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# **Gila National Forest Travel Analysis Process (TAP)**

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# Travel Analysis

## *Introduction*

In November 2005, the Forest Service issued the Travel Management Rule (TMR) for designation of roads, trails, and areas to be identified on a motorized vehicle use map (36 CFR 212.56). The TMR requires that the Forest Service designate a system of roads, trails, and areas for motor vehicle use by vehicle class and, if appropriate, by time of year. The process for implementing the TMR includes performing a Travel Analysis Process.

This report is the Travel Analysis Process (TAP) for the Gila National Forest and is not a decision process. The TAP provides the framework and the explanation of the Forest process from which recommendations for designation are outlined that may be examined in the National Environmental Policy Act (NEPA) process. The NEPA process provides the basis, including formal public involvement, for making decisions.

The Travel Analysis Process (TAP) is an interdisciplinary process focused on the identification of need for change to the existing transportation system. It is a broad scale review of roads, trails and areas on a Forest scale. The TAP revises and updates the Roads Analysis Process (RAP) described FS-643 – *Roads Analysis: Informing Decisions about Managing the National Forest*, through the addition of maintenance level 1 and 2 roads and trails, specifically motorized trails, into the analysis process (36 CFR §212, Forest Service Manual 7712, Forest Service Handbook 7709.55 Chapter 20). A Forest-Level Roads Analysis for all roads suitable for standard passenger cars (maintenance levels 3, 4, and 5) on the Gila National Forest was completed in 2003.

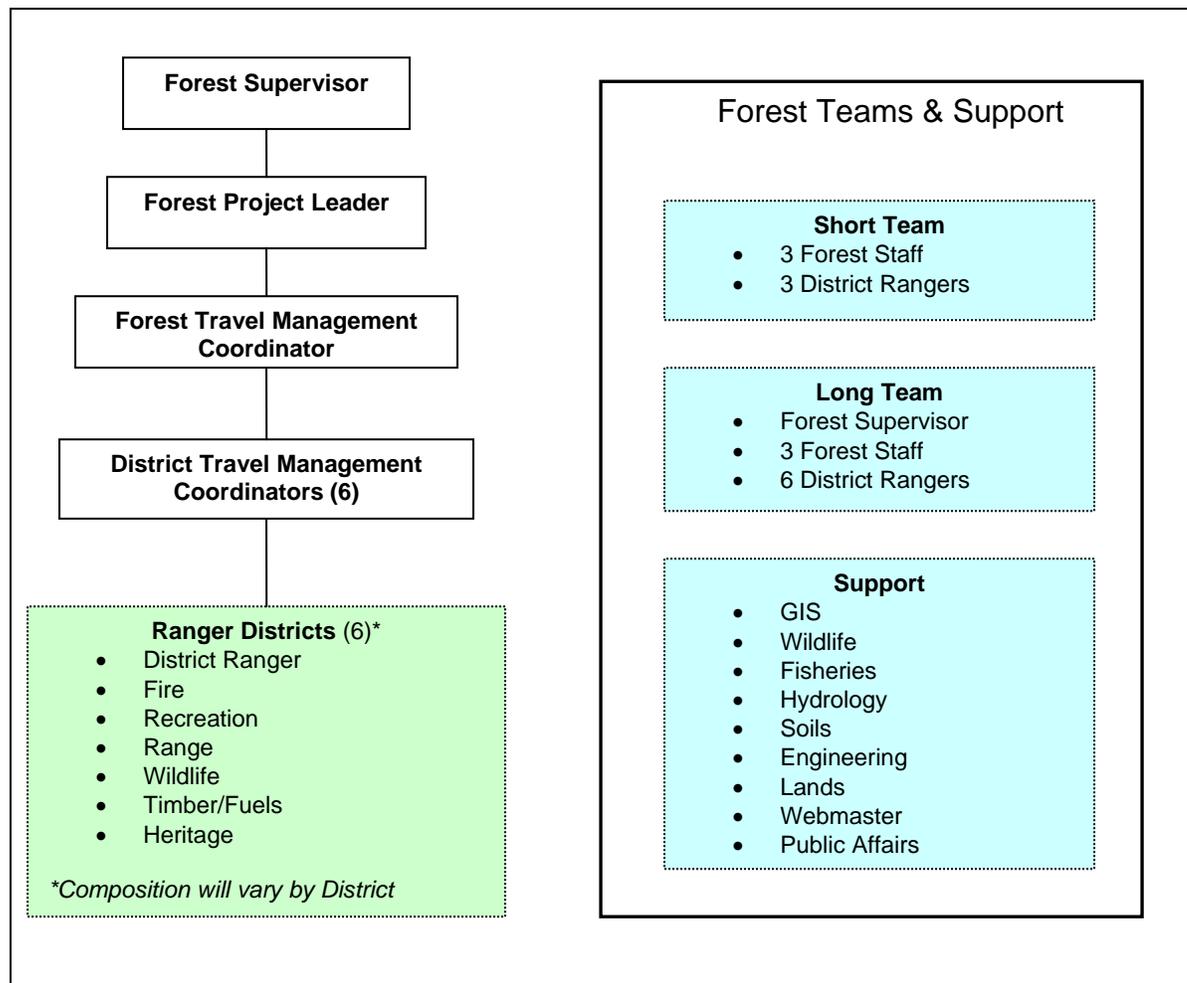
Travel analysis is a six-step process, providing a technical science-based review of the transportation system. The steps are designed to be sequential with the understanding that the process may require feedback and iteration among steps over time as an analysis matures. The amount of time and effort spent on each step differs based on specific situations, available information and the resources available to conduct the analysis. The process is designed to facilitate consideration of the factors and criteria for management of the transportation system defined by 36 CFR 212.5. Public and other entity involvement was used to identify proposals to change existing travel management direction.

