Fish & Wildlife
International Mountain Bike Association	WildEarth Guardians
New Mexico Gas Association	San Juan College
Businesses	
BP America Production Co.	Montoya Sheep & Cattle Co., Inc.
Burlington Resources	New Mexico Gas Co.
ConocoPhillips Co	Nobel Energy
Cordillera Energy, Inc.	Pan Pacific Services
Dugan Production Corp.	Patina San Juan, Inc.
Emerald Gas Oper., Co	POGO Producing Co, LLC.
Enterprise Field Services	Pro Management, Inc.
Farmington Electric Utility System	RC Resources Corp
Four Star Oil & Gas Company	Texakoma Oil & Gas
Gas Co of NM	Titus Consulting, Inc.
HEP Oil Co., LTD	Williams Four Corners LLC
J K Edwards & Associates	XTO Energy
McElvain Oil & Gas	

4.2. List of Preparers

Table 54 displays the FFO specialists who participated in the preparation of the GRRA T&RMP.

Table 54. List of Preparers

Name	Title
Janelle Alleman	Outdoor Recreation Planner
Jim Copeland	Archaeologist
Stan Dykes	Noxious and Invasive Weeds Specialist
Scott Hall	Lands and Realty
John Hansen	Wildlife Biologist
Maureen Joe	Assistant Field Manager, Renewable Resources
John Kendall	Wildlife Biologist
Sherrie Landon	Paleontologist
Amanda Nisula	Planning & Environmental Coordinator
Sarah Scott	Natural Resource Specialist -Riparian
Jeff Tafoya	Project Lead/ Range Management Specialist
Barney Wegener	Natural Resource Specialist - SWA
Sheila Williams	District Botanist
Dale Wirth	Branch Chief, Renewable Resources

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APPENDIX A. ROUTE EVALUATION FORM

BLM Minimum Documentation Standards for Interdisciplinary Route Evaluations									
1	**Route ID(s)**								
2	**Location**								
3	**Route Type**	Road		Primitive Road		Trail		Maintained	
4	**Route Length**								
5	**Purpose & Need** • *Identify all recognized uses of the route that are encompassed by the BLM's multiple-use mission, including, but not limited to, commercial, administrative, and recreational uses of the route. Refer to attached checklist.* • *If there is no recognized purpose and need for the route, then it should be closed under all alternatives.*								
	Any Additional Comments Regarding the Purpose & Need								

6	**Minimization Criteria**
	• *Identify all potential resource values encompassed by the BLM's multiple-use mission that could be affected by OHV travel on the route. Refer to attached checklist for suggestions. Resource values that MUST be addressed for every route include, but are not limited to:*
	  o *Resources identified in 43 CFR 8342.1,*
	  o *Any Critical Elements of the Human Environment present,*
	  o *Desired future conditions for resources established in the applicable RMP, and*
	  o *Any other local issues that should be addressed.*
	• *Identify all potential use conflicts that could occur from OHV use on the route.*								

	Any Additional Comments Regarding the Minimization Criteria								
7	**Alternative Route Decisions** *Potential Route Decisions include, but are not limited to: Open, Closed, Seasonally Limited, or Limited to Non-Motorized Travel.*								
	No Action		Alternative B		Alternative C		Alternative D		

Checklist of Interdisciplinary Route Evaluation Criteria

- *This checklist should be modified by the interdisciplinary team to meet the local conditions as needed.*
- ** Indicates an evaluation that MUST be made for every route as required by federal regulation, law, or policy.*
- *The locations of cultural resource sites should not be provided to the general public as a part of the Administrative Record.*

