



United States
Department of
Agriculture

Forest
Service



May

2011

Travel Analysis Process for the Bradshaw Vegetation Management Project

Bradshaw Ranger District
Prescott National Forest
Arizona

For more information, contact:
Prescott National Forest
Bradshaw Ranger District
344 S Cortez St
Prescott AZ 86303
Phone: (928) 443-8000

In accordance with Federal civil rights law and U.S. Department of Agriculture (USDA) civil rights regulations and policies, the USDA, its Agencies, offices, and employees, and institutions participating in or administering USDA programs are prohibited from discriminating based on race, color, national origin, religion, sex, gender identity (including gender expression), sexual orientation, disability, age, marital status, family/parental status, income derived from a public assistance program, political beliefs, or reprisal or retaliation for prior civil rights activity, in any program or activity conducted or funded by USDA (not all bases apply to all programs). Remedies and complaint filing deadlines vary by program or incident.

Persons with disabilities who require alternative means of communication for program information (e.g., Braille, large print, audiotape, American Sign Language, etc.) should contact the responsible Agency or USDA's TARGET Center at (202) 720-2600 (voice and TTY) or contact USDA through the Federal Relay Service at (800) 877-8339. Additionally, program information may be made available in languages other than English.

To file a program discrimination complaint, complete the USDA Program Discrimination Complaint Form, AD-3027, found online at http://www.ascr.usda.gov/complaint_filing_cust.html and at any USDA office or write a letter addressed to USDA and provide in the letter all of the information requested in the form. To request a copy of the complaint form, call (866) 632-9992. Submit your completed form or letter to USDA by: (1) mail: U.S. Department of Agriculture, Office of the Assistant Secretary for Civil Rights, 1400 Independence Avenue, SW, Washington, D.C. 20250-9410; (2) fax: (202) 690-7442; or (3) email: program.intake@usda.gov.

USDA is an equal opportunity provider, employer, and lender.

Table of Contents

| | |
|---|------------|
| Executive Summary | vi |
| Summary of Issues..... | vi |
| Summary of Recommended Actions Responding to Issues | vi |
| Analysis Performed | vii |
| Key Results and Findings..... | vii |
| How the Report Will Be Used..... | vii |
| Project Introduction | vii |
| Step 1: Setting up the Analysis..... | 1 |
| Purpose | 1 |
| Project Area and Objectives | 1 |
| Roles of Specialists..... | 2 |
| Process Plan..... | 2 |
| Analysis Plan..... | 2 |
| Information Needs | 3 |
| Step 2: Describing the Situation | 4 |
| Purpose | 4 |
| Existing Road and Motorized Trail System | 4 |
| Existing Direction for Roads, Trails, and Areas | 4 |
| Road Maintenance Levels | 6 |
| Step 3: Identifying Issues..... | 8 |
| Purposes..... | 8 |
| Resource Concerns | 8 |
| Key Issues | 9 |
| Step 4: Assessing Benefits, Problems and Risks..... | 10 |
| Purposes..... | 10 |
| The Analysis Process | 10 |
| Scoring and Rating | 15 |
| Recommendations for Roads and Motorized Trails..... | 19 |
| Guidelines for Mitigating Road Risks..... | 23 |
| Step 5: Describing Opportunities and the Minimum Road System | 24 |
| Purpose | 24 |
| Actions that Would Implement the Minimum Road System..... | 24 |
| Actions that Respond to the Issues..... | 24 |
| Step 6: Reporting | 28 |
| Purpose | 28 |
| Key Findings of the Analysis | 28 |
| Literature Cited | 29 |
| Appendix A: Existing System Roads Risk and Benefit Assessment | |
| Appendix B: Ecological, Social, and Economic Considerations | |
| Appendix C: Public Involvement and Collaboration | |
| Appendix D: List of Right-of-Way Needs and Priorities | |
| Appendix E: Glossary | |
| Appendix F: Project area Vicinity Map | |
| Appendix G: Maps | |
| Appendix H: Forest Wide Travel Analysis Process – Economic Analysis | |
| Appendix I: Summary of the Travel Analysis Process | |

List of Tables

| | |
|--|----|
| Table 1. Road summary of miles by type for the analysis area | 7 |
| Table 2. Resource categories for roads | 10 |
| Table 3. Benefit Statements and Criteria | 11 |
| Table 4. Point range and distribution for the overall score for a risk | 16 |
| Table 5. Point range and distribution for the overall score for a benefit | 16 |
| Table 6. Example of the risk scoring system for a road | 16 |
| Table 7. Example of the benefit scoring system for a road | 16 |
| Table 8. Roads risk and benefit matrix and recommendations for existing National Forest System roads | 17 |
| Table 9. Recommendations for risk / benefit categories for roads | 19 |

Executive Summary

Travel planning in the Forest Service was traditionally split between the engineering program for road management and the recreation program for trail management. A recently revised federal regulation now combines the analysis of the motorized use of trails and roads under the travel analysis process (TAP).