The result of travel analysis is a set of recommendations for changes to the transportation system which decision makers may consider before beginning the NEPA process. The analysis also includes an assessment for motorized dispersed camping.

## Step 1 - Setting up the Analysis

### ***Forest Travel Management Organization***

The following diagram represents the general travel management organizational structure on the Forest. The organization provided for interdisciplinary participation including specialists from relevant fields (Appendix A). This structure allowed travel management to be addressed at both the overall forest management level as well as the individual district level in conjunction with each district's local communities.



The Short and Long Teams provided support to the Forest Travel Management Coordinator in developing forest guidance and processes; and identifying and coordinating data, products, personnel, or other needs. This system provided overall project coordination and consistency of information dissemination not only internally, but also when working with members of the public or local agencies.

Several Off-Highway Vehicle / motorized user and conservation groups approached the Forest early in the process to discuss route designations. Subsequently each District on

the Forest identified local contacts, other key publics, groups, and state and federal agencies to participate in the travel management process. The composition of the identified key groups provided input from a variety of areas of interest, as well as providing the public the ability to contribute to the analysis process. The key groups included:

- State and Federal Agencies
  - Apache-Sitgreaves National Forest (Alpine, Clifton, and Springerville RDs)
  - New Mexico Department of Game and Fish
  - U.S. Fish and Wildlife Service
- County Commissioners
  - Catron County
  - Grant County
  - Hidalgo County
  - Sierra County
- Other Key Publics and Organizations
  - Center for Biological Diversity
  - Coalition of Arizona/New Mexico Counties
  - Continental Divide Trail Alliance
  - Gila Roads and Trails Alliance consist of:
    - Gila Rough Riders
    - Gila Trail Riders
    - Mogollon Apache Gila Riders
  - Local communities and landowners within and adjacent to the Districts/Forest
  - New Mexico OHV Alliance
  - New Mexico Rural American Alliance
  - New Mexico Wilderness Alliance
  - Forest permit holders (range, outfitter guides, utility companies, mining claimants, etc)
  - Sky Island Alliance
  - Upper Gila Watershed Alliance

### ***Scale of Travel Analysis***

The analyses related to transportation routes were conducted on a Forest-wide level to ensure consistency in data management and outputs, and to best utilize limited personnel and time. To address specific questions or concerns, the scale of analyses varied. For example, road density was examined at different watershed scales for the general potential to impact or modify surface hydrology of an area as well as cumulative effects. Road density was also examined at the watershed level for wildlife and at a section or square mile scale to address the issue of fragmentation and road density effects on species and their habitat.

The TAP is an iterative document based on public participation, best available information, and the professional judgment of the travel analysis members. The results and recommendations of the analysis on a long-term basis are intended to be valid for approximately 15 to 20 years. It is difficult to address and analyze potential transportation system effects or needs as a result of changes to Forest management direction or unforeseen events like floods or fires. Often these changes or events are

localized and would therefore be assessed and revised at that time. The TAP process may need to be revisited as new information becomes available, management needs change, and as monitoring results warrant a revisit.

### ***Data and Information Needs***

The Forest listed data and information needs that would potentially assist in the analysis of the transportation system across the Forest in tabular and geographical formats (Appendix B). Data and information needs included various management aspects relating to motor vehicle use on the Forest. Available information was assessed for updates or technical correction needs. Information to be acquired was defined and prepared in a useable format. Existing assessments or plans were also compiled:

- 1986 Gila National Forest Land and Resource Management Plan
- 1989 Resource Access / Travel Management Plan for the Lower Burro Mountains EA
- 2001 Burro Mountains Concept Plan
- 2003 Gila National Forest Forest-level Roads Analysis Report
- 2003 RAP for Six Shooter & Black Deer Vegetation Management Project, Reserve Ranger District
- 2005 Reserve WUI RAP
- 2007 Motorized Mixed Use Studies
- Gila National Forest Forest Orders

Information gathering is a never-ending process. The analyses proceeded under the assumption that all desired information would not necessarily be available or readily obtained during the analysis period. The Forest was able to put together a large percentage of the information identified as “needed” to assist the Forest through Travel Management. It is acknowledged that there may be gaps in the data sets resulting in some unknowns and uncertainties. These were addressed using the best professional judgment of the members involved in travel analysis.

## **Step 2 – Describing the Situation**

### ***Management Direction***

#### **Forest Land Management Plan**

The Gila National Forest Land Management Plan (LMP) and amendments establish direction and goals for Forest management and provide guidelines for resource protection. Management direction relating to Travel Management for each resource activity and special management areas has been summarized in Appendix C. Where direction refers to management areas, a map of the Forest’s management areas is located at the end of Appendix C.

Specific goals that directly tie to Travel Management are:

- Maintain transportation system to support resource goals.
- Maintain a full spectrum of trail opportunities.
- Provide a balanced level of developed and dispersed recreation experiences.

