



United States  
Department of  
Agriculture  
Forest Service

# Cibola National Forest Sandia Ranger District Travel Analysis Process

For

## Sandia Ranger District - Travel Management



Revised  
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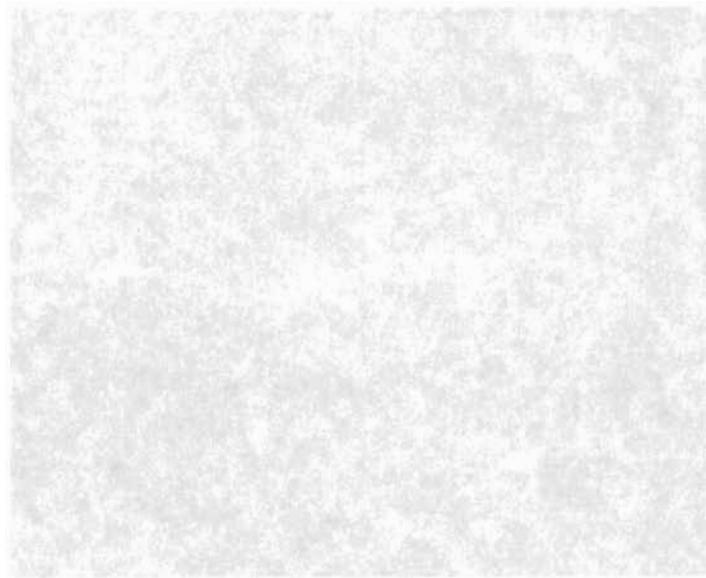
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## Travel Analysis Process

For

### Sandia Ranger District - Travel Management



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## Executive Summary

Travel management in the Forest Service was traditionally split between Engineering for road management and Recreation for trails management. The recently revised regulation now combines the analysis of the motorized use of trails and roads under the Travel Analysis Process (TAP). The new travel management rule requires each administrative unit (national forest, national grassland, etc.) or ranger district to designate those National Forest System (NFS) roads, NFS trails, and areas on NFS lands that are open to motor vehicle use by class of vehicle and, if appropriate, by time of year (36 CFR 212.51). Travel Analysis Process (TAP) has been completed for the Sandia Ranger District of the Cibola National Forest. The key concept underlying the TAP approach is to focus on changes to:

- The forest transportation system; or
- Restrictions and prohibitions on motor vehicle use.

The Travel Analysis Process helps to fulfill two major requirements of 36 CFR 212, subparts A and B:

1. To identify the minimum road system
2. To identify and subsequently designate a system of roads, motorized trails, and areas for motor vehicle use.

TAP will follow the same six step process outlined in the roads analysis process. The roads analysis process is currently described in miscellaneous report Forest Supplement (FS)-643, *Roads Analysis: Informing Decisions about Managing the National Forest Transportation System* (1999).

The TAP outcomes are a set of recommendations to the forest transportation system. These changes will be evaluated through a subsequent National Environmental Policy Act (NEPA) process. A thorough Travel Analysis allows for subsequent environmental analysis (EA), if necessary, with the intention that individual projects be focused, while still addressing cumulative impacts. An anticipated upcoming environmental analysis will address which roads, trails, and areas to designate for motor vehicle use—to be published on the motor vehicle use map (MVUM).

Chapter 4, pages 51 to 56 contain the individual recommendations for the road system. Chapter 4, pages 58 to 61 lists the recommendations for motorized trails. Areas open to motorized use were not recommend. All the recommendations are shown on Maps 15 and 16.

## Introduction

### Purpose

The purpose of this section is to:

- Give an Overview of the Travel Analysis Process:
- Project Introduction
- Summary of Issues
- Summary of Actions Responding to Issues
- Analysis Performed
- Summary of Key Results and Findings
- How the Report Will be Used

### The Travel Analysis Process

The Travel Analysis Process provides Forest Service Line Officers with critical information to ensure that existing and developed road and motorized trail systems:

- provide for user safety and convenience
- respond to public needs and desires
- provide sustainable access
- are affordable within current and future expected budgets
- are efficiently managed
- have minimal negative ecological effects on the land
- are administered in an environmentally responsible manner
- balance with available funding for needed management actions
- are consistent with land management objectives.

A forest scale Roads Analysis of the primary transportation routes was completed for the Cibola National Forest in 2003; however, it only analyzed passenger car forest roads (maintenance level 3-5), and did not include high clearance vehicle and closed roads (maintenance level 2 & 1 roads), unauthorized roads, or trails where motorized use has been accepted as part of the analysis. Refer to pages 22 and 23 for road maintenance level definitions.

Travel Analysis will not change or modify any existing travel system decisions, but due to the information generated by the analysis, the Line Officer (Sandia District Ranger or Cibola National Forest Supervisor) may choose to reconsider previous decisions and perhaps at some future date revise previous travel system decisions.

Travel Analysis is intended to identify opportunities for the national forest transportation system to meet current or future management objectives, and to provide information that allows integration of ecological, social, and economic concerns into future decisions. The process is intended to complement, rather than replace or preempt, other planning and decision processes.

The Travel Analysis Process uses the six-step process identified in FS-643, Roads Analysis: Informing Decisions about Managing the National Forest Transportation System (1999). The Analysis is tailored to local situations and landscape/site conditions by forest staffs and coupled with public input.

The steps are designed to be sequential, with the understanding that the process may require feedback among steps over time as an analysis matures. The process provides a set of possible issues and analysis questions for which the answers can provide recommendations about the management of motorized roads and trails, and the management of motorized areas. Decision makers and analysts determine the relevance of each question, incorporating public participation as appropriate. TAP is not subject to NEPA as it makes recommendations. Further analysis would be necessary to make decisions. This TAP will be used to assist in development of the proposed action and alternatives for the Sandia Travel Management project. The steps in the process are:

- Step 1. Setting up the Analysis
- Step 2. Describing the Situation
- Step 3. Identify Issues
- Step 4. Assessing Benefits, Problems and Risks
- Step 5. Describing Opportunities and Setting Priorities
- Step 6. Reporting

The product of this analysis is a report that documents the information and analysis used to identify opportunities, set priorities, and make recommendations for future motorized use of roads, trails and areas in conformity with the Travel Management Rule. Included in the report is a map displaying the known road and motorized trail systems for the analysis area, and the needs and opportunities for each road/trail, or segment of road/trail.

It documents the travel analysis procedure used for the Sandia Ranger District Travel Analysis Area and presents findings from the analysis. This report is a "living" document, reflecting the conditions of the analysis area at the time of writing. Thus, the document can be updated as the need arises and conditions warrant.

Recommendations from the report:

- Identify needed and unneeded roads and trails;
- Identify road/trail associated environmental and public safety risks;
- Identify site-specific priorities and opportunities for road and trail improvements and decommissioning
- Identify areas of special sensitivity or any unique resource values; and
- Provide other specific information that may be needed to support project-level decisions.

## Project Introduction

The Sandia Ranger District of the Cibola National Forest covers 100,555 acres just east of Albuquerque, New Mexico and is a part of the Forest Service's Southwestern Region. Albuquerque residents regard the area as their backyard forest, and more than 1.5 million people visit the district each year. The Sandia Ranger District is separated into two Management Areas (MA). The MA designations and descriptions can be found in the Cibola National Forest Plan 1985. They provide direction for the administration and management of areas within the forest. Private and state roads are not considered forest roads unless agreements have been made regarding their use and jurisdiction. Management Area 1 is the Sandia Mountain Wilderness which is approximately 37,232 acres and Management Area 2 is approximately 44,648 acres which is the remainder of the Sandia Ranger District excluding the Sandia Mountain Wilderness, the Bernalillo Watershed Research Natural Area, and the Department of Energy and Department of Defense withdrawal areas. This TAP analyzes Management Area 2. Motorized and other mechanized use is not allowed in the Wilderness. The Department of Energy and Defense manage the transportation system within the withdrawal.

The Sandia Ranger District is predominantly managed as 'open' for motor vehicle use, meaning that motorized vehicle use is not limited to designated roads, trails and areas (exclusive of areas that prohibit motorized use, such as designated Wilderness, military withdrawal areas, etc.). There are areas near the western and southern Wilderness boundary that were closed to cross country travel in the 1985 Forest Plan. A 1996 decision also closed the area between NM 337 and the withdrawal to cross country travel. The scale of this analysis includes all known National Forest System (NFS) roads, trails, and open areas on lands within the Sandia Ranger District boundaries. Map 1.1 shows the Sandia Ranger District.



### **Summary of Issues**

Issues were identified using public involvement and internal Forest Service input. These issues include:

- Damage to resources and facilities from use of motorized vehicles on and off of National Forest System roads and trails.
- Inadequate maintenance of existing NFS roads/trails.
- NFS routes without Rights of Way or easements where they cross private lands.
- Conflicts between users on system roads and trails.
- Concern about the transportation system from residents near the district boundary.
- Discontinuous Off-Highway Vehicles (OHV) motorized route system.

### **Summary of Actions Responding to Issues**

- Expand public outreach through information and interpretation to improve understanding of resource damage from improper use of off roads and trails driving. Provide accurate information to users for more informed decisions when choosing routes to travel.
- Improve route number signage on roads/trails to enhance compliance and enforcement.
- Rehabilitate areas damaged by off roads/trails driving.
- Reduce the number of roads/trails to reduce impacts to wildlife habitat, soils and cultural resources and decrease maintenance costs.
- Develop partnerships with various State, County and local groups to defray maintenance costs.
- Plan separate routes for uses which are incompatible.
- Designate routes as OHV accessible by class of vehicle.

### **Analysis Performed**

A risk-benefit assessment was used to rank roads and motorized trails based on risks (wildlife disturbance, impacts on cultural resources, etc) and benefits (access to facilities, recreational opportunities for OHV users, etc.) The categories chosen to rank risk-benefit were based on issues (Appendix B) and by criteria set by the members of the Interdisciplinary Team in Chapter 4.

### **Key Results and Findings**

At present, no known critical areas for terrestrial ecosystem survey (TES) occur in the travel analysis areas (Cedro, La Madera, and Bernalillo Watershed areas). The Cedro area (due to its ponderosa pine habitat) has potential for Northern goshawk nesting (see the NEPA analysis for the Sandia Travel Management project). At present, no goshawks are known to occur in Cedro; consequently, no known critical areas for TES are present in the analysis areas. Further in-depth study will occur during the NEPA phase. Motorized travel off authorized routes (and alternatively/additionally) use by incompatible or off-season motorized equipment causes damage to cultural resources, reduces soil and water quality and

affects wildlife habitat. The road system that reflects long-term funding expectations would be about 12% of the current authorized system.

**How the Report Will be Used**

Travel Analysis Process results will assist the Sandia Ranger District in management of the roads and motorized trail system, and open areas. It will be used in the development and analysis of the Sandia Ranger District Travel Management project proposed action and alternatives.

## STEP 1: SETTING UP THE ANALYSIS

### Purposes

The purposes of this section are to:

- Identify the project area and state objectives
- Clarify the roles of technical specialists
- Develop a process plan and an analysis plan
- Address information needs

### Project Area and Objectives

The Travel Analysis Process will be conducted for Sandia Ranger District. The objective of the analysis is to provide scientific information for managing a road, motorized trail system, and areas that are safe and responsive to public needs and desires, conforms to the National Forest Land Management Plan, is efficiently administered, has minimal negative ecological effects on the land, and is in balance with available for needed management actions. All existing system and recommended motorized travel routes, within the project area, are included in this Travel Analysis Report.

The analysis area for this TAP includes those areas on the Sandia Ranger District where motorized use is currently permitted. Not included in this analysis are:

- the Bernalillo Watershed RNA which is closed to cross country travel
- the Sandia Wilderness that is closed to all mechanized use
- the southwestern section of the analysis area is the Department of Defense (DOD) and the Department of Energy (DOE) withdrawals where public entry is not permitted and the transportation system is managed by those agencies
- 7889 acres of the Sandia Ranger District that had motorized use designated in previous DOD/DOE withdrawals
- decisions, covering the area south of Interstate-40 and west of State Highway 337 outside of the DOD/DOE withdrawals

Refer to Map 1 and Map 2 – Existing Direction

The main objectives of this travel analysis are:

- Identify the need for changes by comparing the current road and motorized trail system and areas to the desired condition;
- Balance the need for access while minimizing risks by examining important ecological, social, and economic issues related to roads and trails;
- Furnish maps, tables, and narratives that display transportation management opportunities and strategies that address future access needs, and environmental concerns.

- Make recommendations to inform travel management decisions in subsequent NEPA documents.

### Roles of Specialists

An Interdisciplinary Team (IDT) was assigned by the Cibola National Forest Supervisor. The IDT members and their primary interdisciplinary discipline(s) or function are listed below:

**Table 1.0: Final Analysis Team**

Name	Primary Interdisciplinary Discipline(s) or Function
Keith Baker	Integration with NEPA requirement
Bill Falvey	Wildlife, fish, rare plants, threatened and endangered species
Beverly deGruyter	Wildlife
Nancy Brunswick	Recreation: Trail uses, management and data, Recreation: Motorized recreation Recreation Opportunity Spectrum Visual Quality Objective Team Leader: Travel Management
James T Lerke	Access needs for fuels management, fire management, community protection/safety
Alberto Lara	Access needs for fuels management, fire management, community protection/safety
Rob Byers	Right-of-ways, land ownership
Don Hall	Access for special uses
Edward Huffman	Watershed health, riparian, wetlands, water quality/quantity, air quality, soil
Bryce Bohn	Hydrologist
Mike Gurule	TAP Team Leader, Road management, road maintenance, motorized mixed use analysis, road data, integration with other road jurisdictions
Rob Arlowe	GIS mapping and GIS analysis, identification of data needs
Cynthia Benedict	Tribal (Liaison, traditional/sacred sites and uses)
Clifford Nicoll	Cultural resources, cultural properties, traditional/sacred sites/uses
Alan Kelso	Vegetation/Timber resources access needs
Mark Chavez	Public Affairs Specialist
Marcia Hagerdon	Project support

## Process Plan

The interdisciplinary team will recommend to the Line Officer a process plan for conducting the analysis. The Line Officer approves the process plan. The process plan is described FS-643 titled *Roads Analysis: Informing Decisions about Managing the National Forest Transportation System* will be followed.