The TAP is intended to identify opportunities for the national forest transportation system to meet current and future management objectives, and to provide information that allows integration of ecological, social, and economic concerns into future decisions. The TAP is tailored to local situations and landscape/site conditions as identified by forest staff members and coupled with past public input.

The outcome of the TAP is a set of recommended changes to the forest transportation system. A thorough travel analysis supports subsequent National Environmental Policy Act (NEPA) processes, allowing individual projects to be more site-specific and focused, while still addressing cumulative impacts.

Summary of Issues

Issues were identified using previous public involvement and internal Forest Service input.

- Environmental impacts from authorized routes
- Insufficient resources for maintenance of the existing system roads
- Need for access to private lands for landowners
- Need for roads as evacuation routes in case of wildfire
- Increased risk of human-caused fire
- Need for access to firewood-gathering areas
- Need for access for permitted activities
- Trespass onto private lands from National Forest System lands

Summary of Recommended Actions Responding to Issues

- Improve route number signage on roads and clearly sign National Forest System land boundaries to enhance compliance and enforcement.
- Rehabilitate areas damaged by cross-country travel and increase efforts to discourage travel on decommissioned and user created roads.
- Reduce the number and use of roads in occupied habitat for species-of-concern and species-of-interest.
- Use seasonal restrictions, administrative use restrictions, and reroute roads 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.
- Expand public outreach through information and interpretation to improve understanding of resource damage from improper use of off-road and trail driving.
- Provide accurate information to users for more informed decisions when choosing routes to travel.

Analysis Performed

An Interdisciplinary team (IDT) used a risk-benefit assessment to rank roads and motorized trails based on risks (wildlife disturbance, impacts on cultural resources, and so on) and benefits (access to facilities, recreational opportunities for OHV users, and so on). The categories chosen to rank risk-benefit were based on the generic issue questions from publication FS-643 “Roads Analysis: Informing Decisions about Managing the National Forest Transportation System” (see Appendix B for list of questions). The interdisciplinary team (IDT) was asked to review the questions pertinent to their specialty, and use them to build issue statements and evaluation criteria (Step 4) for evaluating the risk or benefit for each road on their specialty.

Key Results and Findings

Through the travel analysis process, the IDT ranked routes based on their risks to natural and cultural resources and their benefits to recreation use, forest product access, agency and permittee access, vegetation management, and emergency (primarily for fire management and suppression) access.

- 37.6 miles or 17.9 percent of roads in the current system have been assessed to have a greater risk than benefit, and should be considered for decommissioning, closure or converted to a trail, or mitigated to reduce resource risk.
- 171.4 miles or 82.1 percent of the current system are roads with high to medium benefits and should be considered for continuing routine maintenance, additional maintenance to mitigate resource risk, or used only for administrative needs.
- There were no additional motorized trails, areas, or roads identified as being needed to meet administrative, recreation or other transportation needs, with the exception of some short reroutes around naturally or culturally sensitive areas or where rights-of-way are lacking (see Appendix D)

Step 4 includes a section on Recommendations for Roads, and and Map 3 show the IDT recommendations. A complete list of the individual rankings for each road can be found in Appendix A. A breakdown of miles and percent of miles for the transportation system are shown in the Scoring and Rating section of Step 4 (p. 17).

How the Report Will Be Used

Travel analysis process results will assist the Bradshaw Ranger District in addressing issues related to the roads and motorized trails system, and areas. It will be used to inform future analyses, decisions, and specific actions.

Project Introduction

Areas that are being considered for treatment under the Bradshaw Vegetation Management Project generally lie to the southeast, south, southwest, west and northwest of the city of Prescott. Terrain encompassed by the analysis area is quite varied in respect to slope, aspect, and elevation. All aspects are represented as the landscape is composed of numerous hills, valleys, and ridges that vary in size. The elevation ranges from nearly 7,800’ at the top of Mount Union to approximately 5,500’ near Lynx Creek.