In 1987, the Forest Plan was amended with standard and guidelines that focused on an ORV (off-road vehicle) policy. The standard and guidelines provided criteria for a designation process:

- During the travel management process, Forest personnel will determine which roads, trails and areas will be open to motorized vehicle use and which will be restricted or closed. (Restricted is defined as “road, trail or area could be closed to motorized vehicle use, could be restricted to certain types of vehicle, motorized use could be restricted to specific periods, etc.).
- The public will be involved in this process.
- Criteria to be used in designating open, closed or restricted roads, trail and areas are:
  1. Management emphasis of a specified area
  2. Level of conflict between existing types of use
  3. Required resource protection
  4. Seasonal constraints
  5. Special needs of users and management
- Exceptions to motor vehicle restrictions can be granted by permit only.
- Restrictions and closures will be reviewed annually and the public will be notified of any change.
- Recreation use of riparian zones will be managed to avoid damage to riparian resources.

## **Directives, Manuals & Handbooks**

There are numerous directives, regulations, manuals and handbooks that provide management direction pertaining to National Forest roads and trails management. The following list is those specifically updated incorporating changes as a result of the Travel Management Rule:

- Code of Federal Regulations
  - 36 CFR 212 – Travel Management
  - 36 CFR 261 – Prohibitions
  - 36 CFR 294 – Special Areas
- Forest Service Manual (FSM)
  - 2350 Trail, River and Similar Recreation Opportunities
  - 7700 Travel Management
  - 7710 Travel Planning
- Forest Service Handbook (FSH)
  - 7709.55 Travel Planning Handbook

## Forest Orders

The issuance of an order may close or restrict the use of described areas or any National Forest System road or trail. The following Forest Orders are currently in effect on the Gila National Forest and provides additional information for motorized travel considerations for these specific areas, roads or trails.

Order No.	Area/Prohibition Description	District
06-11	Gilita, Willow Creek, and Snow Lake - prohibited to possess or use a vehicle off National Forest system roads (261.56)	Reserve
06-51	Closure FDR 4087 J (261.56; 261.58(e))	Black Range
06-64	Powderhorn Canyon Area Closed to off-road vehicle use (261.56)	Wilderness
06-66	Closure FDR 3313 (261.54(a); 261.54(e))	Black Range
06-73	Closure FDR 3014 (261.54(a); 261.54(e))	Black Range
06-82	Closure FDR 4064 A and 4064 P (261.54(a); 261.54(e))	Black Range
06-89	San Francisco River Motor Vehicle Closure from confluence of Mule Creek to New Mexico/Arizona state line (261.56)	Glenwood
06-93	Spring Mesa (East) Fuelwood Area Closure (261.53(d))	Black Range
06-103	Dry Blue Drainage Closure Motor Vehicles – possessing or using a 2x4 or 4x4 highway type motor vehicle (i.e. cars, vans, and/or trucks) (261.56)	Quemado (Luna)
06-106	Closure FDR 3015 (261.54(a) 261.54(e))	Black Range
06-143	Off -road Motorized Vehicle Use Gila River Bird Area (261.56)	Silver City
06-147	Sawmill and Woodhaul National Recreation Trails Motorized Vehicle Restrictions (261.55)	Silver City
06-151	Arroyo Seco Vehicle Restrictions (261.54(a); 261.54(e); 261.56)	Black Range
06-153	Ft. Bayard Reservation & Watershed Management Area Vehicle Restrictions (261.55; 261.56; 261.54(a))	Silver City
06-155	Gila Cliff Riparian Preserve Area Closure (261.53(a))	Silver City
06-156	Off-Road Motorized Vehicle Use Silver City Watershed (261.56; 261.55(b))	Silver City
06-161	Vehicle Restrictions Forest Development Roads (261.54(d); 261.54(f))	Forest-wide
06-165	Road Closures-FDR 4084P, 4207H, 4084K, 4203W, 4203V, 4104, 4207J, 4207K (261.54(a); 261.54(e))	Silver City
06-167	Closure FDR 4080V (261.54(a); 261.54(e))	Wilderness
06-168	Motorized Vehicle Use Restrictions Continental Divide Trail (261.55(b))	Silver City
06-174	Off-Road Vehicles Gila River Channels (261.56)	Wilderness
06-178	Use of Vehicles Signal Peak Area (261.56 261.54(a))	Silver City
06-181	Quemado Lake Recreation Area (261.56 261.58(a) 261.58(g) 261.58(r) 261.58(m) 261.58(j) 261.58(h) 261.58(n))	Quemado
06-187	Closure FDR 4042 & unnumbered road (261.54(a) 261.54(e))	Reserve

Order No.	Area/Prohibition Description	District
06-209	Restricted Use of Motorized Vehicles Off Roads (261.50(a) 261.50(e) 261.56)	Silver City
06-229	Restricted Use of Motorized Vehicles in Saddle Rock Riparian Restoration Area (261.50(a) 261.50(e) 261.56)	Silver City
06-230	Off Road Vehicle Restrictions Box Canyon Recreation Area (261.56)	Silver City
06-245	Lake Roberts Recreation Area (261.50(a) 261.50(b) 261.50(e) 261.54(a) 261.54(d) 261.54(f) 261.56 261.58(e) 261.58(g) 261.58(h) 261.58(i) (261.58(m) 261.58(p) 261.58(v))	Wilderness
06-247	FS Road 4145F (Bloodgood Spring Road) (261.50(b); 261.50(e); 261.54(e))	Black Range
06-259	Bear Fire Area and Road Closure (261.50(a); 261.50 (b); 261.50(e); 261.56; 261.54(a); 261.58(e)) (Estimate to expire Dec. 31, 2008)	Reserve

### Region 3 Implementation Guidelines

The Regional Office developed implementation guidelines for the Travel Management Rule for consideration by all forests in the region to: 1) identify the suite of tools available to meet public interests, consistent with the intent of the rule; and 2) provide a level of consistency that enhances public understanding, compliance, and ease of enforcement. The guidelines also provide a common starting point for dialog that will result in designation of routes and areas open to motor vehicles and other associated management direction, while providing the flexibility to address specific situations on individual units.