Purpose & Need Criteria				**Minimization Criteria**			
Administrative Uses				***Recreational Uses Continued***			
Use	***Yes***	***No***	***Comment***	***Use***	***Yes***	***No***	***Comment***
Compliance/Enforcement Monitoring				OHV Use			
Monitoring Site (weather station, vegetation plots, etc.)				4X4 (Standard/Stock) Vehicle			
Research Natural Area Access				ATV/UTV Use/Trails			
Private Land Access				Motorcycle Use/Trails			
Training Area/Facility (e.g. Search & Rescue, Fire Suppression)				Christmas Tree Cutting Areas			
Resource Treatment Area				Cultural/Historical Sightseeing			
Wildlife Water/Guzzlers/ Developments				Dual Sport Touring			
Other Administrative Uses				Filming			
Commercial Uses/ Right of Ways				Geocaching			
Use	***Yes***	***No***	***Comment***	Helipads/Landing Zones			
Ranching				Hill Climbing – Motorcycle			
Allotment Boundary Fence Line				Hunting/Scouting (Antler/Wildlife)			
Water Development (base, spring, tank, trough, windmill, well, water pipelines, etc.)				Special Recreation Permits			
Corral/Trailer Facilities				Rock Climbing/Repelling			
Fence Line				Staging Areas (load/unload/parking)			
Gate				Permitted Paleontological Exploration			
Mining				Public Safety			
Mineral/Materials				Information Kiosk			
Fluid Minerals				Interpretive Panel			
Renewable Energy				River/Stream Access (Put in/out)			
Right-of-Way				Seed Collecting			
Utility				4X4 Modified Vehicle, Technical			
Special Recreation Permits				Technical, Site Specific (Extreme/Rock Crawling within Specified Area(s), Not a Trail)			
Other Commercial Uses				Technical, Trail (Extreme/Rock Crawling within Trails)			
Public Uses				Wilderness Access			
Use	***Yes***	***No***	***Comment***	Wilderness Study Area Access			
Property Access				Scenic Vistas			
RS 2477 Road				Wildlife Watching/Birding			
Other Public Uses				Wetland Access			
Recreational Uses				Woodcutting (Firewood)			
Use	***Yes***	***No***	***Comment***	Other Recreational Uses			
Astronomy/Night Sky				Pullouts/Pull Offs			
Trailhead Access				Picnicking			
Rock hounding							
Loop Trail				***Miscellaneous Uses***			
Dispersed Camping				***Use***	***Yes***	***No***	***Comment***
Developed Camping							
* Hunting							
* Recreational Shooting							
* Fishing							
* Equestrian							
* Mountain Biking							
* Hiking							
OHV Events							
Wildlife Viewing							

Checklist of Interdisciplinary Route Evaluation Criteria			
• *This checklist should be modified by the interdisciplinary team to meet the local conditions as needed.* • ** Indicates an evaluation that MUST be made for every route as required by federal regulation, law, or policy.* • *The locations of cultural resource sites should not be provided to the general public as a part of the Administrative Record.*			
Recommended Mitigation			
Resource	***Direct Impact?***	***Indirect Impact?***	***Comment***
* Air Quality - Dust			
* Air Quality - Non-Attainment Area			
* Wildlife			
* Special Status Species Habitat			
* Proximity to Special Status Species Habitat			
In a Wash/Arroyo			
Wash/Arroyo Crossing			
Proximity to a Wash/Arroyo			
Ephemeral Wash/River Tract			
100-Year Floodplain			
Other Wildlife			
Geological Type Locality			
Weed Abatement Area			
Facilities			
Wildlife Habitat Area			
Wildlife Movement Corridor			
Herd Management Area (Wild Horse)			
* Vegetation			
* Special Status Plant Species #1			
* Special Status Plant Species #2			
Invasive Non-Native Vegetation			
Other Vegetation			
* Soils			
Erosive Soils			
Other Sensitive Soils			
* Watershed			
Water Quality			
Stream Crossing			
* Cultural Resource Site			
Proximity to Cultural Resource Site			
High Probability Cultural Resource Area			
* Paleontological Resources			
* Visual Resource Management Class			
Known Visual Scar			
* ACEC			
* Wilderness			
* Wilderness Study Area			
* Natural Area			
Wilderness Characteristics			
Other Wilderness Characteristic Considerations			
* Wild & Scenic River			
* National Historic Trail			
Special Recreation Management Area			
Prescribed Recreation Setting (ROS)			
* Conflicts with Other Recreational Users			
* Noise			
* Adjacent Communities			
Other Criteria			

APPENDIX B. CRITERIA FOR TRAIL PLACEMENT

The following criteria are used to determine suitable locations for new trails and trail reroutes within the Farmington Field Office. This document utilizes terminology from the “Roads and Trails Terminology” (Technical Note 422, Nov. 2006). These criteria are to be followed as guidelines. Not all of the criteria can be met on every segment of every trail. Their purpose is to help create sustainable, low maintenance trails that provide quality recreation experiences based on predetermined trail management objectives (TMOs) Specialty trails requiring higher maintenance may be allowed in appropriate locations.