The Forest Service proposes to conduct a combination of vegetation management treatments including commercial thinning, prescribed burning and both mechanized and non-mechanized fuels treatments that will reduce hazardous fuels. The type of treatment being proposed in a specific area is based on the vegetation being managed. The analysis area encompasses 55,554 acres. Vegetation types found within the proposed project area include: chaparral, ponderosa pine-evergreen oak, ponderosa pine, pinyon-juniper, evergreen oak, Gambel oak and mixed conifer.

Overall objectives for the proposed project are to improve the resiliency of fire adapted ecosystems while simultaneously reducing hazardous fuels. Existing conditions in the majority of all vegetation types within the proposed project area are outside of their historic range of variability. When vegetation types are within or more nearly resembling conditions that exist within their respective historic range of variability, they have improved resiliency to natural disturbance events and reduced hazardous fuels.

Step 1: Setting up the Analysis

Purpose

The purpose of this section is 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 (TAP) will be conducted for Bradshaw Vegetation Management Project Area. The objective of the analysis is to provide scientific information for managing roads, motorized trails, and areas that are safe and responsive to public needs and desires, conforms to the Prescott LRMP, is efficiently administered, has minimal negative ecological effects on the land, and is in balance with funding available for needed management actions. All existing system with a maintenance level 2 or higher, and maintenance level 1 roads which are needed to access treatment units within the project area are included in this travel analysis report.

The TAP is intended to be a broad scale comprehensive look at the transportation network. The main objectives of the TAP are to make recommendations that:

- Balance the need for access while minimizing risks by examining important ecological, social, and economic issues related to roads and trails;
- Develop maps, tables, and narratives that display transportation management opportunities and strategies that address current and future access needs, and environmental concerns.
- Identify the need for changes by comparing the current road and motorized trail system and areas to the desired condition;
- Make recommendations to inform travel management decisions in subsequent NEPA documents.
- Identification of the minimum road system (MRS) needed for safe and efficient travel and for administration, utilization, and protection of National Forest System (NFS) lands per 36 CFR 212.5(b)(1)

The analysis area for this TAP encompasses the Bradshaw Vegetation Management Project Area (55,554 acres) See map in Appendix G.

Roles of Specialists

An interdisciplinary team (IDT) of Forest Service employees was assigned by Laura Jo West, the Bradshaw District Ranger. The team members and their primary analysis role are listed below:

| Team Member | Resource |
|--------------------------|---------------------------|
| Mike North | IDT Leader |
| Kurt Wetzstein | Vegetation |
| Ann May | Recreation |
| Pam Flowers | Lands |
| Ed Paul | Fire |
| Laura Jo West | District Ranger |
| Bruce Nellans | Heritage Resources |
| Noel Fletcher | Wildlife |
| Chad Hermandorfer | Soil and Water |
| Kelli Spleiss | Noxious Weeds |
| Barb Phillips | Botany |
| Rick Eis | Engineering |
| Tom Potter | GIS Support |
| Judy York | Writer-Editor |

Process Plan

TAP will follow the same six-step process outlined in the Roads Analysis Process (RAP), as described in FS-643, Roads Analysis: Informing Decisions about Managing the National Forest Transportation System (USDA Forest Service 1999).

Analysis Plan

The IDT followed these steps in order to carry out the analysis:

- Review and assemble existing data.
- Verify accuracy of system road locations on maps.
- Identify and document discrepancies between on-the-ground conditions, the Forest's INFRA database, and current management direction.
- Where possible, verify the current conditions of roads, trails, and associated features including surface type and impacts on other resources.
- Identify preliminary access and resource issues, concerns, and opportunities.
- Identify road safety issues.
- Identify additional issues, concerns, and opportunities through previous public involvement and internal resource staffs.
- Review State OHV laws.
- Recommend changes to the road and motorized trail system and areas based on the findings of this analysis to identify the minimum road system.

Information Needs

The following information was required to proceed with the analysis.

- Accurate location 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 Forest's discretion.
- For each road and motorized trail, the following information is needed:
 1. Any existing public, permittee, or agency use.
 2. Any right-of-way dedication to the FS
 3. Any additional right-of-way required
 4. Maintenance responsibility for the road (Forest Service, County, City, volunteer group, or State)
- Assessment of 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 nearby landowners.
- Current observed road uses.
- Current road management objectives.
- 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.
- Applicable federal, state, and local laws.
- Public and user group values and concerns.
- Forest scale and any project level Roads Analysis Process.
- Cultural resources

Step 2: Describing the Situation

Purpose

The purpose of this step is to:

- Describe the existing road and motorized trail system
- Describe the existing direction
- Summarize the Arizona State OHV/All-Terrain Vehicle (ATV) Laws
- Describe road maintenance levels

Existing Road and Motorized Trail System

Currently, the Bradshaw Vegetation Management Project Area does not have any motorized trails. There are 152 miles of National Forest System (NFS) roads open to motorized use and 57 miles of closed roads on the Bradshaw Vegetation Management Project Area. Of these roads, 69 miles of open roads, and 51 miles of closed roads are needed for project activities. These routes are shown on Maps 1 and 2.