## Analysis Plan

- Review data collection and analysis
- Review State OHV laws.
- Verify accuracy of system road and motorized trail locations on maps.
- Verify the current conditions of NFS roads and motorized trails and features associated with these assets including safety issues, surface type and environmental issues.
- Review draft motorized trail management objectives (TMO) on each motorized trail.
- Identify discrepancies between on-the-ground conditions, the Travel Routes database and current management direction.
- Document these items giving priority to safety issues.
- ID Team and Line Officer identify preliminary access and resource issues, concerns and opportunities.
- Identify additional issues, concerns and opportunities through public involvement and internal resource staffs.
- Perform the analysis concurrently with other analyses ongoing in the project area.
- Recommend changes to the road and motorized trail system and areas based on the findings of this Travel Analysis.

## Information Needs

- Accurate location and condition of all system roads and motorized trails within the analysis area. A complete inventory of unauthorized (user-created) routes is not required; however some of these routes were inventoried at the Forests discretion.
- For each road and motorized trail include the following information:
  1. Owner of the underlying land of each system road and motorized trail
  2. Any easement dedication to the FS
  3. Any additional right-of-way required
  4. Maintenance jurisdiction for the road or motorized trail, (FS, County, City, Volunteer group or State)
- Assessment of previous and current opportunities, problems and risks for all roads and motorized trails in the analysis area.
- Soil, water resources, invasive species, environmental issues and biological communities.

- Public access and recreational needs and desires in the area, including access for all landowners.
- Current observed road uses.
- Current draft trail management objectives (TMO) on each motorized trail.
- Areas of special sensitivity, resource values, or both.
- Best management practices for the area.
- Current forest plan and other management direction for the area.
- Agency objectives and priorities.
- Interrelationship with other governmental jurisdictions for roads and motorized trails.
- State laws that regulate motor vehicle use on and off public roads.
- Examine applicable federal, state, and local laws.
- Public and user group values and concerns.
- Forest scale and any project level Roads Analysis Process (RAP).
- Cultural Resources

## STEP 2: DESCRIBING THE SITUATION

### Purpose

The purpose of this step is to:

- Describe the existing road and motorized trail system
- Discuss Resource Concerns
- List the New Mexico State OHV/ATV Laws
- Describe Road Maintenance Levels
- Discuss Trail Design and Classification
- Describe the Existing Direction
- List the Best Management Practices

### Existing Road and Motorized Trail System

Motor vehicle use on the Sandia Ranger District has increased in recent years as the Albuquerque and East Mountain communities' population continues to grow. This increased use has led to the proliferation of unauthorized (user-created) routes; increased conflict between motorized and non-motorized recreationists; complaints about noise, trespass, and dust from adjacent landowners; and areas of degraded soil, water, vegetation, and wildlife habitat conditions.

All of the areas included in this analysis lie within Management Area 2 as described in the 1985 Forest Plan. The management emphasis for this area is "on providing opportunities for a variety of year round recreational experiences consistent with guidelines established for maintaining viable wildlife populations and ecosystem health. Wildlife diversity and population viability will be maintained or improved through habitat management." (The Plan, Amendment No. 8, November 1996, pg. 84).

In this area, the transportation system and motorized recreation use and management has distinctly different characteristics on the Sandia Mountains north of I-40 and the Cedro area in the Manzanita Mountains south of I-40. The Sandia Mountains have been managed for developed recreation and non-motorized trail use. Many of the trails in this area provide access to the Sandia Mountain Wilderness. There is a concentration of developed recreation sites along the Crest Highway NM 53 and in the Juan Tabo Basin. Since the Sandia Mountain Wilderness is closed to mechanized and motorized use, motorcycle, ATV and mountain bike use is concentrated in the areas south of I-40 in the Cedro area.

There are 37 miles of National Forest System (NFSR) roads on the Sandia Ranger District that are open to general motorized use. Of these, 18.3 miles are maintained and managed for all motorized vehicles licensed by any state to operate on public roads. In addition, there are 18.7 miles of system

roads that are managed for high clearance vehicles, such as pickups or sport utility vehicles. In the Cedro area OHV use has been permitted on the roads managed for high clearance vehicles including NFSR 462. These routes are shown on Map 1 and Map 2.

There are 37.4 miles of National Forest System trails in the Cedro area of the Sandia Ranger District where motorized use has been accepted, all south of I-40. These trails are also popular with mountain bikers and used by equestrians and hikers.

All of the areas included in this project lie within Management Area 2 as described in the 1985 Forest Plan. The management emphasis for this area is "on providing opportunities for a variety of year round recreational experiences consistent with guidelines established for maintaining viable wildlife populations and ecosystem health. Wildlife diversity and population viability will be maintained or improved through habitat management." (The Plan, Amendment No. 8, November 1996, pg. 84).

### **Resource Concerns**

Much of the project area has soils rated as either erodes easily (41 percent) or low bearing strength (33 percent), which indicates that the soil is susceptible to compaction and rutting. Severe erosion potential is more common north of I-40 due to steeper slopes, but low bearing strength is common throughout the project area. These conditions make travel route construction and maintenance more difficult and costly considering the resource mitigations necessary to limit damage to soil productivity. Examples of soil damage by travel routes on low bearing strength soils can be found in the Tablazon Canyon area where rutting in the Forest Road 462 and other routes is prevalent.

Stream channels can be damaged by travel routes that either pass through or are directly adjacent to these channels. There can be damage to the stream even when use only occurs when the channels are dry. An example of potential damage to stream channels is in the headwaters of Cedro Creek near the intersection with Forest Road 242, where there has been a greater than 20 foot down cut from erosion in a few locations. This situation warrants reroute of the trail around the area and restoration of the creek. There are other situations where actions can be taken that will help restore channel conditions. Another example is Las Huertas Creek, where the channel is so degraded no additional routes would be justified.

Generally, roads and motorized trails cause disturbance or displacement of wildlife, habitat fragmentation, habitat loss, reduction of habitat productivity, and in some cases, wildlife mortality. In some areas, improper placement of roads and trails has led to loss or reduced productivity of important wildlife habitats. The density of roads and trails has contributed to habitat fragmentation and wildlife disturbance, especially in the Cedro area.

Heritage resources are a concern throughout the analysis area as they are important considerations in all management activities on the District. There has been human occupation in the area for thousands of years. Roads and motorized trails can impact heritage sites, and necessitate rerouting a road or trail. The Cedro area has the most potential conflict between heritage resources and motorized routes.

There is fire risk wherever people use the forest. This risk can come from many sources-- smoking, vehicles, and campfires. The transportation system is critical for access in fire suppression activities and fire patrols.

#### **Sandia Mountains (North of I-40) - Map 1**

The Sandia Mountains have been primarily managed for non-motorized and developed recreation. Along the Crest Highway NM 53, there are picnic grounds, winter sports sites, the Sandia Crest overlook, and numerous trailheads. The majority of trails access the Sandia Mountain Wilderness. While off-road vehicle use was permissible under the Forest Plan east of the Wilderness boundary, the steep and rocky slopes and dense conifer forests limited off-road travel. There are very few user created trails that have been used by motor vehicles in comparison to the Cedro area. Travel off-roads was not permitted to the west and south between the Wilderness boundary and the Forest boundary under the Forest Plan decision. Albuquerque, Placitas and the East Mountain communities border the National Forest and provide easy access to the Sandia Ranger District.

The area north of the La Madera road between the Forest Boundary and east of the Las Huertas Road (NM 165) has received some motorized use predominately from the neighboring residents. The area is also used for horse back riding, mountain biking and hiking. The primary access to this area is a single use road that is under special use permit, not open to public use. The road is signed as a service road, but not gated. This route is the service road for a crude oil pipeline.

The La Madera area is one of the last areas of the lower elevation portions of the Ranger District relatively free from development on adjacent private lands. This area provides a viable corridor for wildlife movement from the Sandia Mountains to other mountain ranges like the Ortiz and San Pedro Mountains (NMDGF 2007). Because this area is lower in elevation and is less rugged and free from snow as compared to the higher elevation lands, it is readily available for wildlife movement between mountain ranges. As private lands surrounding La Madera become subject to greater development pressure, this wildlife movement corridor becomes even more important.

The Sandia Mountains are culturally significant to all the tribes consulted in this project, as these mountains have been and continue to be used by Native American tribes for a variety of traditional cultural and religious activities.

Participants in the public involvement process to date have indicated that the Sandia Mountains are highly valued for non-motorized trail use. There has been concern about OHV use reducing the quality of their experience while using these trails.

#### **Cedro Area -- Existing Direction Map -- Cedro Area (see Map 2)**

The Cedro area contains many unauthorized (user-created) roads and trails. These unauthorized routes are concentrated in areas where cross-country travel by motor vehicles has been permitted, and often include dense, braided networks of paths, especially in the Cedro Peak and Oak Flat areas. Developed recreation sites are located at Oak Flat, Cedro Peak and Pine Flat. Depending on snow conditions, there can be year- round motorized recreation use.

There are housing developments to the north, west, and south of the project area, including Tijeras, Tablazon Estates, Five Hills and Mars Court. There are also developments on private inholdings in the Juan Tomas and Heatherland Hills area.

Lands to the east of the Cedro area were part of a Federal and local government land exchange in the mid-1980s and are now owned by the City of Albuquerque, Bernalillo County, or are in private ownership. The area is currently undeveloped. There are two areas managed for non-motorized recreation by the City of Albuquerque and Bernalillo County as open space recreation areas. There are trails that cross from Forest Service lands onto private and Open Space lands. These trails were constructed while this area was still in federal ownership. Many people still believe this area to be under National Forest ownership, and continue to use the trails that are now located on private and other non-federal land.

Participants in the public involvement process have indicated they place a high value on the Cedro area for a variety of trail uses. The single-track motorized system and unauthorized trails are highly valued by motorcyclists and mountain bikers. ATV riders have been using roads and area trails. There are recreational use conflicts between ATV users and single-track users; the wider track vehicles can damage the trail treads, and, by widening the trail, they change the experience for the single-track users. There are no trails constructed and managed specifically for ATV use. More trailheads are needed to accommodate the number of trail users. Parking is also needed that accommodates trailers for transporting ATVs and dirt bikes. The high clearance roads and wider system and unauthorized trails are valued by the full sized 4-wheel drive users.

There are two small parking areas at the junction of NFSR 462 and the Chamisoso Canyon Trails in the Cedro analysis area. On weekends these sites are often filled beyond capacity. There is also one small parking area on the north end of NFSR 462 at the junction of National Forest System Trail (NFST) 0511.1 Lower Pine Trail. There is a need for a trailhead that accommodates trailers at the south end of the Cedro area.

This area is also highly valued by equestrian users. Many equestrians who are residents of nearby subdivisions were attracted to the area because of the convenient access to the trail system. Although equestrian users can ride in the Sandia Mountain Wilderness, many use the Cedro area due to the limited trailheads in the Sandias designed for trailer parking.

There has been moderate dispersed camping in the Cedro area, in relatively confined areas. Most use has occurred along NFSR 462 and 13, and BC (Bernalillo County) Rd 242 (Juan Tomas Road). The close proximity to homes and communities provides unique challenges. Motorized recreation users would like to maintain convenient access. Other area residents have expressed concern about noise, dust, and security concerns from motorized trails near subdivisions.

## **New Mexico State OHV/ATV Laws**

Under New Mexico state laws, ATV's and off highway motorcycles can **only** be ridden on unpaved roads. Some pertinent excerpts of these laws are:

### **Section 66-3-1011 (Effective January 1, 2006) Operation on streets or highways; prohibited areas.**

A. A person shall not operate an off-highway motor vehicle on any:

- (1) limited access highway or freeway at any time; or
- (2) any paved street or highway except as provided in Subsection B of this section.

B. Off-highway motor vehicles may cross streets or highways, except limited access highways or freeways, if the crossings are made after coming to a complete stop prior to entering the roadway. Off-highway motor vehicles shall yield the right of way to oncoming traffic and shall begin a crossing only when it can be executed safely and then cross in the most direct manner as close to a perpendicular angle as possible.

(i.e. By default, OHV's can operate on gravel & native surfaced roads in NM.)

### **Section 66-3-1012 (Effective January 1, 2006) Driving of off-highway motor vehicles adjacent to highway.**

A. Off-highway motor vehicles issued a validating sticker or nonresident permit may be driven adjacent to a highway, yielding to all vehicles entering or exiting the highway, in a manner so as not to interfere with traffic upon the highway, only for the purpose of gaining access to or returning from areas designed for the operation of off-highway motor vehicles by the shortest possible route and when no other route is available or when the area adjacent to a highway is being used as a staging area. Such use must occur between the highway and fencing that separates the highway from private or public lands.

B. When snow conditions permit, an off-highway motor vehicle may be operated on the right-hand side of a highway, parallel, but not closer than ten feet, to the inside of the plow bank.

Further information may be obtained at:

- New Mexico ATV Brochure:  
[http://www.wildlife.state.nm.us/publications/documents/OHV\\_Brochure\\_2007.pdf](http://www.wildlife.state.nm.us/publications/documents/OHV_Brochure_2007.pdf)
- The NM Off-Highway Motor Vehicle Law:  
[http://www.nmtourism.org/OHV/SB\\_252\\_Final\\_Version.pdf](http://www.nmtourism.org/OHV/SB_252_Final_Version.pdf)  
The 2006 law addresses safety, age restrictions, training requirements, fees, penalties and OHV use.