- Know and understand trail management objectives. TMO’s provide the framework for what the trail will look like, who will be using the trail, and how the trail will be managed. Different TMO’s may allow different applications of the criteria below.

- Create loops and avoid dead end trails. All trails should begin and end at a trailhead or another trail. A well-planned stacked loop trail system offers recreationists a variety of trail options. Easier, shorter loops are arranged close to the trailhead, with longer, more challenging loops extending further beyond the trailhead. Occasionally, destination trails to a point of interest will require an out and back trail, but only if they cannot be reasonably incorporated into a loop.

- Identify control points and use them to guide trail design and layout. Control points are specific places or features that influence where the trail goes. Basic control points include the beginning and end of the trail, property boundaries, intersections, drainage crossings, locations for turns, and other trails.
  - Positive control points are places where you want users to visit, including scenic overlooks, historic sites, waterfalls, rock outcroppings, lakes, rivers and other natural features or points of interest. If the trail does not incorporate these features, users will likely create unsustainable social trails to get to them.
  - Negative control points are places you want users to avoid, such as low-laying wet areas, flat ground, extremely steep cross slopes or cliffs, unstable soils, environmentally sensitive areas, sensitive archaeological sites, safety hazards, and private property.

- Knowing these control points provides a design framework. Try to connect positive control points while avoiding the negative control points.
  - Use cross slope and avoid flat ground whenever possible. The trail tread should generally run perpendicular to the cross slope and should utilize frequent grade reversals. This is the best way to keep water off the trail. Use curvilinear design principles to create a trail that follows the natural contours of the topography, sheds water, blends with the surrounding terrain, and provides fun recreation opportunities.
  - The following grade guidelines will help determine appropriate tread locations.
    - The Half Rule: “A trail’s grade shouldn’t exceed half the grade of the hillside or side slope (cross slope) that the trail traverses. If the grade does exceed half the side slope, it’s considered a fall-line trail. Water will flow down a fall-line trail rather than run across it. For example, if you’re building across a hillside with a (cross slope) of 20 percent, the trail tread grade should not exceed 10 percent.” (IMBA 2004). Steeper cross slopes allow more flexibility for sustainable tread grades while flat or low angle cross slopes can be problematic. There is an upper limit to this rule. Sustaining a 24 percent tread grade, even on a 50 percent cross slope is unlikely. Additionally, trail segments may break this rule on durable tread surfaces such as solid rock.
    - The Ten Percent Average Guideline: The average trail grade over the length of the trail should be 10 percent of less for greatest sustainability. Short sections of the trail may exceed this, but overall grade should remain at 10 percent of less.
    - Maximum Sustainable Grade: This is the upper grade limit for those short trail segments that push the limits of the previous two guidelines. It is determined by a site-specific analysis

based on TMO's, environmental conditions, and observations of existing trails – what's working and what's not?

  - Grade Reversals: Frequent changes in direction of tread grad (gentle up and down undulations) will ensure that water is forced off the trail at frequent intervals.

- Locate trails in stable soils. Avoid clay, deep loam and soils that do not drain rapidly. Consider season of use and type of use. A trail on a south aspect will have greater usability and sustainability for winter use. The capabilities or motorized vehicles to function in wet/muddy conditions make it imperative to avoid unstable or poorly drained soils. Trails that are less likely to be used when wet may be located in less desirable soils if necessary. In northwestern New Mexico's arid environment, the best soil conditions for trails are those with high rock content. Utilize slick rock for trail tread when possible. Sand is acceptable in dry washes, but otherwise should be avoided.