The guidelines are periodically updated as the potential changes to the transportation system and implementation of Forest management activities are being assessed. The guidelines may be found on the Region 3 website at:

<http://www.fs.fed.us/r3/projects/travel-mgt/index.shtml>. The current guidelines, revised June 30, 2008, are found in Appendix D and include guidance on the following topics:

- o Existing Direction
- o Dispersed Motorized Camping
- o Parking along designated Forest Routes
- o Motorized Big Game Retrieval
- o Exempted Uses (Written Instruments)

### State of New Mexico OHV/ATV Laws

The State of New Mexico defines an “off-highway motor vehicle” as a motor vehicle designed by the manufacturer for operation exclusively off the highway or road. This includes:

- “All-terrain vehicles” which means a motor vehicle fifty inches or less in width, having an unladen dry weight of one thousand pounds or less, traveling on three or more low-pressure tires and having a seat designed to be straddled by the operator and handlebar-type steering control; or

- “Off-highway motorcycle” which means a motor vehicle traveling on not more than two tires and having a seat designed to be straddled by the operator and handlebar type steering control.

New Mexico Off-Highway Motor Vehicle Law (Section 66-3-1011) provides off-highway vehicles may not be operated on any paved street or highway, except to cross a paved street or highway after coming to a complete stop and yielding to traffic. At this time, the operation of off-highway vehicles on Forest roads that are not paved (i.e. roads that have a native material or gravel surface) is consistent with State law.

## **Motorized Mixed Use Studies**

National Forest System (NFS) roads are managed primarily for the use by highway-legal vehicles (motor vehicles that are licensed or certified for general operation on public lands within the State) such as a passenger car. Some NFS roads also provide recreational access for all-terrain vehicles and other non-highway legal off-highway vehicles. Most of the roads on the Gila National Forest are managed for high clearance vehicles.

“Motorized mixed use” is defined as designation of a NFS road for use by both highway-legal and non-highway-legal motor vehicles (EM-7700-30, pg 10). A motorized mixed use analysis involves a technical evaluation of the road or road segments where mixed use is being proposed or already exists. The analysis results in recommendations regarding motorized mixed use of the road including any mitigation measures.

Off-highway vehicles may operate on non-paved Forest Roads. The sharing of use by both off-highway vehicles and highway-legal vehicles generated the question of continued compatible use and safety concerns. Safety concerns included site distance and speed. The Forest identified four roads: Forest Roads 111, 119, 150, and 209 for analysis based on compatibility and safety. Motorized Mixed Use studies were completed on these four roads (Appendix E).

The analysis considered the driver, traffic and roadway factors; applicable State and local laws and USDA Forest Service regulations, directives, and guidelines pertaining to motorized use on the identified roads. The Motorized Mixed Use analysis team determined that all four roads are in compliance with New Mexico OHV regulation and that there would be a low risk to public safety by designating the studies road segments for motorized mixed use (Appendix E).

## Existing Condition

### National Forest System Lands

The Gila National Forest (Appendix F) is approximately 3.3 million acres broken into:

General Forest Lands	1,707,200 acres
Wilderness	792,000 acres
Designated and Proposed Research Natural Areas	2,300 acres
Roadless Areas	734,000 acres
Restricted off-road vehicle areas	33,800 acres
Total	3,269,300 acres

There are approximately 126,000 acres of private inholdings within the Forest boundary.

The Forest is currently open to motorized cross-country use except in wilderness, designated and proposed Research Natural Areas, and restricted off-road vehicle areas or areas specifically signed or closed by Forest Order.

### National Forest System Roads

National Forest System Roads are broken down into Operational Maintenance Levels (OML) (Table 1). Level 2-5 roads are those that are open to travel, while level 1 roads are closed for travel by the general public.

Table 1. General description of National Forest System Road Operational Maintenance Levels (OML). Specific definitions are located in FSH 7709.58, 10 & 12.3.

OML 1	Closed to vehicular traffic
OML 2	Open to high clearance vehicles and/or 4WD vehicles
OML 3	Open to passenger vehicles and typically low speed, single lane with turnouts
OML 4	Paved or dirt roads for moderate degree of user comfort and typically moderate speeds
OML 5	Paved road for high degree of user comfort and typically high speed

The Gila National Forest conducted a GPS inventory of the road system from 1992 through 1999. The inventory identified user-created routes that were recorded in the corporate database, Travel Information System (TIS). When the Forest Service adopted the current corporate database, INFRA Travel Routes (INFRA), in the late 1990s all road data was converted from the TIS to the INFRA format. Unfortunately, the “user-created” field was not converted to INFRA and the Gila National Forest lost their “user-created” identifier. The Gila National Forest then made a decision, with the concurrence of the Regional Office to continue inventorying “user-created” roads in their database and to code them as National Forest System Roads (NFSRs) operating at a Maintenance Level 2. At that time, the features to track “user-created” roads were not available. As a result, the existing inventory of NFSRs coded as Operational Maintenance Level 2, on the Gila NF now consists of a combination of:

- 1) "User-created" routes that were inventoried in TIS,
- 2) "User-created" routes that were inventoried in INFRA before the Roads Policy,
- 3) FS authorized routes not managed as NFSRs, and
- 4) All NFSRs operated at Maintenance Level 2.