## **Road Maintenance Levels**

The classification of different types of forest roads are described by five maintenance levels which defines the level of service, and maintenance required at that maintenance level, and consistent with road management objectives. Brief descriptions of the five maintenance levels are listed below: (FSH 7709.58).

### ***Maintenance Level 1***

Assigned to intermittent service roads during the time they are closed to vehicular traffic. The closure period must exceed 1 year. Basic custodial maintenance is performed to keep damage to adjacent resources to an acceptable level and to perpetuate the road to facilitate future management activities. Emphasis is normally given to maintaining drainage facilities and runoff patterns. Planned road deterioration may occur at this level. Appropriate traffic management strategies are "prohibit" and "eliminate." Roads receiving level 1 maintenance may be of any type, class, or construction standard, and may be managed at any other maintenance level during the time they are open for traffic. However, while being maintained at level 1, they are closed to vehicular traffic, but may be open and suitable for non-motorized uses and the road may be converted to a motorized trail.

### ***Maintenance Level 2***

Assigned to roads open for use by high clearance vehicles. Passenger car traffic is not a consideration. Traffic is normally minor, usually consisting of one or a combination of administrative, permitted, dispersed recreation, or other specialized uses. Log haul may occur at this level. Appropriate traffic management strategies are either to (1) discourage or prohibit passenger cars or (2) accept or discourage high clearance vehicles.

### ***Maintenance Level 3***

Assigned to roads open and maintained for travel by a prudent driver in a standard passenger car. User comfort and convenience are not considered priorities. Roads in this maintenance level are typically low speed, single lane with turnouts and spot surfacing. Some roads may be fully surfaced with either native or processed material. Appropriate traffic management strategies are either "encourage" or "accept." "Discourage" or "prohibit" strategies may be employed for certain classes of vehicles or users.

### ***Maintenance Level 4***

Assigned to roads that provide a moderate degree of user comfort and convenience at moderate travel speeds. Most roads are double lane and aggregate surfaced. However, some roads may be single lane. Some roads may be paved and/or dust abated. The most appropriate traffic management strategy is "encourage." However, the "prohibit" strategy may apply to specific classes of vehicles or users at certain times.

**Maintenance Level 5** - Currently there are no ML 5 Roads on the Cibola National Forest.

Assigned to roads that provide a high degree of user comfort and convenience. These roads are normally double-lane, paved facilities. Some may be aggregate surfaced and dust abated. The appropriate traffic management strategy is “encourage.”

**Decommissioned Road**

Decommissioned roads have been permanently removed from the national forest system. They continue to be tracked in the transportation atlas for future reference. These roads should have received a level of physical maintenance, ranging from a Maintenance Level 1 type closure to a complete obliteration. For administrative purposes, these roads are not considered as existing and are not available for motorized use.

**Unauthorized Road or Trail**

A road or trail that is not a forest road or trail or a temporary road or trail and that is not included in a forest transportation atlas. (36 CFR 212.1)

**Trail Design and Classification**

Trails are described using one of two classifications, ‘Design Use’ or ‘Trail Class’ both of which are defined and discussed in this section. The designed use represents the most impact allowed on a trail. If a trail is designated as motorcycle, then everything but ATV use is permitted on that trail. In turn, if a trail is designed for hiking then only hiking is allowed and any impacts greater than that (bike, motorcycle, atv) are not allowed.

Currently, the Sandia Ranger District has about 287 miles of National Forest system trails with approximately 32 miles where motorcycle (single track) and/or ATV use is accepted. On motorized trails, use is limited to vehicles that are less than 50 inches wide. Some of the motorized trails are not wide enough for All-Terrain Vehicles (ATVs, or 4-wheelers), and can accommodate only motorcycles. Please refer to Table 2.1 for these categories and their definitions.

**Table 2.1: Trail design use classifications for the Cibola National Forest:**

Status	Design Use	Level of Impact	Definition
Motorized	ATV	Greatest	Trail accessible for All Terrain Vehicles < 50” in width
	MTRCYCL	↓	Trail accessible to motorcycles
Non-Motorized	BIKE	↓	Trail accessible to bicycles
	PACK	↓	Trail accessible to horses and other pack animals
	HIKE	↓	Trail accessible to pedestrian traffic (hiking only)
	XSKI	Least	Cross-Country Ski Trail (seasonal)

The term ‘Trail Class’ refers to the class of trail and is similar to the road maintenance levels 2 through 5. Class 1 is the most primitive type of trail and requires the least maintenance with class 5 being the most developed trail requiring the most frequent and usually the most expensive maintenance. Class 5 trails are generally fully accessible and usually have pavement or other

hardened surfaces that accommodate wheelchair access. Table 2.2 below defines each of these classes.

**Table 2.2: Definitions of 'trail class' classifications:**

Trail Class	Definition
5	Trails maintained for high use and experience levels including special purposes such as visitor's information services, bicycle, vista or that accommodates persons with disabilities. Basic care same as class 4 but patching of paved tread may be needed annually. Trail sides maintained to meet high visual quality standards beyond the trail limits. Vistas are maintained.
4	Trails maintained at relatively high standards to provide for public safety and convenience. Tread relatively smooth, firm, and may require stabilization. Signing at high level, all other elements same as class 3. These trails are generally maintained for family or senior citizen use.
3	Trails maintained for intermediate experience level. Trail sides brushed out, structures maintained to original design standards.
2	Trails maintained for near-primitive experience level, tread maintenance for public safety only
1	Trails maintained for primitive experience level. Custodial care only, no tread maintenance

Through the majority of this document design use will be mentioned because of its direct link to motorized trail use. Trail class will be referred to for budget purposes because it is how yearly maintenance dollars have been calculated.

Table 2.3 lists the existing miles of forest roads and motorized trails located in the Sandia Ranger District analysis area. For a detailed list of the roads and motorized trails please refer to Appendix A – Roads and Motorized Trails Risk and Benefit Assessment.

**Table 2.3 Road and Motorized Trails: Summary of Miles by type for the Analysis Area**

Maintenance Level (ML)	Sandia Ranger District Analysis Area Total Miles
ML 5 Road	0.0
ML 4 Road	9.1
ML 3 Road	10.2
ML 2 Road	19.7
ML 1 Road	1.3
<b>NFS Roads -- Total</b>	<b>40.3</b>
<b>Unauthorized Roads (oil pipeline road)</b>	<b>3.0</b>
Trails where motorized use has been accepted	31.9
<b>NFS Motorized Trails -- Total</b>	<b>31.9</b>

The forest analyzed 40.3 miles of maintenance level 1-4 forest NFSR roads, 3.0 miles of a single use road (oil pipeline road) and 31.9 miles of NFR trails where motorized use has been accepted within the analysis area. Other unauthorized roads or unauthorized motorized trails will be analyzed on a case by case situation in Sandia Travel Management analysis. If any unauthorized motorized routes are selected for route designation in the final decision of the EA they will be added to the forest transportation system.

**Existing Direction (Southwestern Regional Implementation Guidelines) for Roads, Trails, and Areas**

A. General

Because travel analysis is focused on identifying needed changes to the forest transportation system, identification of the existing direction is an important first step. In general terms, the existing direction includes the National Forest System roads and motorized trails currently managed for motor vehicle use, plus the restrictions, prohibitions and closures on motor vehicle use existing on an Administrative Unit.

Existing travel management direction and associated documentation determines the system of roads, motorized trails and areas open to public motorized travel. Existing direction comes from: laws and regulations; official directives; Forest Plans; Forest Orders; travel analysis, including forest-wide and watershed or project specific roads analysis; and travel analysis. Additional sources of information about a Unit's managed system comes from: road and motorized trail management objectives (RMO's/TMO's); maps, including visitor and travel management maps;

Recreation Opportunity Guides (ROG's); road and motorized trail maintenance records; tabular database (INFRA); and other sources.

Existing direction does not preclude the designation of new roads, motorized trails or areas. Conversely, a road, motorized or area that is currently part of the existing direction does not assure it will remain designated. While the existing direction will be of great interest, in the end, decisions will be made about roads, motorized trails and areas through the collaborative travel management planning process. Refer to Map 1 and Map 2 – Existing Direction.

#### B. Roads

The existing direction for roads open to the public for motorized use includes forest system roads which are currently in the Forest Service INFRA database (tabular data) with the following attributes:

- System =National Forest System Road
- Jurisdiction =Forest Service
- Route Status =Existing
- Operational Maintenance Level =2-5

Roads in INFRA that meet any of the following criteria were not included in the existing transportation system. Exclude roads for designation where any of the following can be credibly documented:

- Technical Corrections –Incorrect coding in INFRA such as:
  - 1) Road record in INFRA but no corresponding road exists on the ground.
  - 2) Jurisdiction incorrectly coded as Forest Service.
  - 3) Unauthorized roads incorrectly coded as system roads (i.e., System =NFSR) instead of UNDETERMINED during any inventory or data editing process after the Road Policy came into effect on January 12, 2001 (See FSM 7703.2).
- Changes on the Ground - The road is in INFRA but no longer exists on the ground or the road has been converted to another use.
- Decision Not Recorded in INFRA – A NEPA decision to close a road exists but has not been recorded in INFRA.

#### C. Motorized Trails

The trails where motorized use has been accepted are on the NFS lands south of Interstate 40 in the Cedro area. There are motorized trails that were designated for single track (motorcycles) motorized use in the David and Otero Canyon area in a 1996 decision.

The existing direction for motorized trails is the forest system of motorized trails populated in INFRA with the following attributes:

- Motorized Trail System =National Forest System Trail
- Jurisdiction =Forest Service

- Trail Status =Existing
- Allowed Use (from Access and Travel Management - ATM) =Any motorized vehicle with a management strategy of “manage” or “accept.”

In some cases, motorized trails that meet the preceding criteria should not be included in the existing motorized trail system. Exclude motorized trails where any of the following can be credibly documented:

- Technical Corrections –Incorrect coding in INFRA such as:
  1. Motorized trail record in INFRA but no corresponding motorized trail exists on the ground.
  2. Jurisdiction incorrectly coded as Forest Service.
  3. Unauthorized motorized trails incorrectly coded as system motorized trails as a result of any inventory or data editing process after January 12, 2001 (See FSM 7711.03).
- Changes on the Ground – The motorized trail is in INFRA but no longer exists on the ground or the motorized trail has been converted to another use.
- Decision Not Recorded in INFRA – A NEPA decision to close a motorized trail to motorized use exists but has not been recorded in INFRA.

#### D. Areas

Areas identified in Forest Plans or other planning documents, which have been specifically designated for unrestricted motor vehicle use, constitute the existing direction. Tracts of forest which currently lack motor vehicle use restrictions, but are not specifically designated for unrestricted motor vehicle use, are not included as part of the existing open to motor vehicle use as areas.

Areas designated for motor vehicle use are not intended to be large or numerous. The Rule preamble clearly states the provision allowing for this type of designation is to be applied sparingly. Designated areas are to have biophysical characteristics that are suitable for motor vehicle use, or they should be so significantly altered by past actions that motor vehicle use might be appropriate. If an area is designated, all of it will be open to cross-country motorized travel. Where practical, designated areas should be clearly delineated on the ground.

Currently, the Sandia Ranger District does not have any areas specifically designated for unrestricted motor vehicle use. Based on their analysis, the IDT does not recommend any suitable areas for motorized use.

**Cibola National Forest Previous Travel Management Decisions**

Table 2.4 summarizes the existing direction for the Sandia Ranger District and identifies the areas and need to be analyzed for potential affects to natural and cultural resources.

**Table 2.4 Current Motorized Vehicle Use direction on the Sandia RD**

<b>Area</b>	<b>Acres</b>	<b>Direction</b>
Sandia Mountain Wilderness	38,095	Legislative Decision- no motorized or mechanized vehicles permitted in wilderness.
DOD and DOE Withdrawal	19,496	Legislative Decision- no public entry permitted.
Bernalillo Watershed Research Natural Area	1,031	Cibola Forest Plan decision – no motorized vehicle use permitted in this area.
Lands adjacent to the Military Withdrawal decision (Includes David, Otero and Tunnel Canyons)	7,889	Forest Decision, December 20 <sup>th</sup> , 1996. Roads and trails designated for motorized use by class of vehicle, no cross country travel permitted.
Acres closed to off road vehicle use. Areas are on the south and west sides of the Sandia Mountains, and are shown on Map PTD-1	6,079	Cibola Forest Plan decision closed these areas to off road vehicle use, but route designation is needed on open roads managed for high-clearance vehicles.
Remaining area on the Sandia Ranger District currently, project analysis area.	28,141	Need to recommend open roads and trails for motorized use in this area.

**Cibola National Forest Plan Direction**

In the 1985 Forest Plan, the Management Areas (MA) road densities were developed according to primary use of the particular area. The average road density across the Forest is 1.5 mi per square mile. However, the Forest Plan does not address any guidelines or standards for motorized trail density. Note that Geographic Information System (GIS) was used to determine the areas for road densities in Table 2.5.

**Table 2.5 Road Maintenance Levels (ML) 2-5 Miles and Densities**

Route Type in Management Area 2	Miles	Recommended Density Forest Plan Acres (mi/sq mi)	Existing Density Using GIS sq miles (mi/sq mi)	Existing Density Using Forest Plan sq miles (mi/sq mi)
Open Forest Service Roads ML 2-5	45.5	NA	0.69	0.65
All Existing Roads*	91	1.5	1.38	1.30
Motorized Trails	45.9	NA	0.70	0.66

\*All existing roads are based on the library road route layer in GIS minus decommissioned roads.

**Note:** There is not a direct correlation between the areas listed in Table 2.4 and the calculations in Table 2.5 because the Sandia Ranger District analysis area does not include the Bernalillo watershed and the David/Otero Canyon area, therefore, the totals for the analysis area are smaller than for the entire management area 2 (the Sandia Ranger District excluding the military withdrawal and the Wilderness).