- Drainage crossings are key control points and should be selected carefully. Consider both the trail's impact on the drainage (erosion and sedimentation), and the drainage's impact on the trail (changing tread surface, water channeling onto trail). The trail should decent into the climb out of the drainage to prevent water from flowing down the trail. Avoid long or steep entries into drainages. Design grade reversals into the trail on each side of the approach to minimize water and sediment entering from the trail. Look for drainage crossings on rock.

- Dry washes can be excellent travel ways. They are well defined, contain noise, and are periodically resurfaced by flowing water. As long as the wash does not support riparian vegetation and has no major safety problems, like water falls, they are well suited to be part of a recreational trail system.

- Avoid switchbacks. Switchbacks are difficult, time-consuming, and expensive to construct, and require regular maintenance. Users often cut them, causing avoidable impacts. Utilizing curvilinear design principles eliminates the need for most switchbacks. Climbing turns are easier to construct and maintain and utilize natural terrain features (benches, knolls, rock outcrops) to change the direction of a trail.

- Avoid ridge tops. Ridge tops are often primary transportation corridors for wildlife, and were often used by Native Americans as travel routes. Noise from ridge top trails is broadcast over a wide area. Locate trails on side hills, off ridge tops, using ridges and watersheds as natural sound barriers to isolate noise.

- Use vegetation and other natural features to conceal the trail and absorb noise. This can be difficult in a desert environment. Try to minimize the visual impact of the trail by following natural transitions in vegetation or soil type. A trail near the base of a side slope or on rimrock is usually less visible then a mid-slope trail. Denser vegetation will hide a trail, lessen noise transmission, and can dissipate the energy of falling raindrops on the bare soil of the trail tread.

Appendix A. Carefully design intersections to avoid safety problems. When locating bicycle or motorized vehicle trails be aware of sighting distance and sight lines. Collisions can be avoided if riders can see each other. Avoid four way intersections. Offsetting the cross traffic helps reduce speeds and reduces the risk of collisions.

APPENDIX C. SIGN PLAN

C.1. Sign Inventory Guidelines

C.1.1. Sign Inventory Methodology

The sign inventory will record the location and basic condition of specific trail sign types located at a trailhead or anywhere along a trail. There are approximately 7 different types of signs found throughout the GRRA. A data dictionary will be created to document sign locations and associated information.

Field Data Collection

When one of the specific sign types is located at a trailhead or along the trail, stand next to the sign and record the location as a point feature. Record the following information:

- Sign Types: (choose one)
  - Information Kiosk
  - Boundary
  - Trailhead
  - Informational
  - Regulatory
  - Interpretive
  - Carsonite
- Unique ID: Record the trails unique ID number.
- At trailhead? Yes/No
- Trail Name: Record the name of the trail where the sign is located.
- Need Repair? Yes/No
- Condition: comment field
- Recorder:
- Date:

All sign data will be included as a GIS layer related to the associated trail, facility, or other feature.

C.2. Sign Management Objectives

- Quality signing and mapping will be provided to promote visitor safety and user knowledge of their location. Signing on the ground that matches information on maps and vice-versa will be emphasized.
- Signing will be kept to a minimum to increase the trail experience and improve aesthetics. Reassurance markers will be placed after each junction, at all road crossings, and at any point where there may be confusion as the continuing direction of the trail.
- Caution signs or trail crossing will be used as needed where trails cross other trails or roads.
- Travel management signs will be placed at trailheads and other key areas to inform the public, which uses are allowed on particular trails and other regulations.

C.3. Sign Maintenance

Any trail signs that are vandalized would be replaced as soon as practicable. Replacing safety and regulatory signs will be a priority.

APPENDIX D. TRAIL MONITORING AND MAINTENANCE PLAN

Trail monitoring provides managers with information to strategically allocate staffing and materials, and to prioritize trail maintenance projects. Trail monitoring describes the condition of trails and trail features, enabling managers to document and communicate the extent and location of regular trail maintenance needs. Trail monitoring will occur at least once every three years or as time, personnel, equipment and funding allow.