Existing Direction for Roads, Trails, and Areas

A. General

Travel analysis is focused on identifying needed changes to the forest transportation system; identifying the existing direction is an important first step. The existing direction includes the National Forest System roads, trails, and areas currently managed for motor vehicle use. Restrictions, prohibitions, and closures on motor vehicle use is also part of the existing direction on the Project area.

Existing direction from laws and regulations, official directives, forest plans, forest orders, and forest-wide or project-specific roads decisions, determine the motorized routes and areas open to public motorized travel. This information about the managed system is documented in road and motorized trail management objectives, maps, recreation opportunity guides, tabular databases, and other sources.

B. Roads

Open Road

Existing roads open to the public for motorized use are forest system roads, which are currently in the Forest's INFRA database (an Oracle Database containing information on all roads and improvements on Forest Service lands) with the following attributes:

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

Closed Road

Closed roads have been closed to vehicle traffic for at least a year but are necessary for future activities. They appear in the Forest's INFRA database under the following categories:

- System = National Forest System Road
- Jurisdiction = Forest Service
- Route Status = Existing
- Operational Maintenance Level = 1

Decommissioned Road

Decommissioned roads have some type of physical closure at their entrance (berm, etc.), or may be completely obliterated. They appear in the Forest's INFRA database under the following categories:

- System = National Forest System Road
- Jurisdiction = Forest Service
- Route Status = Decommissioned
- Operational Maintenance Level = 1-5¹

In order to return a decommissioned road to service as a system road the NEPA process must be followed even when no physical work is required to allow motorized traffic back on the road

Unauthorized Road

An unauthorized road is a road, which exists on the forest, but is not included in a forest transportation atlas or database. These roads are usually established by various users over time. They were not planned, designed, or constructed by the Forest Service. Currently, these roads are not in the Forest's INFRA database, nor are they part of the NFS roads.

C. Motorized Trails

Currently, there are no designated motorized trails on the Bradshaw Vegetation Management Project Area.

D. Areas

There are no designated motorized areas on the Bradshaw Vegetation Management Project Area.

E. Previous Travel Management Decisions

There are no previous travel management decisions for Bradshaw Vegetation Management Project Area.

State OHV and ATV Laws

Arizona state laws govern OHV use on roads in Arizona. The following regulations apply to all off-highway vehicles operated in Arizona and prohibit operation:

¹ The maintenance level of decommissioned roads is the level they were maintained at prior to decommissioning.

- **With reckless disregard for the safety of persons or property.**
- **Off of an existing road, trail or route in a manner that causes damage to wildlife habitat, riparian areas, cultural or natural resources, or property or improvements.**
- **On closed roads, trails, routes or areas.**
- **Over unimproved roads, trails, routes or areas unless driving on roads, trails, routes or areas is allowed by rule or regulation.**
- **That causes damage to the environment as prohibited by rule, regulation, ordinance or code.**
- OHV travel is limited to roads, trails, routes or areas that are opened as indicated in rules or regulations by the land management agency.
- Some pertinent sections of the Arizona State laws are:
- **ARS § 28-1174A-D** (Effective January 1, 2009) - Operation restrictions; violation; classification

Further information may be obtained from:

[Arizona ATV Brochure](http://www.azgfd.gov/outdoor_recreation/ohv_rules.shtml) (http://www.azgfd.gov/outdoor_recreation/ohv_rules.shtml)

Road Maintenance Levels

The Forest Service differentiates forest roads into five maintenance levels, which define the level of service, and maintenance required. Refer to Appendix H for a more detailed description of the maintenance levels.

Road Maintenance Level 5 (ML5) – roads are managed and maintained for a high degree of user comfort. These roads are generally paved and are suitable for passenger vehicles.

Road Maintenance Level (ML3) – roads are managed and maintained for a moderate degree of user comfort. These roads are generally surfaced with rock and are suitable for passenger vehicles.