**Table 2.6 Road Maintenance Level 1(closed roads) and Decommissioned Roads**

Closed (Maintenance Level 1)	4.8
Converted to Trail	0.5
Decommissioned	4.4

### STEP 3: IDENTIFYING ISSUES

#### Purpose

The purpose of this Step is to:

- Identify key questions and issues related to management of existing roads and trails in the analysis area.
- List the current Road and Motorized Trail Maintenance Costs

#### The Issues

The origin of the issues were identified using public involvement and internal Forest Service input. These are the road and motorized trail related issues in the analysis area in random order and do not represent a hierarchy of importance.

##### 1) Resource and facility impacts through the use of motorized vehicles off of system routes

Cross country travel has been permitted on much of the Sandia Ranger District. New roads and trails developed from this use, adding miles of unauthorized roads and trails. Private land owners bordering the National Forest are creating private access points into the Forest resulting in the establishment of additional unauthorized trails. There is interest from OHV recreationists to consider many of these routes for designation.

There are impacts resulting from cross country motor vehicle. Use can damage vegetation, accelerate soil erosion, damage heritage sites, and disturb wildlife. Funding and resources to rehabilitate areas damaged by cross-country OHV travel is not adequate.

##### 2) Maintenance of existing system roads and motorized trails is inadequate

Inadequate maintenance reduces access for National Forest uses and management, accelerates soil erosion by concentrating surface water flow, and affects water quality by increasing sediment into water courses and intermittent drainages. Funding for road and trail maintenance is not adequate to maintain the existing system and perform needed monitoring. The trails where motorized use has been accepted have not been managed to the standards for motorized trails.

3) **Right-of-Way and access**

Due to lack of road right-of-way, private land ownership and subdivisions bordering Forest lands, access is restricted for forest use and management. Existing or new land owners close gates to improve their privacy and to reduce vandalism and damage from people accessing National Forest areas across their land. Negotiations with landowners to obtain rights-of-ways for NFS trails may result in the elimination of some established uses, such as motorized use.

4) **Recreation user conflicts on designated roads and trails**

The volume and diversity of uses on the multiple use trails tends to lead to a conflict among users in the Cedro area. ATV use on trails can change trail surface in a way that makes it more difficult for motorcycle and mountain bike use. Mixing motorized and non-motorized uses can increase hazards and reduce the quality of the experience for some users. An expected increase in area population and recreation demand is likely to increase user conflicts on trails and roads.

5) **Amount of motorized trails in the Cedro Area**

There is concern by the public that too many National Forest System (NFS) roads and trails and unauthorized roads and trails are being considered for motorized designation in the Cedro area. This could cause:

a) Potential impacts to residents of neighboring subdivisions including safety concerns, increased fire risk, noise, dust, agency ability to provide effective law enforcement and the potential for trespass by motorized users; and

b) Potential impacts to non motorized recreation uses including damage to trail surfaces, noise, safety, reduction of scenic quality, widening of area trails by All Terrain Vehicles (ATVs) and full size vehicles, and reduction in quality of non motorized recreation experience due to user conflicts.

6) **Need to identify and designate loop trails that are responsive to user preferences within the limitations of resource concerns and management responsibilities**

OHV motorized recreation has largely been confined to the Cedro area south of I-40. North of I-40 the Sandia Mountain Wilderness the trail system is primarily for access to the Wilderness, where mechanized vehicles are prohibited. There is a system of loop trails available, both system and unauthorized trails in the Cedro area. These were originally developed as single track trails where motorized use was accepted. There is interest from users to have a separate trail system for wider vehicles to reduce conflicts. There is a limited land area available on the Sandia District to consider providing trail opportunities for motorized use.

7) **Potential inadequacy of the motorized recreation Infrastructure to deal with increasing recreation pressure from increased population of the Albuquerque area**

Motorized trail users have expressed a desire to have multiple trail systems with discrete uses to reduce conflicts. As the population increases in the Albuquerque and East Mountain areas, it will be more difficult to respond to the interests and separate the use for motorized and non motorized trail systems.

8) **High volume of unauthorized roads and trails, and restoration and enforcement of the closed unauthorized roads and trails**

Since cross country travel has been permitted on the Sandia District, there has been a proliferation of unauthorized trails and roads, especially in the Cedro area.

9) **Environmental impacts**

There is concern that the motorized use designations being recommended could cause environmental impacts including:

**a) Fragmentation and Wildlife Security:** There is a concern that designating NFS roads and trails and unauthorized routes and constructing new trail segments may fragment wildlife habitat and create barriers to movement. There is also a concern that the addition of such routes will reduce wildlife habitat capability to sustain populations and increase areas of disturbance;

**b) Impacts to drainage channels (watershed):** There is concern that designating routes and constructing new trail segments in areas with intermittent and ephemeral stream channels may impair the ecological and hydrologic function of drainage channels;

**c) Impacts to soils:** Much of the project area has soils that erode easily or have a low bearing strength. These soils are extremely susceptible to compaction and rutting;

**d) Impacts to vegetation:** Concern was expressed about the loss of vegetation due to increased vehicle use and spread of invasive species from seed sources dispersed by motorized vehicles; and

**e) Impacts to heritage and tribal resources:** There is concern about potential impacts to heritage resources by motorized vehicles.

#### 10) Loss or reduction of motorized recreation opportunities

There is concern that quality opportunities for motorized recreation, particularly opportunities for wider vehicles including ATVs and Full Size 4 x 4s were excluded. These concerns included:

- a) Conflicts with seasonal closures, because the Cedro area is highly valued for winter and spring motorized recreation when it is cooler and other higher elevation areas may be closed due to snow; and
- b) Requests for additional designations for Full Size 4 X4 vehicle and ATV opportunities, including the La Madera area.

#### 11) Human Caused Fire

Eliminating cross-country travel would decrease the overall fire risk. In addition, eliminating cross-country travel would reduce the possibility of mechanical equipment starting fires in fine fuels that normally do not exist within a road or trail due to maintenance and/or normal use. Managed roads and trails could also be effectively utilized for fire-line construction during an emergency or during fuels treatment projects. The evacuation of Forest users in an emergency could be accomplished much more effectively as the general users would be in designated areas.

### Road and Motorized Trail Maintenance Costs

#### Road Maintenance Costs

Selected roads are maintained annually to provide safe use, address resource issues, and maximize available maintenance funds. These selections are based on consultation between the District Ranger, and the Engineer Road Manager, and then approved by the Forest Supervisor. Maintenance is prioritized, with any known safety needs having the highest priority.

Federally appropriated funds for road operation and maintenance funding on the Cibola National Forest (N.F.) have ranged from about \$800,000 to \$950,000 per year over the last 5 years. This funding falls significantly short of the need. The Forest Service has conducted annual road condition surveys since 1999 to determine the maintenance and associated funding needed to maintain roads to the required safety standards and assigned maintenance levels. These surveys describe the features of the roads (e.g., surfacing, ditches, drainage dips, and culverts) and their condition. The maintenance cost of those roads and features is calculated from those surveys using a regional standard cost guide. Those surveys indicate that the annual maintenance funding needed for all of the Cibola National Forest System roads to be maintained to standard is about \$3,290,000.

Costs associated with road maintenance include expenditures in the repair or upkeep of a road necessary to retain the roads approved maintenance level. Local roads, which constitute the majority of roads within the analysis area, are generally assigned to maintenance level 2. These roads are open for use by high clearance vehicles and are not maintained for passenger vehicles.

The average Cibola N.F. cost to adequately maintain a level 2 road each year is \$420 per mile. Actual costs can vary due to location, grade, vegetation, unusual weather, the frequency of required maintenance, and other conditions.

Table 3.0 lists the forest wide average annual maintenance cost per mile per maintenance level for roads on the Cibola N.F. and the Sandia Ranger District. It also lists the total forest wide costs and the Sandia Ranger District costs.

**Table 3.0: Road maintenance costs by road maintenance level**

Maintenance Level	Cibola National Forest			Sandia Ranger District – All Miles		
	Existing Miles	Annual Cost per Mile	Annual Cost	Existing Miles	Annual Cost per Mile	Annual Cost
5	0	-	0	0	-	\$0
4	13.3	\$9,851	\$131,018	9.5	\$9,851	\$93,585
3	268.2	\$6,759	\$1,812,764	8.1	\$6,759	\$54,748
2	3120.9	\$420	\$1,310,778	35.1	\$420	\$14,742
1	275.3	\$107	\$29,457	12.4	\$107	\$1,327
<b>Totals:</b>	<b>3,678</b>		<b>\$3,284,017</b>	<b>65.1</b>		<b>\$164,401</b>

Road operation and maintenance funding on the Cibola National Forest have ranged from \$800,000 to \$950,000 per year over the last 5 years. This is an average of \$838,800 per year for annual maintenance.

The current and foreseeable Cibola National Forest (and by extrapolation Sandia Ranger District) road maintenance budget can support only about 26% of the required road maintenance. Annual road maintenance costs need to be curtailed by reducing road mileage or road maintenance levels; the road maintenance budget increased or somehow augmented; or a combination of all of the above. The failure to fully fund road maintenance results in incremental loss of roadway infrastructure—surfacing, drainage, structure—further increasing future maintenance costs, or causing a reduction in road maintenance level. Based on the past three years the transportation budget has decreased by an average of 25 percent over the span of the three years.

### Road Decommissioning

The cost associated with road decommissioning varies greatly and is dependent on the method of closure used. For example, the cost of felling trees or placing rocks to prevent access is much less expensive than reestablishing natural drainage patterns and stream channels (recontouring). Data for Region 3 (Southwestern Region) indicates that the average cost per mile for road decommissioning is \$1,126.00 per mile (1995 – 2002). This figure primarily reflects very light decommissioning activities (e.g., scarifying and seeding, signing, and blocking entrances) that are being used around the region. The majority of roads in this analysis area would require one or more of the light decommissioning activities to effectively close them. Some roads, however, would require more extensive decommissioning activities (e.g., recontouring) because they are on steep slopes or erosive soils. These roads would require drainage structures, such as waterbars and drainage dips, which would significantly exceed the \$1,126.00 per mile average.

### Trail Maintenance Costs

Over the last 3 years Federal appropriated funds for trail improvement and maintenance on the Cibola National Forest has averaged approximately \$140,000 per year. The Forest Service ran trail cost per mile reports in the INFRA Trails database for *both motorized and non motorized trails* and on averages of trail classes. Table 3.1 breaks down the trails by their trail class. The results show that fully maintaining the current trail system on the Sandia Ranger District would cost about \$125,000, and does not account for operations or enforcement. To fully maintain both the Sandia District motorized trail system and non motorized would require using the entire budget allocated for the Cibola National Forest.

Table 3.1: Trail maintenance costs by trail class for the Sandia Ranger District

Trail Class	Existing Miles	Annual Cost per Mile	Annual Cost
5	0.2	\$12,866	\$2,573
4	5.6	\$937	\$5,247
3	163.9	\$513	\$84,080
2	92.9	\$320	\$29,728
1	13.7	\$231	\$3,165
Total	276.3		\$124,793

These estimates are limited by the data that is currently available in the INFRA Trails database, which at this time contains the minimal work required for system trails.

## **STEP 4: ASSESSING BENEFITS, PROBLEMS AND RISKS**

### **Purpose**

The purpose of Step 4 is to:

- Describe the Analysis Process
- Describe the Criteria Used in the Risk and Benefit Analysis Process
- Describe the Scoring and Rating
- Summarize the Risk and Benefit of Existing Motorized Roads
- Recommendations for Roads and Motorized Trails
- Identify Problem Areas

### **The Analysis Process:**

The issues described in Step 3 were addressed by the Forest Interdisciplinary Team (IDT) in the following assessment. The risks and benefits were identified (Table 4.0) using the issues and the considerations described in 36 CFR 212.55. Each route was evaluated for the appropriately identified risks and benefits. Appendix B – Ecological, Social and Economic Considerations provides information generated by the interdisciplinary team that was used for the analysis. The results of this tabulation may be used in many ways in the travel analysis.

The principle use of the results of this analysis will be to assist the IDT in developing a proposed action for the Sandia Ranger District Travel Management. Because one of the considerations in Travel Management is analysis of maintenance costs, the results of this analysis, such as High Risk and Low Benefit roads and/or motorized trails, will give the IDT a starting point to identify maintenance levels that can and perhaps should be changed or roads and trails that are no longer needed.

Roads and motorized trails on the Sandia Ranger District provide access for many uses. They also provide the infrastructure to facilitate motorized recreation and forest management. Their presence has effects on the natural and cultural resources of the National Forest.

The following categories for risks/benefits were identified by the IDT as the most important resource issues for managing the Sandia Ranger District transportation system. Most of the "issues" associated with the transportation system are from Step 3. Only the issues that the IDT members felt they had the knowledge and experience to analyze made the list.

Table 4.0 list the categories for the risk and benefit associated with roads and Table 4.1 for motorized trails.

**Table 4.0 Resource Categories for Roads**

<b>ROADS</b>	
<b>RISK</b>	<b>BENEFIT</b>
The presence or conditions of roads present risks associated with these categories:	Roads are benefited for Forest management because they provide access to these categories:
<b>HUMAN CAUSED FIRE</b>	<b>RESOURCE ACCESS</b>
<b>WILDLIFE</b>	<b>TRIBAL ACCESS</b>
<b>WATERSHED</b>	<b>FACILITIES ACCESS</b>
<b>CULTURAL RESOURCES</b>	<b>ACCESS</b>
<b>TRIBAL USE</b>	<b>RECREATION RESOURCE</b>
	<b>EMERGENCY EVACUATION</b>

**Table 4.1 Resource Categories for Motorized Trails**

<b>MOTORIZED TRAILS</b>	
<b>RISK</b>	<b>BENEFIT</b>
The presence or conditions of motorized use trails present risks associated with these categories:	Motorized use trails benefit Forest management because they provide access to these categories:
<b>WILDLIFE</b>	<b>TRIBAL ACCESS</b>
<b>WATERSHED</b>	<b>RECREATION RESOURCE</b>
<b>CULTURAL RESOURCES</b>	<b>EMERGENCY EVACUATION</b>
<b>TRIBAL USE</b>	

Based on the high risk criteria for human caused fire, the IDT determined where human activities occur on the motorized trails they would all be at a high risk for fire. Therefore, it was decided not to include the human caused fire category to the motorized trails risk assessment.