D.1. Monitoring Objectives

Monitoring is intended to provide information to make trail maintenance more efficient and effective. In an attempt to address this objective staff considered both point sampling and problem assessment approaches to trail condition monitoring (Marion 2001). In weighing the costs (e.g., time) and benefits (e.g., improvements to trail maintenance efficiency and effectiveness), BLM determined that knowing the nature, location and extent of specific trail sustainability issues was of greater value than a set of precise measurements. For this reason, the approach to monitoring trail condition is focused upon locating areas and features out of compliance with appropriate trail design parameters and describing the nature of non-compliance. In addition, the monitoring will also provide prescriptions for addressing the sustainability issues observed in the field. In summary, trail monitoring will consist of three components:

- **Document** and **assess trail conditions** to determine if trails are being maintained in functional condition.
- **Inventory** the location and condition of **constructed trail features** (e.g. water bars and retaining walls).
- **Prescribe** maintenance **actions** to mitigate selected problems.

D.2. Trail Condition Assessment

The first component of trail monitoring is a condition assessment of the trail segments. This assessment will be comprised of measuring and describing a set of trail indicators at selected locations. These indicators provide information about the physical sustainability of the trail, as well as visitor safety and convenience.

List of Measurable Indicators (Table D- 1):

- Tread width
- Maximum sustained trail grade
- Maximum sustained tread out slope
- Clearing width
- Clearing height
- Turn radius
- Surface material
- Presence of erosion/drainage indicator conditions

Table D- 1. Indicators of trail condition and associated measurement

Indicators	Description
Tread Width	Tread width between trail's edges defined by pronounced changes in tread cover or composition. *Measured to the nearest ½ foot.*
Trail Grade	Slope of the trail tread parallel to the direction of travel. *Measured to the nearest one percent*
Tread Out slope	Side-to-side slope of the trail tread perpendicular to the direction of travel. *Measured to the nearest one percent*
Clearing Width Clearing Height	A three-dimensional envelope across and above the trail tread needing to be free of vegetation and obstructions. Measured to the nearest foot
Turn radius	The distance between the innermost center location of a turn to the outermost most center location of a turn. *Measured to the nearest 1/2 foot.*
Surface material	Compositions of the trail tread. Select from a list
Erosion/Drainage Condition Indicator	Presence of muddy ground, water flowing on the tread, gullied out areas, trail braiding, exposed roots, exposed rocks. *Measurements vary depending on the specific condition indicator*

D.3. Constructed Features Assessment

The second component of the monitoring effort is to determine the location and condition of constructed features associated with trail segments. In addition to determining the location and condition of bridges, a detailed inventory will be documented as well. Refer to Appendix 4 for the bridge inventory methodology.

Objective:

- Record the location of constructed features
- Assess their condition

D.4. Prescriptions for Maintenance

The third component of trail condition monitoring is the development of field prescriptions for non-compliant/maintenance issue areas (areas of concern) and constructed features.

Objective:

- Describe the maintenance actions recommended to being the trail or feature into compliance with appropriate trail standard.
- Determine is a construction feature should be include in the trail to mitigate future issues (i.e., install water bars, re-tread the trail surface).

D.5. Methodology

D.5.1. Trail Condition Assessment

The following methodology will be used to assess trail condition:

- Become familiar with the trail segment's design parameters (tread width, maximum sustained grade, maximum sustained out slope, clearing width and height, turn radius, and surface material).
- Walk the length of the trail segment stopping when one of the indicators is judged to be out of standard for a distance of at least 30 feet.
- Record, as a point feature, the location where the trail begins to be out of compliance for the indicator, record the indicator and the measurement (see below), and the Unique ID number for that portion of trail.
- Using this same point, take photos looking up-trail and down- trail to document conditions.

- Record the location when (if) the indicator returns to the acceptable range/value for the indicator as well as the indicator name and measurement.