Road Maintenance Level (ML3) – roads are managed and maintained for a moderate degree of user comfort. These roads are native surface roads and are suitable for passenger vehicles.

Road Maintenance Level 2 (ML2) – roads are managed and maintained for use by high-clearance vehicles; passenger car traffic is not a consideration.

Road Maintenance Level 1 (ML1) – roads that are closed to vehicular traffic intermittently for periods that exceed 1 year.

Table 1. Road summary of miles by type for the analysis area

| Maintenance Level (ML) | Bradshaw Vegetation Management Project Area Analysis Area Total Miles¹ |
|--------------------------------------|--|
| ML 5 Road | 20 |
| ML 4 Road | 2 |
| ML 3 Road | 15 |
| ML 2 Road | 115 |
| Open NFS Roads -- Total | 152 |
| ML 1 Road (Closed Roads) | 57 |
| Total Miles of Roads Analyzed | 209 |

¹ Road miles used in this analysis include routes found on the forest level GIS data set.

Step 3: Identifying Issues

Purposes

The purposes of this step are to:

- Identify resource concerns
- Identify key issues related to management of existing road system

Resource Concerns

Motor vehicle use on the Bradshaw Ranger District has increased in recent years as local and out of area visitor use increased. This increased use has led to the proliferation of unauthorized (user-created) routes and degraded soil, water, vegetation, and wildlife habitat conditions.

Generally, roads, motorized trails, and areas cause disturbance or displacement of wildlife, habitat fragmentation, habitat loss, reduction of habitat productivity, and in some cases, wildlife mortality from collisions. In some places, improper placement of roads and trails has led to loss or reduced productivity of important wildlife habitats.

Heritage resources are a concern throughout the project area as they are important considerations in all management activities on the district. There has been human occupation in the local area for thousands of years. Roads, motorized trails, and areas can impact heritage sites.

There is fire risk wherever people use the National Forest. This risk can come from many sources, including smoking, vehicles, and campfires.

Unauthorized cross-country motorized use can also facilitate the spread of invasive plants and put vegetative diversity at risk.

Key Issues

The key issues were identified using past public involvement and comments that addressed the Prescott National Forest road system as well as input from Forest Service personnel. The following roads issues were identified and are in random order and do not represent a hierarchy of importance.

1) Insufficient resources for maintenance of the existing system roads

Inadequate maintenance reduces access for National Forest users and management. Funding for road maintenance is not adequate to maintain the existing system and perform needed monitoring. (see Appendix H for more information on Road Maintenance Costs).

2) Need for access to private lands for landowners

Many of the private lands on the project area are currently accessed by system roads.

3) Increased risk of human-caused fire

Transportation system roads and trails are used by the public to access public lands. The more public use of an area equates to a higher probability of Human caused fire starts..

4) Need for access to firewood and other forest products gathering areas

Firewood, traditional materials, and plant gathering are all important activities, especially for Native American communities. Decommissioning or closing roads may affect access for traditional gathering activities.

5) Trespass onto private lands from National Forest System lands

Property owners adjacent to National Forest System lands are concerned that roads leading to their property will increase trespass and vandalism.

6) Access to mining activities

Access to mining claims for mineral development by the locator/claimholder reduces operating costs.

7) Known Cultural Resources and Tribal Use/Traditional Cultural Property

Public access to Traditional Cultural Properties can result in damage to the properties. Access across public lands to tribal ownership properties contributes to trespass problems.

Step 4: Assessing Benefits, Problems and Risks

Purposes

The purposes of Step 4 are 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 routes
- Discuss the statistical distribution of risk and benefit assessment
- Recommendations for roads and motorized trails
- Guidelines for mitigating road risks

The Analysis Process

The issues described in Step 3 were addressed by the Interdisciplinary Team (IDT) in the following assessment. The risk and benefit criteria categories (Step 4, Table 7) were developed by considering the issues from Step 3 and the suggested resource questions for roads analysis described in FS-643 Roads Analysis: Informing Decisions about Managing the National Forest Transportation System (RAP). The IDT reviewed these resource questions (see Appendix B of this report) and used them to develop criteria to use in ranking the risks and benefits of each road. Each road was then evaluated against the identified risks and benefits.

Criteria Used in the Risk and Benefit Analysis Process

Roads on the project area provide access for many uses. They also provide the infrastructure to facilitate motorized recreation and vegetation management. However, their presence has possible negative effects on the natural and cultural resources of the National Forest. The following categories for risks and benefits were identified by the IDT as the most important resource issues for managing the Project area transportation system.