The issues described in Step 3 are addressed in the following assessment of risks, benefits, and problems. Appendix B – Ecological, Social and Economic Considerations provides information generated by the interdisciplinary team that was used for the following analysis.

**Risk Assessment Criteria**

Roads and motorized use trails were scored with values of high, medium, or low risk combined with high, medium, or low benefit. Each resource specialist was asked to develop criteria for characterizing high, medium, or low values for roads and trails for their resource area. In some instances the criteria was the same for both roads and trails, some were different and others found trails to be not applicable for their particular resource. Table 4.2, and 4.3 details these criteria.

Appendix B provides additional information on ecological, social and economic considerations that were addressed by the interdisciplinary team. This information along with the criteria provided the basis for the development of the risk and benefit criteria assessment used in this analysis.

Table 4.2 Risk Assessment Criteria

<b><u>Human Caused Fire:</u></b>	<b>HIGH</b> – Roads or motorized use trails that access areas with a recorded pattern of human caused fire ignitions, or access areas where use, land ownership, vegetation and fuel conditions indicate a high potential for human caused fire ignition.
	<b>MEDIUM</b> - Roads or motorized use trails that access areas that have had previous fuel reduction treatments.
	<b>LOW</b> - Roads or motorized use trails that access areas that are not evaluated as high risk.
<b><u>Wildlife/Rare Plant Risk Assessment Criteria:</u></b>	Impacts from motorized road or trail use including maintenance, development and reconstruction will have varying degrees of risks (i.e. effects) depending on the spatial distribution, maintenance level, and distance of roads from important wildlife habitats. For this Transportation Analysis Process (TAP), the criteria for evaluating risk to wildlife are presented below. The criteria addresses risk from Forest Level 2, 3, 4, and 5 roads on wildlife and rare plants and serves to rank the risk as either High, Medium (in one case) or Low. Wildlife and rare plants used for this analysis will be species that are, in order of priority, Endangered, Threatened, Candidate, and Sensitive. The reason for selecting these species over others such as game species is because they influence forest management activities more than other species. Only those T&E and Sensitive species with the potential to occur in the Travel Management Plan analysis area are included; see the Biological Assessment & Evaluation (BAE) for species not analyzed.
<b>Threatened Endangered Species</b>	
<b>Mexican Spotted Owl:</b> Federally listed as Threatened under the Endangered Species Act with Critical Habitat.	

**Table 4.2 Risk Assessment Criteria (continued)**

	<p><b>HIGH</b> – Road or trail intersects a Protected Activity Center (PAC) or is within a ¼ mile of a known nest site. If nest site is not known, then the center of the PAC will be considered the nest site for this analysis. Road or trail intersects Critical Habitat as designated in 2004 or Protected Habitat (slopes over 40% in mixed conifer that haven't been logged in the past 20 years) as defined in the MSO Recovery Plan.</p> <p><b>MEDIUM</b>-Road or trail intersects Restricted Habitat (all mixed conifer or riparian habitat) as defined in the MSO Recovery Plan,</p> <p><b>LOW</b> - Road or trail does not intersect a PAC, Protected or Restricted Habitat or is more than ¼ mile away from a known nest site.</p>
<b>Bald Eagle:</b> Recently delisted under the Endangered Species Act.-Now Regional Forester Sensitive	<p><b>HIGH</b> - Road or trail intersects a wintering area.</p> <p><b>LOW</b> - Road or trail does not intersect a wintering area.</p>
<b>Northern Goshawk:</b> Listed as Sensitive by the Regional Forester.	<p><b>HIGH</b> - Road or trail intersects a Post-Fledging Family Area (PFA) or is within ¼ mile from a known nest site. If nest site is not known, then the center of the PFA will be considered the nest site for this analysis.</p> <p><b>LOW</b> - Road or trail does not intersect a PFA or is more than ¼ mile from a known nest site.</p>
<b>Gray vireo:</b> Listed as Sensitive by the Regional Forster	<p><b>HIGH</b> - Road or trail intersects a known high density nesting area or known nest site.</p> <p><b>LOW</b> - Road or trail does not intersect a known high density nesting area or known nest site.</p>
<b>Loggerhead Shrike:</b> Listed as Sensitive by the Regional Forster	<p><b>HIGH</b> - Road or trail intersects a nesting area or known nest site.</p> <p><b>LOW</b> - Road or trail does not intersect a nesting area or known nest site.</p>

**Table 4.2 Risk Assessment Criteria (continued)**

**\*Texas horned lizard-** Listed as Sensitive by the Regional Forester

**HIGH** - Road or trail intersects a known habitat area.

**LOW** - Road or trail does not intersect a known habitat area.

**\*Spotted Bat-**Listed as Sensitive by the Regional Forester

**HIGH** - Road or trail intersects a known habitat area.

**LOW** - Road or trail does not intersect a known habitat area.

**\*Allen's lappet-browed bat-**Listed as Sensitive by the Regional Forester

**HIGH** - Road or trail intersects a known habitat area.

**LOW** - Road or trail does not intersect a known habitat area.

**\*Pale Townsend's big-eared bat-**Listed as Sensitive by the Regional Forester

**HIGH** - Road or trail intersects a known habitat area.

**LOW** - Road or trail does not intersect a known habitat area.

**\*Dwarf shrew-**Listed as Sensitive by the Regional Forester

**HIGH** - Road or trail intersects a known habitat area.

**LOW** - Road or trail does not intersect a known habitat area.

**\*Merriam's shrew-**Listed as Sensitive by the Regional Forester

**HIGH** - Road or trail intersects a known habitat area.

**LOW** - Road or trail does not intersect a known habitat area.

**\*Long-tailed vole-**Listed as Sensitive by the Regional Forester

**HIGH** - Road or trail intersects a known habitat area.

**LOW** - Road or trail does not intersect a known habitat area.

\* Indicates the Species that currently have little information as to their occurrence on the Sandia Ranger District. In addition, habitat for Management Indicator Species will be considered.

Table 4.2 Risk Assessment Criteria (continued)

Management Indicator Species			
Species	Habitat Type	High	Low
<b>Elk</b>	Mountain grassland Mixed conifer	Location or motorized use of road or trail affects Forest wide habitat or population trend	Location or use of road or trail can affect Forest-wide habitat or population trend
<b>Mule Deer</b>	Mountain shrub Pinyon-juniper	Location or motorized use of road or trail affects Forest wide habitat or population trend	Location or use of road or trail can affect Forest-wide habitat or population trend
<b>Red-naped Sapsucker</b>	Deciduous Forest	Location or motorized use of road or trail affects Forest wide habitat or population trend	Location or use of road or trail does not affect Forest-wide habitat or population trend
<b>House Wren</b>	Riparian	Location or motorized use of road or trail affects Forest wide habitat or population trend	Location or use of road or trail does not affect Forest-wide habitat or population trend
<b>Juniper Titmouse</b>	Pinyon-juniper	Location or motorized use of road or trail affects Forest wide habitat or population trend	Location or use of road or trail does not affect Forest-wide habitat or population trend
<b>Red-breasted nuthatch</b>	Spruce-fir	Location or motorized use of road or trail affects Forest wide habitat or population trend	Location or use of road or trail does not affect Forest-wide habitat or population trend
<b>Black bear</b>	Spruce-fir Mixed conifer	Location or motorized use of road or trail affects Forest wide habitat or population trend	Location or use of road or trail does not affect Forest-wide habitat or population trend
<b>Pygmy nuthatch</b>	Ponderosa pine	Location or motorized use of road or trail affects Forest wide habitat or population trend	Location or use of road or trail does not affect Forest-wide habitat or population trend

<b>Hairy woodpecker</b>	Mixed conifer	Location or motorized use of road or trail affects Forest wide habitat or population trend	Location or use of road or trail does not affect Forest-wide habitat or population trend
<b>Merriam's Turkey</b>	Ponderosa pine	Location or motorized use of road or trail affects Forest wide habitat or population trend	Location or use of road or trail does not affect Forest-wide habitat or population trend

Maple 2  
10/10/2024

<b>Watershed Condition (effect to water quality and inherent erosion hazard):</b>	<b>HIGH</b> – Road or motorized use trail is in close proximity to a stream or crosses a stream more than once
	• <i>All mapped streams: 50 feet of an intermittent/ephemeral channel, 75 feet of a perennial channel;</i>
	• <i>Las Huertas Creek main stem - 100 feet of intermittent channel or 300 feet of a perennial channel.</i>
	<b>If more than 25% of the road or motorized use trail occurs on Terrestrial Ecological Unit with a severe erosion hazard.</b>
	<b>MEDIUM</b> - Road or motorized trail is not in close proximity to a stream and/or only crosses the stream once. One to 25% of the road or motorized trail occurs on a TEU with severe erosion potential, or more than 25 % of the road or motorized trail occurs on a TEU map unit with low bearing strength (prone to forming ruts).
<b>LOW</b> – Road or motorized use trail not in close proximity to a stream or crosses a stream, on a TEU with severe erosion potential, or less than 25 % low bearing strength.	

Maple 1  
10/10/2024

Table 4.2 Risk Assessment Criteria (continued)

<b>Cultural Resources:</b>	Risk assessments for roads analysis are guided by the following questions:
	• Has the road been surveyed for cultural resources?
	• Does the road impact any cultural resources or traditional cultural properties?
	• Is the road located in a high, moderate, or low site probability area?
	<b>HIGH</b> - The road or motorized use trail has been surveyed for cultural resources and identified sites are impacted by the road, or the road has not been surveyed but is located in an area with high or moderate site density. Traditional cultural properties or activities being impacted by road or motorized trail use.
	<b>MEDIUM</b> - The road or motorized use trail has not been surveyed but is located in a low site density area.
<b>LOW</b> - The road or motorized use trail has been surveyed for cultural resources and no sites are impacted by the road.	

<b>Tribal Use/Traditional Cultural Property (TCP):</b>	<b>HIGH</b> - Route is on or near a known Traditional Cultural Property (TCP), or; Route was highlighted by tribe(s) during consultation because of its proximity to TCP or traditional use area and they want it closed or to be non-designated, or because it contributes to trespass issue involving tribal lands.
	<b>MEDIUM</b> - Route is in vicinity of area known for TCPs and/or traditional cultural use. Specific location of TCP has not been identified.
	<b>LOW</b> - No identified TCP in area. No traditional cultural use identified in area.

**Benefit Assessment Criteria**

**Table 4.3 Benefit Assessment Criteria**

<b>Resources Access:</b>	Access to vegetative treatment areas or harvest.
	<b>HIGH</b> – Roads that are the primary access to several planned or potential vegetative management projects, wildland-urban interface fuelbreaks or commercial wood resources. These roads will be used many times for vegetative management in future projects. These roads’ improved condition reduce haul time/cost or improve safety significantly.
	<b>MEDIUM</b> - Roads that are an access to several planned or potential vegetative management projects, habitat improvement projects, wildland-urban interface fuel breaks or commercial wood resources. These roads will be needed to maintain past projects. It is less important for the roads to be maintained to a higher standard because they are only needed for occasional use. Wildlife habitat improvement projects generally only need be accessed every few years or so, negating the need for regular travel.
	<b>LOW</b> - Roads that do not provide access to wood resources, or where consistent or recurring access by low clearance hauling vehicles is not needed.

<b>Tribal Access:</b>	To TCP and Traditional Cultural Use Area
	<b>HIGH</b> - Route accesses a TCP. Route was highlighted by tribe(s) because it is valued or needed by tribe to access TCP or traditional use area.
	<b>MEDIUM</b> - Route is a known access and/or parking area for accessing TCP or area where traditional use is known to occur. Specific location of TCP may or may not have been identified.
	<b>LOW</b> - No known TCP in area. Access for traditional cultural activities has not been identified as important to tribe. No traditional use, or that use has not been identified.

**Table 4.3 Benefit Assessment Criteria (continued)**

<b>Facilities Access:</b>	Access to FS administrative facilities and special use facilities. Access to private land and associated facilities is not a criteria used to assess the benefit of a FS operated road. The FS cooperates with State or County agencies in accessing private land, but access to private land is not a primary benefit determining operation of Forest Service jurisdiction roads.
	<b>HIGH</b> - A high benefit road has Forest Service related facilities that require access by passenger car. Examples are Ranger District main offices, offices or locations that offer public information services, locations with crew quarters, facilities, and special-use facilities that require access by the general public and special use
	<b>MEDIUM</b> – A medium benefit road that has Forest Service related facilities that require occasional motor vehicle access and high clearance vehicle use is acceptable. Examples are specialized administrative FS sites or special-use facilities that require service personnel access only.
	<b>LOW</b> - A road accessing no facilities or routes where motorized access is not critical to maintaining facilities.

<b>Access:</b>	Access to dispersed recreation areas, trailheads, campgrounds, picnic grounds, traditional cultural activities and private inholdings without other access.
	<b>HIGH</b> – Access to recreation uses that require access by passenger car. Examples are developed sites in the urban, rural or roaded natural Recreational Opportunity Spectrum (ROS) class such as picnic grounds.
	<b>MEDIUM</b> – Access to regularly used dispersed recreation sites and areas where high clearance vehicles are acceptable for access.
	<b>LOW</b> – Limited access to seldom used dispersed recreation sites and roads with no access to developed facilities.