The Gila National Forest completed most of its inventory of "unauthorized" roads before the tools to track them separately became available in 2001 and at this time, the Gila National Forest cannot determine exactly which of their existing NFSRs are "user-created." The Forest acknowledges there may be errors in the INFRA database entries and associated mapped routes. Updates and corrections to the database have occurred during the course of the analysis and through public involvement.

The INFRA database is used to track all infrastructure improvements on the Forest, including roads. The road system as of the February 2009 INFRA database consists of 7,582 miles of which 5,822 miles of road are under Gila National Forest jurisdiction (Table 2). This analysis addresses the roads under the jurisdiction of the Gila National Forest. The remaining miles of road are under jurisdiction of private, county, state, or other federal agencies that are within or access the Forest.

Table 2. Breakdown of roads within the Gila National Forest based on INFRA February 2009 records.

	<b>Forest</b>
<b>Total Road Miles</b>	7,582
State	816
County	619
Private	251
National Park Service	0.03
Apache-Sitgreaves NFS Roads	68
<b>Gila</b>	<b>5,822</b>

#### **Gila NFS Roads**

Decomm	587
ML1	572
ML2	4,204
ML3	282
ML4	152
ML5	25

<b>ML1-5 roads</b>	5,235
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<b>ML2-5 (open)</b>	4,663
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### **Cost and Maintenance of National Forest Road System**

The cost of road maintenance varies according to maintenance level and can vary from road to road depending on the purpose and use of the road. Level 1 roads are currently closed to the public but remain on the system for limited administrative use. There is

little or no maintenance cost associated with this type of road with the exception of resource protection work which is required on a very limited basis. Level two roads are maintained for high clearance vehicles and require a limited amount of maintenance as well. Not all level 2 roads receive annual maintenance, only those that require resource protection such as erosion control or reconstruction of drainage features. Level 3 roads are maintained for passenger car use by a prudent driver and are typically maintained annually. Level 4 and 5 roads are higher standard roads with aggregate or paved surfaces and are typically maintained annually as well. The majority of road maintenance funds are expended on level 3, 4 and 5 roads. The Gila National Forest has a very limited number of paved roads, however maintenance costs associated with these roads are generally high.

The Forest budget for road maintenance ranges between \$1 to \$1.2 million annually. Since 2001, the Forest has worked on various opportunities to move towards a road system that reflects the long-term funding expectations. The Forest has conveyed over 300 miles of level 3-5 roads to Catron County; closed or decommissioned approximately 30 miles through various projects; and reduced 75 miles of operation ML 3-4 roads to lower operation maintenance levels. Currently, the Forest maintains all level 3-5 roads as well as approximately 140 miles of level 2 roads on an annual basis.

## **National Forest System Trails**

A complete inventory of the trail system has not been completed for the Forest. The INFRA trails database currently does not accurately reflect the number of trails or the miles of trails existing on the Forest nor do they correspond exactly to the trails reflected in the spatial GIS layer. The update and corrections to the database were identified in the data and information needs assessment.

Based on the current spatial GIS layer, the current trail system is estimated to be approximately 1,459 miles. The miles of trail consist of 1,444 miles designed for “hiker / pedestrian” or “pack and saddle” use and 15 miles for “all terrain vehicle” (motorized vehicles 50” or less) use. A comparison of the road and trail GIS layers found that approximately 114 miles of trails parallel or share the same alignment as roads.

The INFRA roads and trails database is the Forest’s existing direction and the starting point for analysis (Appendix G).

## **Resources**

### **Coarse Filter - Road Density**

The Land Management Plan (LMP) has road density values for each management area. The management area boundaries are major Ranger District subdivisions developed around specific management activities such as range allotments, timber stands, or other administrative boundaries. The values were projections for the first decade of the LMP, implemented in 1986. These values were tied heavily to timber activities with the expectation that there would be no change, to those and other related activities, over that first decade time period. The road densities within the LMP are not discussed in this TAP due to: 1) the time period for which the values were projected; 2) the basis of the

management area boundary designations; and 3) the change in management direction, especially timber activities as well as other forest activities since the LMP became effective in 1986.

For the purposes of this analysis, road density was evaluated by watershed: 5<sup>th</sup> and 6<sup>th</sup> hydrological unit code (HUC) and by section. Hydrologic unit code is a standardized numbering system established for watershed identification and to facilitate data reporting and management across different agencies. HUCs can be further subdivided into smaller watersheds. The 5<sup>th</sup> code watersheds on the Forest range from 80,000 to 330,000 acres in size. The 5<sup>th</sup> code HUCs are further divided into 6<sup>th</sup> code watersheds. These 6<sup>th</sup> code watersheds on the Forest range from 10,000 - 40,000 acres in size.

Only open existing roads were used in the calculations. The Forest considered that calculating road density by watershed as an appropriate method to display the scale of a road system in a watershed. Road density is used as an indicator of the system's general potential to impact water quality or modify the surface hydrology of an area. It can also be used in cumulative effects analysis to estimate the magnitude of disturbance that roads may be having on a watershed in conjunction with other land management activities.

The Forest also used road density at a watershed scale to assess impacts to wildlife. Impacts include such things as: displacement, home range modification, creating barriers to movement, and increased fragmentation. Road densities at varying scales may also be used to determine cumulative impacts to wildlife.

Road densities were estimated primarily for Forest lands. Road densities were underestimated in watersheds that extended off of Gila National Forest lands where current road data was unavailable. Watersheds were classified by the road densities found within them. Road density was classified into three ranges that were also used in the Forest-wide Roads Analysis Report (2003) for assessment of watershed condition, which were:

- 0 - 2 mi/sq mi
- 2 - 3 mi/sq mi
- >3 mi/sq mi

The potential of surface erosion, mass movement, and direct sediment to stream channels increases as road density increases. This has the potential to impact attainment of state water quality standards.