The following methods will be used to measure indicators:

- Tread Width: Use a tape measure to obtain the length (feet – nearest ½ foot) between the trail's edges.
- Braided Trails: Use the above procedure for tread width to measure the width (feet – nearest ½ foot) of each braided trail. Record the beginning and end point locations with the Trimble Geo-III GPS receiver.
- Maximum Sustained Trail Grade: Measure the maximum sustained grade for sections of trail out of standard. Use a digital level to record the grade of a trail. Set a digital level to take readings in percent. Place a digital level on the tread, parallel to the direction of travel, at 3 different locations along the trail to be measured. Record the average of the 3 readings as the maximum sustained grade. A clinometer should be used when constructed features, such as steps, have been installed.
- Maximum Sustained Out slope: Measure the maximum sustained out slope for sections of trail out of standard. Use a digital level (inclinometer) to record the side to side slope of the tread. Place the inclinometer on the trail surface, perpendicular to the direction of travel, at the sampling point. Record the reading to the nearest one percent.
- Corridor Clearing: Use a tape measure to record the distance (feet) of the vertical and horizontal clearance from any trailside vegetation located at the sample point. Horizontal measurement should be taken from about 2 feet above ground.
- Turn Radius: Use a tape measure to record the distance from the center point located on the inside edge of a turn to the center point along the outer edge of a turn. Record the measurement to the nearest foot.
- Surface material: Record the composition of the tread surface
- Erosion/Drainage Indicators: In addition to logging the start and end point for the maintenance issue area, write a brief description of the situation, including: width, depth, # of braids, nature, quantity, size, etc., and the source of the problem.

D.5.2. Constructed Features Assessment

To determine the location and condition of constructed features, use the following methodology:

- Using a GPS, estimate the mid-point of a constructed feature and take a location reading there.
- Using this same point, take photos looking up-trail and down- trail to document conditions.
- Record the condition of constructed features or components on or associated with the trail segment. Record the dimensions of all constructed features, including water bars, drain dips, and check dams.

D.5.3. Prescriptions for Maintenance

Identify and document all maintenance needs along trail length.

D.6. Trail Maintenance Objectives and Maintenance Guidelines

The purpose of trail maintenance is threefold: protect user safety; maintain the trail in a condition where the width, depth, drainage, and control of the riders are adequate to protect adjacent resources; and keep the trail within the parameters of the designed trail management objectives.

Maintenance needs are dynamic as they are constantly changing and growing. This plan outlines the work anticipated to meet the above objectives, but at no time will a large trail system be in a condition of being 100% maintained. Trails will require periodic maintenance to ensure continued ride ability and compliance with the criteria set forth in this plan. Some trail treads will be in very good condition, some will be in good condition, and some will be in poor condition. Those in poor condition will be identified and placed on the maintenance list, unless there is a safety or resource concern that dictates immediate attention.

D.6.1. Trail Management Objectives

General

- The user will be provided a variety of quality trail experiences that produce a high fun factor. This can be accomplished by providing a mix of tight trails and open trails that provide a variety of settings, appropriate speeds, and challenges.
- A trail experience will be provided, not a highway experience. This will be accomplished through tighter alignment, narrower clearing, leaving more obstacles in the trail, and other methods that produce slower speeds. Available trees and brush would be taken advantage of to make the trail as curvilinear as possible.
- Trails will be designed and located, to the extent possible, in a manner that maximizes the views of the region's outstanding natural features and take advantage of changes in settings, vegetation, soils, and topography.
- Trails will be constructed and maintained, to the extent possible, to blend with the topography by curving and flowing with the natural contour. They will be self-draining where possible with rolling grades where possible. Where grades cannot be rolled, erosion-controlling structures will be installed. Removal of vegetation, rocks, and other features will be kept to a minimum.
- New trails, re-routes and some maintenance actions will follow the General Criteria for the Placement of Trails as well as appropriate trail building and maintenance manuals.

Trail Treads

- Trail treads when constructed, will be constructed at the minimum required width or less depending upon difficulty level. Narrow treads and narrow clearing reduces speed and increases the trail experience. Reducing speeds increases safety, reduces trail maintenance because moguls develop slower, and increases the amount of time users are on the trail.
- All trails will be two-way use except where undesired. This helps to reduce speeds by forcing the trail user to be defensive; other users should be anticipated around every turn. This also helps to create a trail experience rather than a racetrack experience.

Clearing

- An acceptable clearing width will be maintained in order to further reduce speeds and provide a natural experience. Safety will not be compromised. Green limbs and flexible brush that encroach within the clearing limits will generally be left in place if they do not unduly infringe on sight distance or form a safety hazard.