Table 2. Resource categories for roads

| Risk | Benefit |
|--|--|
| The presence or conditions of motorized use present risks associated with these categories: | Motorized uses benefit Forest management because they provide opportunities for these categories: |
| Human Caused Fire | Fire and Fuels Management—Agency Access |
| Known Cultural Resources | Fire and Fuels Management – Roads as Control Lines |
| Tribal Use/Traditional Cultural Property | Vegetation Management Access |
| Undesirable Plant Species | Access to Mining Activities |
| Riparian/Aquatic Species | Access for Authorized Users |
| Raptors | Access for Recreation |
| Sensitive Plants | Tribal Access |
| Sedimentation into Hydrological Features | |

Roads 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 in their resource area. The following tables detail these criteria.

Table 3. Benefit Statements and Criteria

| Access to Public Lands | |
|--|---|
| Benefit: Fire and Fuels Management—Agency Access | |
| <p>Access for fire and fuels personnel to manage fires (wildfire and prescribed fire). Access needs include Type 3 and Type 6 engines, chase vehicles and all-terrain vehicles.</p> | <p>HIGH – A high benefit road is usable by all of the agencies emergency suppression and transport vehicle classes, and includes all ML 3, 4, and 5 roads.</p> |
| | <p>MEDIUM - A medium is usable by Type 6 engines, and all-terrain vehicles. These roads include all ML 2 roads, and any ML1 roads which are the only access to a given area.</p> |
| | <p>LOW - A low benefit road is usable by all-terrain vehicles only. These roads include all other ML1 roads.</p> |
| Benefit: Fire and Fuels Management – Roads as Control Lines | |
| <p>Roads are often convenient and safe locations to use as control lines either for wildland fire fighting or in controlled burns.</p> | <p>HIGH - A high benefit road is the only source of access to an area, and provides good control features for fire activities. They include all maintenance level 2 roads and the maintenance level 1's that are the only source of access to an isolated area. They provide good control features for prescribed burns.</p> |
| | <p>MEDIUM - A medium benefit road accesses areas, and provide good control features for fire activities, but they often provide limited or no access for highway standard vehicles. They include all other ML 1 roads.</p> |
| | <p>LOW - A low benefit road provide good control features but greatly increase risk to agency personnel and the public when used as control features. These include all ML 3, 4, and 5 roads.</p> |
| Benefit: Vegetation Management Access | |
| <p>Transportation system roads are used to access areas for vegetation management activities, both for this project, and for future projects.</p> | <p>HIGH– High benefit roads will be used repeatedly over the planning horizon. They include all ML 3 roads, and ML2 roads which are the primary access to multiple planned treatment units.</p> |
| | <p>MEDIUM – Medium benefit roads access single planned treatment units.</p> |
| | <p>LOW BENEFIT- Low benefit roads do not access planned treatment units.</p> |
| Benefit: Access to Mining Activities | |
| <p>Access to mining claims for mineral development by the locator/claimholder reduces operating costs. Access to claim or operating site by Agency for inspection and monitoring reduces administrative costs</p> | <p>HIGH– High benefit roads access a claim directly, and are suitable for hauling heavy equipment.</p> |
| | <p>MEDIUM – Medium benefit roads access a claim directly, but are not suitable for hauling heavy equipment; or access the general vicinity of a claim or operating site.</p> |

| | |
|--|--|
| | LOW BENEFIT- Low benefit roads are not used to access mining claims. |
| Benefit: Access for Authorized Users | |
| Roads provide access for authorized users of special use permits for facilities, including easements. | HIGH - A high benefit road access authorized special uses that require frequent motorized access to authorized users, including easements. |
| | MEDIUM - A medium benefit road access authorized special uses that require occasional motorized access by an authorized user, or non recorded easement user. |
| | LOW - A low benefit road do not access special uses or easements and motorized access is not necessary for permit related work. |
| Benefit: Access for Recreation | |
| Roads provide access to developed and dispersed recreation areas, trail-heads, campgrounds, picnic areas, recreation residential homes, camps, traditional activities, and private in-holdings without other access. | HIGH - A high benefit road provide access by passenger car. Examples are developed sites such as picnic areas, campgrounds and recreation residences. |
| | MEDIUM - A medium benefit road access regularly used dispersed recreation sites and areas where high clearance vehicles are acceptable for access. |
| | LOW - A low benefit road provide limited access to seldom used dispersed recreation sites and roads with no access to developed facilities. |
| Benefit: Tribal Access | |
| Access to Traditional Cultural Properties is important to the tribes. | HIGH - High benefit roads or motorized use trails access a Traditional Cultural Property. Route was highlighted by tribe(s) because it is valued or needed by tribe to access Traditional Cultural Property or traditional use area. |
| | MEDIUM - Medium benefit roads or motorized use trails which are known access and/or parking area for accessing Traditional Cultural Property or area where traditional use is known to occur. |
| | LOW – Low benefit roads or motorized use trails access areas with no known Traditional Cultural Properties. Access for traditional cultural activities has not been identified as important to tribe. |