Results of the road density analysis by watershed showed there were no open road densities greater than 2 mi/sq mile within any 5<sup>th</sup> HUC watersheds (Appendix H). Analysis of the 6<sup>th</sup> HUC found 7 of the 207 watersheds (Appendix I) to be greater than 2.0 mi/sq mile (Table 3). Map of the 7 watersheds may be found in Appendix I.

Table 3. 6<sup>th</sup> HUC watersheds exceeding 2.0 mi/sq mile.

5 <sup>th</sup> HUC Watershed Name	6 <sup>th</sup> HUC Name	Open Road Density
Alamocito Canyon	13020208040010	2.22
Middle Fork Gila River	15040001030010	2.06
Middle Fork Gila River	15040001030020	2.16
Negrilo Creek	15040004060020	2.85
Tularosa River	15040004020010	2.01
Tularosa River	15040004020070	2.13
Upper San Francisco River	15040004010060	2.29

Habitat fragmentation occurs when there are changes to habitat or human-made barriers divide an area of relatively continuous habitat into smaller, disconnected parcels. As habitat patches decrease or become isolated from one another, the habitat quality declines and the movement of species become limited. Roads may introduce non-native species to habitats; introduce or increase noise and disturbance to wildlife; directly and indirectly impact riparian and aquatic species and habitat; or alter hunting success.

The Forest used a method to assess relation of roads to species and habitat that followed one of the concepts used for road density analysis described in The Wilderness Society report: *Reconnecting the Landscape: A Transportation Management Opportunity in the Boise National Forest* (2005). The report used a consistent size square mile polygon across the whole area of study. Since the Gila National Forest boundary in the most part followed section lines, the Forest used the established section polygons to analyze the road density by section across the Forest (Appendix J).

The breakdown for road density by section is the same as that used for watersheds. The section road density of listed species is displayed in Appendix J. Maps (Appendix J) displaying the road density by section will assist in assessing roads to other wildlife species habitat including game species.

### Coarse Filter – Stream Buffer

The coarse filter was developed to prioritize roads for field review that had the potential to impact stream systems that have the Forest highest resource values. The Forest identified and designated streams or specific stream reaches across the Forest that fit into either Class 1 or Class 2 category based on the following descriptions:

- **Class 1** streams:
  - Contain listed aquatic threatened or endangered species, critical habitat or habitat specified in recovery plans and/or,
  - Identified in the 2004-2006 NMED 303(d) list of Impaired Surface Waters and/or
  - Located upstream or within same drainage as streams having some rare or valuable resource(s) and/or
  - Located upstream or within same drainage as NMED identified public (community) water supply source.
- **Class 2** streams:
  - Main, large tributaries that lead into to Class 1 reaches and/or
  - Perennial streams with fish species other than listed species.

A 250-foot buffer was extended on either side of the Class 1 and Class 2 reaches. Roads that fell within the buffer were selected in their entirety for further evaluation. Selection of a road through the buffer process did not conclude that a resource issue existed, but indicated that further evaluation was necessary to determine if negative impacts were occurring to water and soil resources.

The assumptions underlying the 250-foot buffer width were that if a road fell within the buffer, then:

1. there is a high likelihood that road drainage structures, or lack thereof, may feed sediment-laden runoff directly into the stream system. Roads that do feed runoff directly to a stream system are referred to as a connected disturbed area;
2. in flatter areas, near perennial streams, there is a possibility that dispersed campsites have developed between the road and the stream system. Runoff from those sites may reach the stream network; and
3. on steeper slopes, water and sediment from drainage structures may reach the stream system since runoff on steeper slopes typically result in higher velocities.

Roads that fell within the 250-foot buffer of a Class 1 stream were identified as Priority 1 roads. Roads that fell within the 250-foot buffer of a Class 2 stream were identified as Priority 2 roads (Appendix K). The analysis resulted in identifying 485 operational maintenance level 2-5 forest roads as Priority 1, Priority 2, or both Priority 1 & 2 roads (Appendix K).

## ***Public Participation***

When the Travel Management Rule became final in November 2005, the Forest briefed each of the four county Commissioners: Catron, Grant, Hidalgo, and Sierra on the new Travel Management Rule and the Forest motorized route designation process.

From November 2005 to 2007, the Ranger Districts held 46 public meetings / open houses introducing the Travel Management rule and solicited input to the Forest designation process. More than 900 people attended these meetings / open houses. Contact had been made with over 380 individuals including landowners, range permittees, outfitter guides, local motorized groups, and conservation groups.

During this same period, the Forest also coordinated with the Apache-Sitgreaves National Forest, U.S. Fish and Wildlife Service, and New Mexico Game and Fish Department.

As a follow-up to the 2005-2007 meetings / open houses, the Gila National Forest presented the draft proposal to all 4 county Commissioners and hosted 18 workshops throughout the month of September 2008. The 18 workshops were attended by more than 800 people and generated thousands of letters, emails, and faxes. The purpose of the workshops was to:

- Solicit additional input to the draft proposal
- Reconnect with those who provided input
- Identify if some important points or coordination was missed
- Improve our proposal

- Resolve as many conflicts as possible in order to have the best proposed action to move into NEPA

The results of these series of meetings / workshops was the Forest receiving numerous recommendations on specific road and trail designations, proposed ATV routes; and play areas. Also, many general comments and concerns were received regarding such things as road closures, off-highway vehicles use, dispersed camping, big game retrieval, access, solitude, and resource protection.