Table 4.3 Benefit Assessment Criteria (continued)

<b><u>Recreation Resources:</u></b>	Roads or motorized use trails that are important as a recreation opportunity for OHV use or driving for pleasure and scenic viewing. Also roads that provide important connections to recreation opportunities such as trailhead access.
	<b>HIGH</b> – Scenic roads and motorized use trails that are highly used for driving for pleasure and scenic viewing. These will include commonly publicized routes in recreation opportunity publications and routes identified as high benefit through the public involvement process. Roads that provide important connections to recreation opportunities such as trailhead access.
	<b>MEDIUM</b> – Routes commonly used as a recreation opportunity for OHV activities.
	<b>LOW</b> – Routes seldom used as a recreation opportunity for OHV activities.

<b><u>Emergency Evacuation:</u></b>	Access for fire suppression, evacuation routes and emergency medical response.
	<b>HIGH</b> – Roads or motorized use trails that provide primary or alternate emergency ingress and egress from populated areas. Roads that provide access to areas at high risk to life and property from fire in wildland urban interface areas which makes response time critical. Roads that provide access to facilities related to fires suppression.
	<b>MEDIUM</b> - Roads or motorized use trails that provide access to high benefit resource areas at high risk from fire.
	<b>LOW</b> - Roads or motorized use trails that provide access to areas that are not populated or where access by high clearance vehicles will be adequate for fire suppression.

## SCORING AND RATING

For each road analyzed the overall risk/benefit assessment was based on scores computed from separate risk assessments and benefit assessments. Scores were based on a point system in which a 'high' rating yielded 3 points, a medium rating yielded 2 points and a low rating yielded 1 point. Each resource category assessed generated a rating, and hence score. The scores were totaled for each road. Since there were five resource categories for each road analyzed, and the maximum score for any resource category is three points, a maximum of 15 points were possible for any road. The overall scores are based on a range of point scores for the risk and the benefits. See the example of the *risk* scoring system below.

Table 4.4 Example of the RISK scoring system for a ROAD

Risk Categories:	H, M, and L Rating	Points for each Rating
HUMAN CAUSED FIRE	H	3
WILDLIFE	H	3
WATERSHED	L	1
CULTURAL RESOURCES	M	2
TRIBAL USE	H	3
	<b>TOTAL POINTS:</b>	<b>12</b>

Table 4.5 Point range for the overall score for a Road

RISK	Point Range	Overall Score
	5 - 7	Low
	8 - 11	Medium
	12 - 15	High

Based on this example the overall score would be "High" for risk. The benefit scores were calculated using the same procedure but with different ranges. Reference Appendix A – Risk/Benefit Assessment for each road and motorized trail analyzed. A summary of the results are listed in Table 4.6 Roads Risk/Benefit Matrix and Table 4.8 Motorized Trails Risk/Benefit Matrix.

Note that the ranges are different for the roads and for motorized trails because the risk and benefit categories are different (see Tables 4.0 and 4.1). The recommendations to decommission, close, restrict, etc. are based on professional judgment and past best management practices.

Table 4.6 Roads Risk/ Benefit Matrix including recommendations

<b>ROADS</b>				
<b>(RISKS)<sup>1</sup></b>	<b>(BENEFITS)<sup>2</sup></b>			
	<b>Scores</b>	<b>Low 6-9</b>	<b>Medium 10-13</b>	<b>High 14-18</b>
	<b>High 12-15</b>	(HL) Decommission or Close (4.8) or 11.9%	(HM) Mitigate or Restrict (6.3) or 15.6%	(HH) Maintain- Highest Priority (2.1) or 5.3%
	<b>Medium 8-11</b>	(ML) Restrict or Close (1.3) or 3.3%	(MM) Mitigate-Maintain (21.4) or 53.1%	(MH) Maintain-Second Priority (3.7) or 9.2%
	<b>Low 5-7</b>	(LL) Mitigate-Close or Convert (0) <sup>3</sup> or (0%) <sup>4</sup>	(LM) Maintain-Low Priority (0.6) or 1.5%	(LH) Maintain-Low Priority  (0) or 0%

<sup>1</sup> Risks represent the range of total risk scores assigned to each category.

<sup>2</sup> Benefits represent the range of total benefit scores assigned to each category.

<sup>3</sup> Represent the number of road miles assigned to each box in the matrix out of a total of 40.3 miles for ML 1, 2, 3, and 4 roads.

<sup>4</sup> Represent the percentage of roads

## Recommendations for Roads

Below are the recommendations based on the risk and benefit assessment. The recommendations are site-specific to the roads or motorized trails but do allow for some options (i.e. Mitigate-Close or Convert).

**Table 4.7 Recommendations for Risk / Benefit Categories for Roads**

<b>Risk / Benefit</b>		<b>Recommendations for Roads</b>										
<p><b>Low Risk / Low Benefit</b></p> <p>No Roads were in this category</p>		Mitigate-Close or Convert										
<p><b>Low Risk / Medium Benefit</b></p> <p>1.5% (0.6 MILES) ROADS ARE:</p> <table border="1"> <thead> <tr> <th>Road #</th> <th>Name</th> </tr> </thead> <tbody> <tr> <td>26</td> <td>CEDRO PEAK PG LOOP 1</td> </tr> <tr> <td>423</td> <td>SANDIA RANGER STATION</td> </tr> <tr> <td>190D</td> <td>CIENEGA HORSE PARKING</td> </tr> <tr> <td>519</td> <td>CANYON ESTATES TRAIL HEAD</td> </tr> </tbody> </table>		Road #	Name	26	CEDRO PEAK PG LOOP 1	423	SANDIA RANGER STATION	190D	CIENEGA HORSE PARKING	519	CANYON ESTATES TRAIL HEAD	<p>Maintain-Low Priority</p> <p>Recommend continued Forest Service or cooperative agency maintenance for passenger car access.</p>
Road #	Name											
26	CEDRO PEAK PG LOOP 1											
423	SANDIA RANGER STATION											
190D	CIENEGA HORSE PARKING											
519	CANYON ESTATES TRAIL HEAD											
<p><b>Low Risk / High Benefit</b></p> <p>No Roads were in this category</p>		Maintain-Low Priority										

<b>Medium Risk / Low Benefit</b>	
<b>3.3% (1.3 MILES) ROADS ARE:</b>	
<b>Road #</b>	<b>Name</b>
8	PRIMERA AGUA
11A	WIND MILL ROAD

Restrict or Close

Passenger car access is not recommended based on the Risk/Benefit Analysis. Due to declining budget restrict access or close road.

Recommend reducing maintenance costs by restricting access for administration use only or closing road.

**Medium Risk / Medium Benefit**

**53.1% (21.4 MILES) ROADS ARE:**

Road #	Name
515	DEAD MAN CG
189A & 189	CASA LOMA
54A	PINE FLAT PG
438	CAPULIN PG
542	CEDRO PEAK MEADOW
16AA	DOC LONG PG
111	SKI AREA
165A	GATED OFF SPUR TO ELLIS RANCH
190A	CIENEGA PG (CAMP HOST)
281	SULPHUR CANYON PG (CAMP HOST)
341	9 MILE PG ENTRANCE
438A	CAPULIN SNOW PLAY AREA
302C	ACADEMY RD. SPUR
405	DAY CAMP
488	ELLIS TH. RD
341A	9 MILE PG DEAD END
190	CIENEGA CANYON
333A	LA LUZ
333D	EVERGREEN HILLS ROAD
333B	LA CUEVA REC AREA
13	CEDRO 2-TRACK
26A	CEDRO CG
9	MAHOGANY EAST
19	LOWER LAS HUERTAS PG
413A	OAK FLATS PG
462	CHAMISO CANYON
111B	SKI AREA

**Mitigate-Maintain**

Recommend continued Forest Service or cooperative agency maintenance for passenger car access.

Recommend mitigation of risk. Mitigation depends upon the specific risks and may include, but is not limited to: additional maintenance effort, reconstruction, relocation, seasonal maintenance restriction, seasonal road closure.

**Medium Risk / High Benefit**

**9.2% (3.7 MILES) ROADS ARE:**

**Road #                      Name**

242	JUAN TOMAS
333E	JUAN TABO BASIN
462A	HELIBASE ROAD

Maintain-Second Priority

Recommend continued Forest Service or cooperative agency maintenance for passenger car access.

Medium risk and high benefit indicate these are the *second* priority for investment of time and funds to mitigate or eliminate risk and accommodate uses.

Recommend mitigation of risk. Mitigation depends upon the specific risks and may include, but is not limited to: additional maintenance effort, reconstruction, relocation, seasonal maintenance restriction, seasonal road closure.

**High Risk / Low Benefit**

**11.9% (4.8 MILES) ROADS ARE:**

**Road #                      Name**

63C	OIL PIPELINE RD
62B	OIL PIPELINE RD
62AB	OIL PIPELINE RD
445H	WATERSHED
445A	WATERSHED
445C	WATERSHED
OIL PIPELINE (Single Use Road)	OIL PIPELINE RD

**Decommission or Close**

Passenger car access is not recommended based on the Risk/Benefit Analysis.

Recommend reducing maintenance costs by reducing maintenance level to high clearance (ML 2), or administratively close.

Coordinate with county government or private landowners to determine maintenance responsibility on roads needing passenger car access to private lands. On roads where the primary use is access to communities, request public roads agencies (county, towns, state government) to assume road operational jurisdiction.

On roads where exclusive need is access to private land or needed to manage activities under special use permits, issue a road use permit for the road. On roads or road segments not open to the public, and not required for access to private land, close or decommission the road. Additional information may be needed to determine level and type of use.

High Risk / Medium Benefit		Mitigate or Restrict
15.6% (6.3 MILES) ROADS ARE:		
Road #	Name	<p>Passenger car access for enjoyment or use of National Forest resources. Due to declining budget mitigate or restrict access.</p> <p>Recommend mitigation of risk and possible reduction of the maintenance level. Mitigation depends upon the specific risks and may include, but is not limited to: additional maintenance effort, reducing maintenance level, reconstruction, relocation, seasonal maintenance restriction, seasonal road closure.</p>
231	TUNNEL SPRINGS TH	
539Z	PARKING LOT AT SANDIA MAN CAVE	
445	WATERSHED	
High Risk / High Benefit		Maintain-Highest Priority
5.3% (2.1 MILES) ROADS ARE:		
Road #	Name	<p>High risk and high benefit indicate these are the <i>highest</i> priority for investment of time and funds to mitigate or eliminate risk and accommodate uses. Recommend mitigation of risk.</p>
16C	LAS HUERTAS PG	
333	JUAN TABO	

**Table 4.8 Motorized Trails Risk/ Benefit Matrix (including recommendations)**

<b>MOTORIZED TRAILS</b>				
		<b>(BENEFITS)<sup>6</sup></b>		
<b>(RISKS)<sup>5</sup></b>	<b>Scores</b>	<b>Low 3</b>	<b>Medium 4-5</b>	<b>High 6-9</b>
	<b>High 8-12</b>	(HL) Decommission or Close (0) or 0%	(HM) Mitigate or Restrict  (11.73) or 36.8%	(HH) Maintain- Highest Priority (1.88) or 5.9%
	<b>Medium 7</b>	(ML) Restrict or Close  (0.20) or 0.6%	(MM) Mitigate-Maintain  (10.25) or 32%	(MH) Maintain-Second Priority (4.69) or 14.7%
	<b>Low 4-6</b>	(LL) Mitigate-Close or Convert (0.19) <sup>7</sup> or (0.6%) <sup>8</sup>	(LM) Maintain-Low Priority  (2.98) or 9.3% %	(LH) Maintain-Low Priority  (0) or 0%

<sup>5</sup> Risks represent the range of total risk scores assigned to each category

<sup>6</sup> Benefits represent the range of total benefit scores assigned to each category

<sup>7</sup> Represent the number of motorized trails miles assigned to each box in the matrix out of a total of 31.92 miles.

<sup>8</sup> Represents the percentage of motorized trails

## Recommendations for Motorized Trails --

Below are the recommendations based on the risk and benefit assessment. The recommendations are site-specific to the roads or motorized trails but do allow for some options (i.e. Mitigate-Close or Convert).