Table 4. Risk Statements and Criteria

| | |
|---|--|
| Fire | |
| Risk: Human Caused Fire | |
| Transportation system roads and trails are used by the public to access public lands. The more public use of an area equates to a higher probability of Human caused fire starts. | HIGH– High Risk roads provide access to areas with increased privacy; and increased use of incendiary devises and purposes (campfires, smoking, ATV-use, target shooting, etc.). These are all Maintenance level 2 roads |
| | RISK- Medium Risk roads provide quality access but less privacy and fewer preferred opportunities to use incendiary devises. These receive elevated use by both agency and the public compared to maintenance level 2 roads so they provide more opportunity to see and report wildfires (reduced response time). These are all the Maintenance Level 3, 4, and 5 roads. |

| | |
|--|--|
| | RISK- Low risk roads are not used by the public. These include all Maintenance Level 1 roads. |
| Heritage Resources | |
| Risk: Known Cultural Resources | |
| <p>Cultural resources can be impacted by the transportation system. Use and maintenance of roads or trail which cross sites can impact the cultural resources. Access to areas with cultural resources increases the chance that these resources could be disturbed by the public.</p> | <p>HIGH – High risk roads or motorized use trails which 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.</p> |
| | <p>MEDIUM – Medium risk roads or motorized use trails has not been surveyed but is located in a low site density area.</p> |
| | <p>LOW – Low risk roads or motorized use trails has been surveyed for cultural resources and no sites are impacted by the road.</p> |
| Risk: Tribal Use/Traditional Cultural Property | |
| <p>Public access to Traditional Cultural Properties can result in damage to the properties. Access across public lands to tribal ownership properties contributes to trespass problems.</p> | <p>HIGH - High risk roads or motorized use trails are on or near known Traditional Cultural Property, or was identified by tribe(s) during consultation because of its proximity to Traditional Cultural Property.</p> |
| | <p>MEDIUM - Medium risk road or motorized use trail is in the general vicinity of an area known for Traditional Cultural Property s and/or traditional cultural use. Specific location of Traditional Cultural Property has not been identified.</p> |
| | <p>LOW - Low benefit roads or motorized use trails are in areas with no known Traditional Cultural Properties, or which has no traditional cultural use identified.</p> |
| Botany/Noxious Weeds | |
| Risk: Undesirable Plant Species | |
| <p>Roads present a risk of new populations of undesirable plant species. Vehicles carry and spread plant part or seeds along motorized travel ways. The main risk of infestation is from users coming from outside the local area, as the current level of noxious weed infestation on the PNF is low. Non-local users include recreationists and special use permittees, i.e. utility companies who must regularly inspect their infrastructure.</p> | <p>HIGH – High risk roads receive a high degree of non-local use; any road that leads to a developed recreation site or is advertised as access to a special area. Roads that cross or run parallel to riparian areas and/or waterways are also high risk.</p> |
| | <p>MEDIUM – Medium risk roads receive moderate or seasonal use by non-local users. These roads may only have a high volume of use during certain times of the year, such as hunting seasons. Also included are roads regularly used to access special use developments such as electric, telephone, or gas lines.</p> |
| | <p>LOW – Low Risk roads are infrequently used by non-local users.</p> |
| Wildlife, Rare Plants, Aquatics | |
| Risk: Riparian/Aquatic Species | |
| <p>Motorized use in or near (within 200 feet) of streams, springs and seeps, wetlands, riparian habitat, and stock tanks can cause direct</p> | <p>HIGH – High risk roads intersect or are within 200 feet of known or potential aquatic habitat including wetlands, riparian areas, and stock tanks.</p> |