## Step 3 - Identifying Issues

The Forest received input from the public including permittees, local user groups, environmentalists, affected communities, and county commissioners. Issues and opportunities were identified using public involvement and internal Forest Service input. These are presented in no particular order.

### Motorized Use of Roads

- Leave all roads open
- Open roads previously closed
- Limit motorized use to roads only
- Close more roads
- Close roads in or near roadless areas
- Keep all RS2477 roads open
- Maintain access to inholdings (private land)
- Roads should be open to everyone or closed to everyone, individuals, range permittees, etc. should not have exclusive use
- Many roads on the Forest are short in length, parallel one another, multiple roads to the same destination

### Access to inholdings (private land)

- Maintain access to inholdings or individual residences
- Keeps roads open to provide escape routes during emergencies
- Access for emergency situations (e.g. fire, ambulance, law enforcement)
- Private landowners blocking access to public lands

### Natural Resources

- Protect all natural resources including threatened and endangered species, plants, cultural sites, riparian, and streams
- Remove roads and motorized trails in or adjacent to threatened and endangered species habitat
- Sedimentation to stream channels from roads
- Reduce road density
- Road density causes habitat fragmentation impacting wildlife habitat and movement
- Roads impact streams, riparian, and aquatic species habitat

### Recreation

- Limited routes available for OHV/ATV use only
- Reduce conflict where roads and trails overlap
- Maintain quiet and solitude of the Forest
- Noise from ATVs near or adjacent to private land or subdivisions
- Play areas for off-highway vehicles
- Provide opportunities for loop routes of varying size
- Restrict OHV use on the Forest
- User conflicts between motorized and non-motorized uses on trails
- Want to be able to use UTV where ATV travel. The less than 50" is too restrictive, UTVs are wider than 50"

#### Big Game Hunting & Retrieval

- Keep more roads open to access hunting areas
- Allow motorized big game retrieval
- No motorized vehicles for big game retrieval
- Maintain ability for hunters to retrieve big game carcasses by motorized vehicles, mainly ATV

#### Motorized Dispersed Camping

- Maintain ability to disperse camp along roads
- Do not concentrate camping to few limited locations
- Do not be overly limiting in size, quantity and distribution of dispersed camping across the forest

#### Social and Economics

- Need fuelwood areas within traveling distance of community I live in
- Tourism is very important to local economy
- Aging population-demographics indicate that public will be limited from using public lands because of inability to access other than motorized transportation
- Maintain reasonable access for public to continue to collect fuelwood and other special forest products and participate in recreational opportunities provided by the Forest

#### Other comments or concerns raised were:

- Enforcement of the route designations under the Travel Management Rule will be inadequate
- Maintenance of existing system is inadequate

The comments and recommendations received highlight the complexity of designating roads, trails, and areas for motorized vehicle use. Many comments and recommendations ask for completely opposite things or even conflict.

## Step 4 – Assessing Benefits, Problems and Risks

The Forest developed a Forest-wide process to assist in a route by route (either road or motorized trail) assessment to determine a designation and identify suitable dispersed camping corridors. The process requires an examination of a large number of variables. The variables included the items identified in Steps 1, 2, and 3, but also a consideration in areas such as recreation, forestry, fire fighting, and access needs by permit holders, private property owner, and administrative uses.

The route by route assessment was heavily dependent upon maps, tables, and other digital products such as digital photography from the GIS department. The District staffs were able to utilize both hard copy maps and tables, but also an interactive methodology of viewing the roads and trails on screen with other available GIS data layers. The assessment also relied heavily upon District staff who are familiar with local conditions and can identify roads that are needed or not needed for specific forest resource management, present and future, objectives. Specifics related to various disciplines are outlined below in the filter processes.

### Summary of Forest-wide process

The Forest-wide process allowed the Forest to:

- **Have a consistent process implemented across the Forest,**
- **Ensure the intent of the Travel Management Rule is being met, and**
- **Convey a consistent message and products to the public.**

The process involved three levels of review and assessment: 1) utilizing the coarse filter tools; 2) utilizing the fine filter items; and 3) utilizing criteria for motorized fixed distance dispersed camping. These elements of the levels are summarized below:

Coarse Filter - To identify roads, trails or areas with high resource concerns, the Forest developed the “coarse filter” (described in Step 2). The information and tools developed and provided to the districts for use in the road by road assessment included:

- Maps and tables for 5<sup>th</sup> and 6<sup>th</sup> code watersheds road densities
- Map of wildlife species and road density by section
- Location of Class 1 and 2 stream channels
- Location of Priority 1 and 2 roads

Fine Filter: The fine filter is not an all inclusive list of items considered, but the basic checklist for consideration during the road by road assessment by District teams. This includes the closer look at management needs of the different specialty areas, such as fuels, range, lands, etc., as well as public comments on specific roads or specific locations. There may be items unique to the district or specific to a geographic area that were also considered but not listed. The fine filter included:

- Public input including issues identified in Step 3
- Items listed under 36 CFR 212.55
- Local knowledge or field visit findings of Priority 1 and 2 roads (“Coarse Filter – Streams”)
- Land Management Plan Standards and Guides
- Escape routes / access to safety zones

- Current road status
- Rights of ways (granted / acquired)
- Uses authorized under permit (range, utilities, etc)
- Current motorized and non-motorized recreation uses and opportunities
- Current erosion processes
- Steep slopes / sensitive soils
- Cultural resources
- Threatened and endangered species habitat & other wildlife resources
- Road densities (“Coarse Filter – Road Density”)
- Relation to stream channels
- Road overlaps trail
- Parallel or duplicate (goes to the same location) routes
- Road position on slope