Table 4.9 Recommendations for Risk / Benefit Categories for Motorized Trails

<b>Risk / Benefit</b>	<b>Recommendations for Motorized Trails</b>										
<p><b>Low Risk / Low Benefit</b></p> <p><b>0.6% (0.19 MILES) OF THE MOTORIZED TRAILS ARE :</b></p> <table border="1" data-bbox="136 806 607 898"> <thead> <tr> <th>Trail #</th> <th>Name</th> </tr> </thead> <tbody> <tr> <td>05604</td> <td>PONDEROSA</td> </tr> </tbody> </table>	Trail #	Name	05604	PONDEROSA	<p>Mitigate-Close or Convert</p> <p>Trail access is not recommended based on the Risk/Benefit Analysis. Due to declining budget convert or close trail.</p> <p>Low risk indicates low priority for investment of time and funds to mitigate risk.</p>						
Trail #	Name										
05604	PONDEROSA										
<p><b>Low Risk / Medium Benefit</b></p> <p><b>9.3% (2.98 MILES) OF THE MOTORIZED TRAILS ARE :</b></p> <table border="1" data-bbox="136 1146 607 1344"> <thead> <tr> <th>Trail #</th> <th>Name</th> </tr> </thead> <tbody> <tr> <td>05240</td> <td>CEDRO PEAK</td> </tr> <tr> <td>05252C</td> <td>MEADOW RIDGE</td> </tr> <tr> <td>05851</td> <td>COYOTE SPLIT</td> </tr> <tr> <td>05606</td> <td>PINYON 2-TRK</td> </tr> </tbody> </table>	Trail #	Name	05240	CEDRO PEAK	05252C	MEADOW RIDGE	05851	COYOTE SPLIT	05606	PINYON 2-TRK	<p>Maintain-Low Priority</p> <p>These trails are important connections in the trails system for the District. Recommend continued Forest Service, volunteer, or cooperative agency maintenance for trails.</p> <p>Low risk indicates low priority for investment of time and funds to mitigate risk.</p>
Trail #	Name										
05240	CEDRO PEAK										
05252C	MEADOW RIDGE										
05851	COYOTE SPLIT										
05606	PINYON 2-TRK										

<p><b>Low Risk / High Benefit</b></p> <p><b>No Trails in this category</b></p>	<p>Maintain-Low Priority</p>												
<p><b>Medium Risk / Low Benefit</b></p> <p><b>.60% (0.20 MILES) OF THE MOTORIZED TRAILS ARE:</b></p> <table border="1" data-bbox="138 583 609 615"> <thead> <tr> <th>Trail #</th> <th>Name</th> </tr> </thead> <tbody> <tr> <td>05610</td> <td>ROCKY TOP</td> </tr> </tbody> </table>	Trail #	Name	05610	ROCKY TOP	<p>Restrict or Close</p> <p>Trail access is a low priority or is not recommended based on the Risk/Benefit Analysis. Due to declining budget restrict access or close trail.</p> <p>Recommend reducing maintenance costs by restricting access or closing trail.</p>								
Trail #	Name												
05610	ROCKY TOP												
<p><b>Medium Risk / Medium Benefit</b></p> <p><b>32% (10.25 MILES) OF THE MOTORIZED TRAILS ARE:</b></p> <table border="1" data-bbox="138 982 609 1014"> <thead> <tr> <th>Trail #</th> <th>Name</th> </tr> </thead> <tbody> <tr> <td>05252D</td> <td>RATTLESNAKE</td> </tr> <tr> <td>05257</td> <td>MIGHTY MULE</td> </tr> <tr> <td>05542B</td> <td>POWERLINE</td> </tr> <tr> <td>05605</td> <td>RABBIT RUN</td> </tr> <tr> <td>05612</td> <td>POKER CHIP</td> </tr> </tbody> </table>	Trail #	Name	05252D	RATTLESNAKE	05257	MIGHTY MULE	05542B	POWERLINE	05605	RABBIT RUN	05612	POKER CHIP	<p>Mitigate-Maintain</p> <p>These trails are important connections for the District trail system. Recommend continued Forest Service or cooperative agency maintenance.</p> <p>Medium risk and medium benefit indicate these are a moderate priority for investment of time and funds to mitigate or eliminate risk and accommodate uses.</p>
Trail #	Name												
05252D	RATTLESNAKE												
05257	MIGHTY MULE												
05542B	POWERLINE												
05605	RABBIT RUN												
05612	POKER CHIP												

<p align="center"><b>Medium Risk / High Benefit</b></p> <p align="center"><b>14.7% (4.69 MILES) OF THE MOTORIZED TRAILS ARE:</b></p> <table border="1"> <thead> <tr> <th align="center">Trail #</th> <th align="center">Name</th> </tr> </thead> <tbody> <tr> <td align="center">0511C</td> <td align="center">LONE PINE</td> </tr> <tr> <td align="center">05252B</td> <td align="center">CEDRO SINGLE TRACK</td> </tr> <tr> <td align="center">05602</td> <td align="center">MAHOGONY</td> </tr> <tr> <td align="center">059</td> <td align="center">ROCKY POINT</td> </tr> </tbody> </table>		Trail #	Name	0511C	LONE PINE	05252B	CEDRO SINGLE TRACK	05602	MAHOGONY	059	ROCKY POINT	<p>Maintain-High Priority</p> <p>These roads are integral for the trail system for the District. Recommend continued Forest Service or cooperative agency maintenance.</p> <p>Recommend mitigation of risk. Mitigation depends upon the specific risks and may include, but is not limited to: additional maintenance effort, reconstruction, relocation, seasonal maintenance restriction, seasonal trail use restrictions.</p> <p><b>05252B – CEDRO SINGLE TRACK</b> – With this trail, we are not proposing designating in any alternative because of potential for vandalism and threat to lookout.</p>		
Trail #	Name													
0511C	LONE PINE													
05252B	CEDRO SINGLE TRACK													
05602	MAHOGONY													
059	ROCKY POINT													
<p align="center"><b>High Risk / Low Benefit</b></p> <p align="center"><b>No Trails in this category</b></p>		<p>Decommission or Close</p>												
<p align="center"><b>High Risk / Medium Benefit</b></p> <p align="center"><b>36.8 % (11.73 MILES) OF THE MOTORIZED TRAILS ARE:</b></p> <table border="1"> <thead> <tr> <th align="center">Trail #</th> <th align="center">Name</th> </tr> </thead> <tbody> <tr> <td align="center">0527</td> <td align="center">BEAR SCAT 2 TRACK</td> </tr> <tr> <td align="center">05607</td> <td align="center">PINYON</td> </tr> <tr> <td align="center">05608</td> <td align="center">WILD CAT</td> </tr> <tr> <td align="center">05618</td> <td align="center">GAMBLES OAK</td> </tr> <tr> <td align="center">05619</td> <td align="center">COYOTE</td> </tr> </tbody> </table>		Trail #	Name	0527	BEAR SCAT 2 TRACK	05607	PINYON	05608	WILD CAT	05618	GAMBLES OAK	05619	COYOTE	<p>Mitigate or Restrict</p> <p>These trails are important connections for the District trail system. Recommend continued Forest Service or cooperative agency maintenance. Due to declining budget mitigate or restrict access.</p> <p>High risk and medium benefit indicate these are a moderate priority for investment of time and funds to mitigate or eliminate risk and accommodate uses.</p> <p>Recommend mitigation of risk. Mitigation depends upon the specific risks and may include, but is not limited to: additional maintenance effort, reconstruction, relocation, seasonal maintenance restriction, seasonal trail closure.</p>
Trail #	Name													
0527	BEAR SCAT 2 TRACK													
05607	PINYON													
05608	WILD CAT													
05618	GAMBLES OAK													
05619	COYOTE													

High Risk / High Benefit	
5.9 % (1.88 MILES) OF THE MOTORIZED TRAILS ARE:	
Trail #	Name
05184	CHAMISOSO
<p>Maintain-Highest Priority</p> <p>These trails are integral to the District trail system. Recommend continued Forest Service or cooperative agency maintenance.</p> <p>High risk and benefit indicate these are the highest priority for investment of time and funds to mitigate or eliminate risk and accommodate uses.</p> <p>Recommend mitigation of risk. Mitigation depends upon the specific risks and may include, but is not limited to: additional maintenance effort, reconstruction, relocation, seasonal maintenance restriction, seasonal road closure.</p>	

### Best Management Practices-Mitigating Risks

Some of these best management practices (road location, road design, and road management) could also be considered for addition as standards and guidelines during Forest Plan revision.

#### Road location:

- locate new roads and relocate existing roads to reduce the road grade and slope perpendicular to the road
- avoid cutting through weak geological formations when building or maintaining a road
- construct and realign roads so that back and fill slopes will be minimized
- decommission or realign roads located within floodplains

#### Road Design:

- armor drainage structure outlets
- improve the road surface by adding gravel, limestone, or pave it
- installation of waterbars or broad-based drivable dips to divert water that could cause road erosion
- install erosion mitigations, such as mulch and windrowed slash, on exposed back and fill slopes
- design proper road drainage to avoid too much excess water in a given area
- design road/stream crossings to convey streamflow over the road and back into the channel downstream rather than down the road if it were overtop (e.g. eliminate diversion potential using a drivable dip)

- minimize the height of road fill at all stream crossings to be overtopped during a flood event thus allowing flow and debris to go over the road and into the channel with minimal disturbance (e.g. high-water ford)

**Road Management:**

- close or restrict roads to minimize adverse impacts to wildlife species that require solitude or tolerate only minimal disturbance
- restrict or close roads over perennial streams.
- close or restrict roads to public traffic
- continue inventory efforts to evaluate the extent of noxious weed and invasive plant species of concern
- incorporate non-native invasive species prevention and control into road management and maintenance
- treat non-native invasive species before roads are decommissioned; follow-up based on initial inspection and documentation
- train road maintenance staff to recognize non-native invasive species and report locations to the vegetation management specialist

## **STEP 5: DESCRIBING OPPORTUNITIES AND SETTING PRIORITIES**

### **Purpose**

The purpose of this Step is to list:

- Actions that would implement the minimum road system
- Strategies that reduce the level of road maintenance costs
- Actions that respond to the issues
- Project level recommendations

### **Actions that Would Implement the Minimum Road System**

#### **The Minimum Road System**

36 CFR 212.5 (b) is a portion of the Travel Management Rule and it states "...

b) Road system--(1) Identification of road system. For each national forest, national grassland, experimental forest, and any other units of the National Forest System (Sec. 212.1), the responsible Official must identify the minimum road system needed for safe and efficient travel and for administration, utilization, and protection of National Forest System lands. In determining the minimum road system, the responsible official must incorporate a science-based travel analysis at the appropriate scale and, to the degree practicable, involve a broad spectrum of interested and affected citizens, other state and federal agencies, and tribal governments. The minimum system is the road system determined to be needed to meet resource and other management objectives adopted in the relevant land and resource management plan (36 CFR part 219), to meet applicable statutory and regulatory requirements, to reflect long-term funding expectations, to ensure that the identified system minimizes adverse environmental impacts associated with road construction, reconstruction, decommissioning, and maintenance."

As with many public land management regulations, the direction to identify a minimum road system includes interests that pull in opposite directions. The transportation system that meets resource and management objectives would be close to the system we have in place today, as the current objectives include a broad range of current and future activities, commitments, and projects that require access by forest system roads. But based on road maintenance funding received over the previous five years the Cibola N.F. (alternatively Sandia RD) can afford to fully maintain only about 26% of the existing system. Following are suggested strategies for identifying the minimum road system, and what they look like.

**Strategies that Reduce the Level of Road Maintenance Costs – To Reflect Long-Term Funding Expectations**

Annual funding for operation and maintenance of National Forest System roads on the Cibola has ranged from \$800,000 to \$950,000 per year. The cost estimate to maintain the existing road system to meet forest service standards is about \$3,290,000 per year. A breakdown of operational maintenance level by miles and percentages for each District is listed below.

**Table 5.0: Operational Maintenance Level by Miles/Percentages for each District.**

Cibola NF Districts	MILES OF OPERATIONAL MAINTENANCE LEVELS						% of Miles of Road
	ML 1	ML 2	ML 3	ML 4	ML 5	TOTAL	
D2 – Mt. Taylor RD	149.5	968.5	95.8	0.23	0	1214.03	33.0%
D3 – Magdalena RD	18	1187.1	103.8	0.33	0	1309.23	35.6%
D4 – Mountainair RD	10.1	412	56.9	0	0	479	13.0%
<b>D5 - Sandia RD</b>	<b>12.4</b>	<b>35.1</b>	<b>8.1</b>	<b>9.3</b>	<b>0</b>	<b>65.1</b>	<b>1.8%</b>
D6 – Black Kettle NG	85.2	25.6	3.6	3.3	0	117.7	3.2%
D7 – Kiowa / Rita Blk NG	0.1	492.6	0	0	0	492.7	13.4%
<b>TOTAL MILES:</b>	<b>275.3</b>	<b>3120.9</b>	<b>268.2</b>	<b>13.36</b>	<b>0</b>	<b>3677.76</b>	<b>100.0%</b>
<b>Sandia FTD % of Miles of Road</b>	<b>4.5%</b>	<b>1.1%</b>	<b>3.0%</b>	<b>71.1%</b>	<b>0.0%</b>		

NOTE: The Sandia RD currently has less than 2% of the Cibola NF total miles in the existing Transportation System. Due to the high use of recreation areas within the Sandia RD the district has about 72% of the ML4 roads.

Annual road maintenance for each district is based on health and safety, and forest resource management priorities. Furthermore, the forest is required to have heritage resource clearances to perform any road maintenance on level 1 and 2 forest roads. Therefore, not all Forest road maintenance funds are distributed evenly to each District.

Strategies that reduce the level of road maintenance funding needed include:

- decreasing maintenance levels on roads

- closing, abandonment or obliteration
- transferring jurisdiction to other maintenance entities (including private and county)
- converting open and/or closed roads to motorized or hiking trails

The following are different scenarios which address methods to decrease road maintenance costs. The purpose is to present hypothetical cost reduction analyses based on the current road system. This type of analysis will need to be conducted in a very specific manner during the NEPA phase of the Travel Management Rule. For this exercise we are using four basic assumptions, none of which would be realistic to implement as a whole, but illustrate different methods to reduce maintenance costs.

The tables below contain average maintenance costs in dollars per mile of road to properly maintain the roads for resource and access needs. Road maintenance in one year could cost as much as \$60,000 per mile due to installing new culverts, and/or chip sealing asphalt but the following 19 years or so the cost could be as low as \$10,000 per mile (routine maintenance being completed).

One of the interesting misconceptions is that a closed road (ML1) has no maintenance cost. It does. Illegal motorized use of closed roads may require replacing a damaged gate, taking measures such as constructing berms or ripping the tread to deter travel and other such activities all at a cost. Erosion and drainage concerns on closed also require maintenance.

- **Scenario 1: Reduce 50% of ML3 roads to ML2 and close 50% of the ML2 roads then convert 50% of our ML1 roads to trails.** The Sandia RD does not have any ML 5 roads. Existing ML 4 roads would remain at level 4 in this scenario because it would not benefit the Forest to mill our asphalt roads to gravel. This is the most drastic of the four scenarios but does provide the greatest cost savings to the Sandia RD. Please refer to Table 5.1 on the following page for the specifics. The Sandia Ranger District cost per year would be approximately \$131,000, which saves the forest about \$35,000.

**Table 5.1: Cost Savings of Reducing Maintenance Levels for Sandia RD Scenario 1**

ML	For Sandia Ranger District Roads System				
	Existing Miles	Resulting System Miles	Annual Cost per Mile	Annual Cost after Scenario 1	Current Annual Cost
5	0	0	0	0	0
4	9.1	9.1	\$9,851	\$89,644	\$89,644
3	10.2	5.1	\$6,759	\$34,471	\$68,942
2	19.7	14.95	\$420	\$6,279	\$8,274
1	1.3	10.5	\$107	\$1,124	\$139
Totals:	40.3	39.7		\$131,518	\$166,999

Note: The existing miles are based on the miles that were analyzed in the analysis area. In this scenario the difference in total miles is approximately 0.6 miles (40.3 – 39.7 miles) because 50% (0.6 of 1.3 miles of existing roads) was converted from roads to motorized trails.