D.6.2. Trail Maintenance Guidelines

General

- All identified maintenance needs will be placed on the maintenance list and will be completed as time, equipment, personnel, and funding allow.
- The Adopt-A-Trail Program will be utilized to help maintain and monitor portions of trails within the GRRA. These volunteers will work closely with BLM to report any issues, concerns, or needs associated with their section of trail. BLM will support the program by providing necessary clearances (cultural, threaten and endangered species, etc.,) and equipment, if available and as funding and other projects allow.

Trail Tread Maintenance

- Results of physical monitoring as outlined in the monitoring plan will direct annual trail maintenance and the trails/areas to be worked on and the recommended treatments. All maintenance performed

will be recorded in a maintenance log to facilitate future planning and accounting of the maintenance work performed.

- Trail condition surveys and monitoring will be performed to identify maintenance needs. Any undue hazards that are identified will be treated as a priority.
- It is extremely important not to over-maintain the trails. These are trails, not roads, so
- Any off-trail tracks will be restored to a natural state or obliterated whenever practicable.
- Garbage and litter along roads, trails, and in trailheads will be removed.

D.7. References

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APPENDIX E. RECREATION MONITORING PLAN

The Recreation Monitoring Plan contains the monitoring approach that will be used in the GRRA to ensure that management actions meet the recreation management goals and objectives described in the approved R&TMP. This Recreation Monitoring Plan is organized by resource area, followed by resource goals, objectives, and actions, and finally a description of the monitoring methods.

E.1. Resource Monitoring

Monitoring is the process of collecting information to evaluate the effects of selected management actions, public actions and interests, and impacts in relation to the R&TMP goals and objectives and to ensure compliance with applicable laws, regulations, and policy. Data describing changing trends over time are collected and used to determine whether desired outcomes are being met.

Though monitoring was included as part of the 1996 GRTS-RAMP, it was poorly executed. Consequently only limited specific resource and visitor use baseline data exist. In addition, visitor use is expected to change as local communities continue to grow around the GRRA, trails and facilities are developed, and the GRRA transitions and management decisions contained in the RMP are implemented.

This Recreation Monitoring Plan is designed to be outcome-based, technically feasible, affordable, and operationally attainable. Three types of monitoring will occur to determine the current status of the GRRA baseline and to measure changes to it:

- **Baseline Monitoring –** What are the current baseline conditions?
- **Implementation Monitoring** – Were the decisions and actions developed during planning implemented?
- **Effectiveness Monitoring** – Did the implemented action result in changes to resource condition, visitor numbers, activity types, and duration of stay? Did changes in the indicators exceed thresholds established for achieving the objectives?

To monitor change within the GRRA, BLM staff would identify and track indicators, which are specific elements of the GRRA setting that change in response to human activities. Indicators provide quantitative documentation on how much conditions have changed, serve as tools for examining trends and highlighting problems, and can act as an early warning to predict future conditions. When compared with standards that describe the acceptable limits of change, indicators can signal the need for corrective action, evaluate the effectiveness of management actions, and help determine whether desired conditions are being achieved. To accommodate the need for management flexibility as this development occurs, a baseline would be established and used to determine appropriate indicators and limits of acceptable change. The indicators would be monitored frequently as the GRRA facilities are developed. As visitation and recreation opportunities stabilize, the monitoring frequency would become more static.

E.1.1. Recreation Monitoring

Two different aspects would be considered during recreation monitoring: the social setting and the physical setting. The number of people and the number and type of encounters that take place in defined settings characterize the social setting. The physical setting includes the physical landscape and environment, ranging from primitive areas where the landscape is remote, pristine, and shows minimal evidence of human presence, to more developed areas that are manipulated to provide a desired setting and include an abundance of facilities to accommodate heavy recreational use. Monitoring methods and indicators are broken into these two categories.

Social Setting

Basic questions of interest to management related to social components of the GRRA:

- How much use is occurring on the trail system?
- What are the demographic of visitors?
- What benefits are visitors seeking?

- What are the user motivations to visit Lewis County OHV Trail System?
- What problems have the users encountered and what managerial actions do the users recommend?