Motorized Dispersed Camping: Criteria were developed to determine suitable locations to allow motorized dispersed camping. Designated dispersed camping can be defined as an area or a fixed distance from designated open roads. Many unsuitable areas were reduced through the coarse and fine filter steps. Although many of the “criteria” are similar to elements listed in the “fine filter”, they are being assessed for a different purpose and locale. The criteria for motorized dispersed camping included:

- Public input
- Items under 36 CFR 212.55
- R3 Guidelines
- Proximity to private land
- Fire hazards
  - Fuels conditions
  - Vegetation type
  - Prevailing wind direction
- Threatened, endangered, and sensitive species habitat
- Riparian values
- Steep slopes
- Sensitive soils
- Known sensitive cultural resources sites
- Relation to stream channels
- Maintenance level of road
- Speed / traffic levels
- Public safety
- Current dispersed use pattern

Road recommendations based on the filters and criteria are found in Appendix L.

## Step 5 – Describing Opportunities

The development and maintenance of a transportation system and balancing Forest resources, Forest management activities, and public needs and wants is challenging and controversial. To identify the road system to manage, 36 CFR 212.5 (b) states

“...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 roads 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.”

The minimum road system is the system needed to manage the Forest, not just resource management, but also public uses. The minimum road system is specified in Appendix L and summarized in Table 4. It should be recognized that through the NEPA process, roads may be added or removed in order to address other issues that may arise during the NEPA process and refine the minimum road system.

Table 4. Summary of Appendix L.

	Miles
Roads open to all vehicle types	3,331
Administrative use or by written authorization	275
Roads to be closed to all vehicle types	980
Roads changed to motorized trails <50" in width	121

There are recommendations to have roads for access to private lands be under written authorization. The Forest is not requiring or taking action on permitting under Travel Management, further consideration of these recommendations would happen under a different future assessment. The recommendations reflect maintaining access, reducing potential conflicts, and roads that may not be needed for general Forest management. These roads and those for other permitted uses are part of the minimum road system since they are needed by management for activities on Forest Lands.

With the available funding of \$1 to \$1.2 million 100% of the Forest's level 3-5 roads and about 3% of level 1-2 roads receive annual maintenance. When current funding levels and road mileages are entered into the Southwestern Region's economic assessment tool which uses regional average maintenance costs, it is estimated that the Forest can maintain about 22% of its existing system (Appendix M). Although the current expenditures and mileages differ from the reporting from the model, both reflect insufficient funding for the system needed to manage and provide for public use.

Designating a road system that matches available funding levels by closing roads will not meet the access needs for public and administrative purposes. It is recognized that having a viable designated road system that matches current budget is not attainable. The Forest will continue to look for opportunities to maintain and reduce costs of the road system. The Forest will coordinate with surrounding counties on possible road conveyances (Appendix N) therefore reducing Forest road mileages. Other opportunities to be explored are seeking road maintenance partners, place roads under permit, decommissioning roads (Appendix O), or conversion of roads to other uses. If all of the identified opportunities and recommendations were implemented, it is estimated that the Forest could maintain approximately 25% of the road system (Appendix M).

## Step 6 - Reporting

### Summary of recommendations from analysis:

See Appendix L for road by road recommendations. The roads are broken down by Ranger District.

- Non-motorize (NM) 957 miles of existing open system roads. These roads would be closed to all uses and reduced to operation maintenance level 1.
- Designate 275 miles of existing open system roads for administrative use only or specific permitted uses only. Permitted uses include such things as access to private in holdings, utility line maintenance, mineral claims, and various range or wildlife improvements.
- Add 55 miles of user-created ATV routes to the Forest transportation system. These routes should be managed as motorized trails less than 50 inches in width and open to public travel.
- Convert 120 miles of existing open system roads to motorized trails less than 50" in width.
- Convert 30 miles of existing open system roads to hiker/pedestrian or pack and saddle use
- Seasonal openings on NFS roads 154, 770, 11M, 119A that lead to lookout towers from April 1 through September 1 for the protection of Forest facilities
- Change type of use on the last 1 mile of Dry Blue Trail on the southwest end from motorized to non-motorized use
- Allow motorized fixed distance dispersed camping adjacent to approximately 1,490 miles of roads designated open to motorized use

### Other Recommendations and Opportunities

- Review roads recommended for non-motorized use, for the potential to decommission (Appendix N). Give priority to those roads identified by the coarse filter – stream buffer analysis and threatened and endangered species and their habitat.
- Review roads identified as ML1 closed in INFRA for decommissioning with priority given to those identified by coarse filter – stream buffer analysis and threatened and endangered species and their habitat.
- Review opportunities for off-road big game retrieval of deer and elk.
- Remove text regarding motorized vehicle use for specific locations from LMP:

- Page 131 - Manage the area above Mule Creek to remain open to all entry year-round.
- Page 139 - ...and the portion above Mule Creek will remain open year-round.
- Page 139 – Hells Hole will remain open to vehicle use, but because of topography, vehicle use will not occur in most portions of the area.
- Pursue issuance of easements to roads that access private lands and are not needed for other Forest uses.
- Develop a signing plan to be implemented upon completion of NEPA.
- Pursue obtaining right-of-ways identified during travel analysis.
- Pursue working with counties on identified road conveyances (Appendix M).
- Develop a communication and education plans to be implemented during NEPA and upon implementation.

## References

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