- **Scenario 2: Reduce maintenance levels by one for all “high risk - low benefit” , “high risk – medium benefit” and “medium risk – low benefit roads”.** These are the roads which are recommended to restrict, close, or reduce maintenance from our risk and benefit analysis for the Sandia RD. In this scenario the annual maintenance costs does decrease from the \$167,000 to approximately \$144,000 a savings of \$22,000. Please refer to Table 5.2 below.

**Table 5.2: Cost Savings of Reducing Maintenance Levels for Sandia RD Scenario 2**

For Sandia Ranger District Roads						
ML	Existing Miles	Miles to Reduce	Resulting System Miles	Annual Cost per Mile	Annual Cost after Scenario 2	Current Annual Cost
5	0	0	0	0	0	0
4	9.1	1.6	7.5	\$9,851	\$73,883	\$89,644
3	10.2	2.1	9.7	\$6,759	\$65,562	\$68,942
2	19.7	13.4	8.4	\$420	\$3,528	\$8,274
1	1.3	0.7	14	\$107	\$1,498	\$139
Totals:	40.3	17.8	39.6		\$144,471	\$166,999

Note: The existing miles are based on the miles that were analyzed in the analysis area. In this scenario the missing 0.7 miles (existing miles 40.3 – resulting system miles) of roads were converted to trails.

- **Scenario 3: Transfer Road Jurisdiction.** An additional method of reducing annual road maintenance funding is to transfer jurisdiction on all roads that are “high benefit” to private land access to be operated by a county (or by the land owner/s). In this scenario if local counties would agree to transfer the road jurisdiction of these roads from Forest Service to County the Sandia RD would save \$48,000 and all future maintenance responsibilities would be to the counties. Please refer to Table 5.3.

**Table 5.3: Cost Savings of Transferring Road Jurisdiction for Sandia RD**

Road # or Segment	Oper Mtc Level	NFS High Benefit for Private Access (miles)	Annual Maintenance Unit Cost \$/Mile	Annual Maintenance Savings
333	4	2.2	\$9,851	\$21,672
231	3	1	\$6,759	\$6,759
242	3	3	\$6,759	\$20,277
				\$48,708

No scenario on its own meets the need to balance maintenance costs to our budgets. Well thought through combinations of these and other possible scenarios as well as creative management (ie: partnering with counties for maintenance cost sharing) needs to continue. It is also clear that creating a road system to match our budget by simply closing roads will not result in a properly functional minimum sustainable road system for the public or the Forest. This is a challenge that will be with us for the foreseeable future.

**Actions that Respond to the Issues**

The Issues Restated (please refer to chapter 3 for a complete definition of each issue):

**Issue 1: Resource and facility impacts through the use of motorized vehicles off of system routes**

Through the public involvement process, OHV recreationists have requested that unauthorized routes be considered for designation. Some of these routes, particularly motorized trails, do provide loop opportunities and connectivity between parts of the district. There is a need to analyze these routes for suitability as additions to the system. Much of the trail system in the Cedro area were user created that were added to the FS system. If additional routes are designated and added to the system it will be necessary to provide some reconstruction and maintenance so that they comply with FS standards. This Travel Analysis Process, the subsequent NEPA process, and subsequent decisions about route/area designations associated with the Travel Management Rule will determine which—if any—currently unauthorized roads and trails may be designated as part of the motorized travel system.

Where cross country travel would no longer be permitted, the interdisciplinary team identified enforcement and education as key actions that address this issue. Voluntary compliance is expected to increase with the nation-wide implementation of a consistent policy for motorized travel on National Forests. Actions and costs for increasing enforcement and education are explored below:

- **Action:** Enforcement to curtail off-road driving. Implement patrols and field presence at appropriate times of year (such as hunting season, holidays, weekends, etc) in identified areas. This effort is also used to educate users of the travel policy. The cost to have two people for 90 additional days, with \$1000 training and \$2000 vehicle use is about \$25,000 per year. This could be supplemented by occasional assistance from the district law enforcement officer.
- **Action:** Education to create an understanding of the problems created by off road driving. Implement an ongoing effort to educate forest users of the motorized travel policy. For one employee to make 6 presentations and produce information products such as fliers or news releases. Assume 20 days = \$6,000 per year.
- **Action:** Route number sign installation. Install route numbers on all system roads and motorized trails at all junctions with system and unauthorized routes to assist with compliance. Thus, 105 days; \$10,000 materials; and \$5,000 vehicle use; for a total of \$28,500 during the initial implementation year. After the initial implementation, an average of 15 days a year would be needed for monitoring and replacement of the route markers due to vandalism or accidents at about \$3000 per year.
- **Action:** Providing information and education. Provide information about the Motor Vehicle Use Map (MVUM) and responsible use of motorized vehicles on the National Forest. Install information board at area trail heads, recreation sites and parking areas. Approximately \$10,000 for the first year, \$2000 for monitoring and replacement materials in subsequent years.
- **Action:** Rehabilitate areas damaged by off-route driving. There are existing and will be increasing resources available for rehabilitation of areas where soil and vegetation have been damaged by off-road driving. The cost varies widely with the amount of area rehabilitated and the methods used. Dedicating about \$50,000 per year significantly addresses about one area per year. NM State Recreation Trail Program, EPA's Clean Water Act 319 grant program, and a building NM State OHV fund are all potential funding sources to rehabilitate and re-vegetate damaged areas in addition to federal appropriations.

**Issue 2: Maintenance of existing system roads and trails is inadequate**

The actions to address this issue include reducing the maintenance need, leveraging funds, and seek more funding for maintenance.

- **Action:** Reduce the number of road and motorized trail miles that need maintenance or reduce the maintenance level to reduce the maintenance unit cost. This action is discussed (focusing on roads only) in the previous section titled 'Strategies that reduce the level of road maintenance costs'. Reducing the cost of roads by transferring closed roads into motorized trails will increase trail maintenance costs.

- **Action:** Leverage funds/efforts to increase maintenance completed. Continue to seek opportunities within the Forest, with other Forests, with Counties and private individuals to increase the amount of maintenance accomplished. For motorized trails there are opportunities to work with volunteers to maintain them. Insure that road maintenance is considered for all projects that generate significant road use.
- **Action:** Identify opportunities for transferring jurisdiction to other entities such as the counties. For example NFSRs 333, 333c and 231 are forest system roads that provide access to residential developments. These routes would be good candidates to transfer to county jurisdiction.
- **Action:** Finalize road and trail management objectives (RMOs and TMOs) after the Travel Management Rule decision has been signed.
- **Action:** Seek more federally appropriated funding for maintenance.

**Issue 3: Right-of-Way and access:**

The primary action to address this issue is to emphasize acquisition of right-of-way or easements.

- **Action:** Maintain local skills within the work force in land ownership adjustment and land survey.
- **Action:** Emphasize right-of-way acquisition with out-year program planning and current year project planning. Adjust funding to areas directed at accomplishing right-of-way acquisition. Consider first roads that are high priority for transfer of jurisdiction to Counties as a means of prioritizing the work. Doing this facilitates a reduction in the number of road miles requiring maintenance with NFS funds.
- **Action:** Negotiate with land owners to obtain formal right-of-way access to routes needed.
- **Action:** Leverage road and trail system under FS jurisdiction to maximize cooperation from adjacent landowners.

**Issue 4: Recreation user conflicts on designated roads and trails**

Actions that address this issue involve managing uses that generate conflict and changing user expectations.

- **Action:** Modify route designations to reduce user conflict. Designate existing single track and/or steep motorized trails for motorcycles only.
  - Provide maps and/or lists of routes where the dominant use is motorized or non-motorized as a way to guide use and minimize conflicting areas.

- **Action:** Plan separate routes for uses which are inherently incompatible. Plan areas that emphasize motorized use separate from areas that emphasize non-motorized use where appropriate.
- **Action:** Provide accurate and timely information for users to make informed decisions about choosing routes to travel.
  - Recreation opportunity guides, maps and information are available on the internet and at offices. These sources describe the different uses on the trails and what one may encounter. They also list the trail location and physical characteristics which would be useful to users.
  - Provide GPS files for download via the internet. These files would be available for each district and could show the user precisely which route is open for motorized use.
  - Provide lists of motorized trails available via the internet and/or at local offices.
- **Action:** Conduct traffic count and type of use information on identified roads and trails to better understand the use of each route.

**Issue 5: Need to identify and designate loop trails that are responsive to user preferences within the limitations of resource concerns and management responsibilities.**

The District Interdisciplinary Teams identified open and closed roads and possible additional routes that would maintain continuous route systems for use by OHVs. Through public involvement there have been requests for an additional system for wider ATVs that separate the uses from single track or motorcycle use.

- **Action:** Identify existing trailheads and/or the need to construct such trailheads throughout the Cedro area for loading and unloading of non street legal vehicles.
  - Identify a motorized route system that provides loop opportunities and varying degrees of challenge. Consider designation of unauthorized trails where they provide these opportunities. Look for opportunities to separate ATV double track uses from single track (motorcycle and dirt bike) uses. Locate access points and trailheads in locations that encourage staying on authorized routes.

**Issue 6: Motorized routes have direct effects on wildlife and vegetation.**

- **Action:** Reduce the number of road and trail miles that go through occupied habitat. There are currently no motorized routes that impact Threatened & Endangered (T&E) occupied habitat. A small number of trails access riparian habitat (which is “Restricted habitat” under the Mexican spotted owl (MSO) Recovery Plan). In the Cedro area, one trail is being rerouted from the riparian zone; however, this is primarily for watershed damage, as the riparian area does not contain multi-storied habitat suitable for MSO. The amount of ponderosa pine/oak habitat (also “Restricted” in the MSO Recovery Plan) in the Cedro area is very small. Rerouting the one trail noted above will remove a majority of motorized route from this habitat. The nearest known MSO nest site is in the Wilderness Area on the west side of the Sandias; no MSO have been noted on previous surveys in the Cedro area. The ponderosa pine habitat type (important to Northern goshawks, a Regional Forester’s Sensitive Species) occurs in the Cedro area. A majority of this has been treated (thinned) under the Wildland Urban Interface (WUI) program. It may be suitable as foraging habitat, but currently is not suitable for goshawk nesting. No goshawks have been found in the Cedro area; the nearest nest sites are many miles away, adjacent to the Crest Highway. The loggerhead shrike, Texas horned lizard, and gray vireo (Region 3 sensitive) have potentially suitable habitat in the Bernalillo Watershed Area; the proposed action is to restrict off-road travel in these areas, as well as close a number of roads. These actions could benefit the species and their habitat. No other sensitive species will be adversely impacted through implementation of the Travel Plan (see the Biological Assessment and Evaluation, Sandia District Travel Management Plan). Two R3 Sensitive plants, the Sandia alumroot and the Plank’s campion, only occur along the cliff edge of the Sandia Crest, outside the travel analysis area. A third species, the Sapello Canyon larkspur, occurs mainly in aspen stands above 8000 feet and will not be impacted by travel designations.
- **Action:** Reduce the number of high use trails that go through nesting sites. Loop trails and trails near camping areas with high day use can be outside of known nesting areas for owls and hawks. Access point’s location can help in reducing use of several trails.
- **Action:** Place timing restrictions on motorized trails and roads going through key nesting and roosting areas. As noted, there are no motorized routes within SSP nesting/roost areas.
- **Action:** Reduce the road width and maintenance level to minimum needed for resource protection. Road widths including ditch are barriers for species and cause habitat fragmentation by limiting species dispersal (e.g., amphibian movement to and from wet area breeding sites in the spring).
- **Action:** Develop and promote trail uses that are outside of known threatened, endangered, or sensitive occupied habitats. At present, all motorized routes are outside T&E occupied habitat. Many sensitive species have limited information as to their occurrence at present. As such, portions of the motorized system may intersect sensitive species habitat.

**Issue 7: Potential inadequacy of the motorized recreation infrastructure to deal with increasing recreation pressure from the growth in the Albuquerque area**

Through public involvement there has been interest in providing motorized recreation opportunities in the Albuquerque area and creating additional routes that address conflict concerns between ATV users, single track users and full size 4 x 4s. There is an expectation that as the population increases there will likely be increased motorized recreation use and requests for expansion of the trail system. There is also a concern that motorized use is in conflict with non motorized trail uses such as mountain biking. The system is influenced by the relatively limited area that is available outside of the Wilderness and the DOD and DOE withdrawals.

- *Action:* Consider opportunities where this need can be met on other districts managed by the Cibola National Forest.
- *Action:* Look for opportunities to address both use and conflicts concerns through management such as separating uses by time of year or day of week.

**Project Level Recommendations By Category**

Many of the answers to questions raised in Step 4 provided recommendations that should be considered during project level analysis are in the NEPA process. Some of these recommendations may appear to be in conflict with one another as the recommendations generally are made in response to an individual resource concern. The appropriate time to resolve these apparent conflicts is when project level decision-making takes place. The consideration of site-specific needs and trade-offs will influence how these recommendations are to be applied.

## STEP 6: REPORTING

### Purpose

The purpose of this step is to:

- Report the key findings of the analysis.

### Key Findings

Chapter 4, pages 51 to 56 contain the individual recommendations for the road system. Chapter 4, pages 58 to 61 lists the recommendations for motorized trails. Areas open to motorized use were not recommended. All the recommendations are shown on Maps 15 and 16.

### Public Suggestions:

We received numerous comments with suggestions for improvements or changes on specific roads. These suggestions are listed on several maps. Refer to Appendix I for a full list of all the maps. The Public involvement and collaboration information is listed in Appendix C.