Survey and Monitoring Approaches

The formal method of monitoring the social setting would be through visitor satisfaction surveys. These comprehensive surveys would include information concerning visitor demographics, preferred activities, recreation experiences and benefits, and setting preferences, as well as evaluation of BLM management, facilities, and services. Visitor surveys would be conducted within 3 years of the R&TMP completion, as staff time and funding allows, to establish baseline data for the seasonal variation in visitation, and regularly thereafter as the plan is implemented and visitation increases.

Monitoring would also be performed on an informal basis by BLM field personnel, volunteers, and through public participation. BLM field staff and volunteers will have training to gather data through visitor contacts and observation of social conditions. Comments from the public in the form of letters, telephone calls, e-mails, public meetings, feedback from special interest groups, or office visits will be collected and reviewed. When informal monitoring begins to indicate that the desired condition of the social setting is not being met, the next formal visitor survey should be implemented as soon as possible.

List of Social Indicators:
- Number of users/group
- Type of use (OHV, non-motorized, etc.)
- User types (family, friends, organized group, etc.)
- Length of stay
- Frequency of visits to the GRRA
- First time vs. returnee
- Home location (local, regional, national visitor)
- Benefits/motivations/expectations Met
- Economics (amount spent on food, gas, lodging, other)
- User encounters (less than expected, more than expected, about what was expected)
- Problems encountered

Thresholds:
- Thresholds for social indicators will be developed based upon use levels negatively impacting recreation users as indicated by negative feedback from user surveys.
- Results from use level monitoring in conjunction with results from physical and biological monitoring will be considered as an indication for a need for social adaptive management strategies as well.

Adaptive management strategy:
- Modify user survey to include on-site surveys and increase frequency to determine specific reasons for negative feedback.

Potential mitigation:
- Consider limitations on use or seasonal restrictions.
- Modify trail system or management strategy based upon results from surveys.

Physical Setting

Basic questions of interest to management related to physical components GRRA R&TMP:
- What are the recreational impacts to resources base related to OHV use?
- How significant are the recreation impacts on the impacted resource?
- Are the recreation impacts increasing, decreasing, or staying the same?
- How do we know when to implement recreation management prescriptions on-site to protect the integrity of other resources?

- What are our immediate maintenance needs?

Survey and Monitoring Approaches

Indicators used for monitoring recreation would include visitor use, evidence of human and dog waste, vandalism, areas of impact, and camping locations. Methods used for monitoring would include visitor surveys for numbers of encounters, trail counters, trailhead registers, ongoing management observations, recreation site and facility measurements, and special recreation permit evaluation and compliance. The frequency of monitoring would vary as development and visitation increase.

A team comprising appropriate BLM resource specialists would conduct formal monitoring for the physical setting. The resource specialists would determine the frequency of monitoring, but during the first phase, a comprehensive assessment would be conducted within 3 years following the completion of the R&TMP to establish baseline data for the seasonal variation in visitation. Volunteers and BLM field personnel would conduct informal monitoring on a routine basis. Monitoring would occur by performing a visual assessment during normal field operations and implementing a photo monitoring program of sites or facilities, as needed. If informal monitoring results in resource concerns, an appropriate resource specialist would be notified and additional monitoring or mitigation would be assessed.

List of Physical Indicators:

- Designated Trailheads
  - Elements of use vs. over-use
  - Standard recreation impacts
  - Impacts beyond the trailhead limits
- Off Trail Impacts
  - History/Frequency/Destination Factors
- Road/Trail Intersection Impacts
- Unauthorized use (e.g., 4-wheel drive vehicle on ATV (50” in width or less) trail)
- Cross-Cutting Trails
- Other Recreation Impacts Noted Along the Trail
  - Campsites/Day Use Areas/Barren Cores
  - Campfires
  - Litter
  - Sign Damage
  - Other Vandalism

Adaptive management strategy:

- Develop mitigation to address corrective action necessary to bring trail back into compliance with management goals and objective.

Potential mitigation:

- Carry out maintenance activities as necessary to meet mitigation requirements or the management goals and objectives of the route system.

APPENDIX F. ROUTE COMPARISON TABLE

See attachment.

APPENDIX G. COMMENT RESPONSE TABLE

See attachment.

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