| | |
|---|--|
| <p>habitat loss, direct mortality and reduce populations of aquatic Regional Forester's Sensitive species such as the lowland leopard frog, southwestern toad, longfin dace, and desert sucker. Roads located closer than 200 feet from such habitat can cause increased erosion and sedimentation resulting in reduced habitat quality and smothering of eggs and larvae.</p> <p>Maintenance of motorized routes can either provide additional habitat for these species or damage existing habitat since these species can occur in roadside ditches when water is present.</p> | <p>MEDIUM: Not Applicable for this resource.</p> |
| | <p>LOW: Low risk roads do not intersect or are not within 200 feet of potential habitat including wetlands, riparian areas, and dirt tanks.</p> |
| <p>Risk: Raptors</p> | |
| <p>Motorized use of roads near raptor nests and roost sites can cause nest or roost site abandonment. Federally listed raptor species that occur within the project area include the Mexican spotted owl and the bald eagle. Raptors on the Regional Forester's Sensitive species list that occur in the project area and could potentially be affected by motorized use near nests or roosts include peregrine falcon, northern goshawk, and common black hawk. AZGFD WSC within the project area include osprey.</p> | <p>HIGH - High risk roads or motorized use trails intersect a winter roost or breeding area, or are within ¼ mile of a nest site.</p> |
| | <p>MEDIUM: N/A</p> |
| | <p>LOW - Low risk roads or motorized use trails do not intersect a wintering or breeding area and are not within ¼ mile of the nest site.</p> |
| <p>Risk: Sensitive Plants</p> | |
| <p>Sensitive plants such as the broad-leafed lupine, Eastwood alumroot can be affected by motorized use through habitat loss and direct mortality. These species occur primarily along riparian drainages and cool, damp draws. Heath leaf wild buckwheat occurs on limestone substrates and may occur within the project area.</p> | <p>HIGH - High risk roads intersect riparian drainages or cool, damp draws or limestone substrates.</p> |
| | <p>MEDIUM: N/A</p> |
| | <p>LOW - Low risk roads do not intersect riparian drainages or cool, damp draws or limestone substrates.</p> |
| <p>Water Quality</p> | |
| <p>Risk: Sedimentation into Hydrological Features</p> | |

| | |
|--|--|
| Roads are a source of sedimentation to streams, other hydrological features. | HIGH – 71-100% of the road is located within high risk rating zones. The majority of the road is located within high risk zones. The large percentage of high risk zones generally restrict these areas and make them unfavorable for roads because the limitations severely impede reasonable and economic means of mitigation |
| | MEDIUM – 36-70% of the road is located within high risk rating zones. Approximately half of the road is located on high risk and low risk zones. The high risk zones pose a threat to the low risk zones because of the roads connectivity. |
| | LOW– 0-35% of the road is located within a high risk rating zone. These high risk zones are usually associated with inclusion areas. The majority of the trail is located within low risk zones.. |

Scoring and Rating

For each road analyzed the overall risk and benefit assessment was based on scores aggregated from separate risk and benefit assessments completed by specialists on the interdisciplinary team (IDT). Each road generated a high, medium, or low rating based on the criteria stated in the previous section, which produced the road's score. The scores were totaled to find the overall risk and benefit ranking of each road.

There are eight resource risk criteria and seven benefit criteria for each road analyzed. 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. Therefore, the overall scores for risk range from 8 (1 point for each criteria) and 24 (3 points for each criteria) and the overall scores for benefits range from 7 (1 point for each criteria) to 21 (3 points for each criteria). Refer to example below in Tables 5 and 6.

It was decided that the ranges for overall high, medium, and low benefits would be based on the number of resources or benefits affected by the road and the intensity of those effects as described by the specialist's rankings. The IDT preparing the travel analysis process (TAP) set the criteria for a road to be elevated from low to medium and from medium to high.

Table 4. Point range and distribution for the overall score for a risk

| RISK | Point Range | Overall Score | Number of Roads | Percent of Total Miles |
|------|--------------|--------------------|-----------------|------------------------|
| | 8-11 | Low Risk | 187 | 36% |
| | 12-15 | Medium Risk | 92 | 44% |
| | 16-20 | High Risk | 43 | 30% |

Table 5. Point range and distribution for the overall score for a benefit

| BENEFIT | Point Range | Overall Score | Number of Roads | Percent of Total Miles |
|---------|--------------|-----------------------|-----------------|------------------------|
| | 9-10 | Low Benefit | 125 | 10% |
| | 11-14 | Medium Benefit | 210 | 68% |
| | 15-17 | High Benefit | 9 | 22% |

These categories did not consider the severity of the impact beyond the criteria presented in the previous section. In the “Remarks” column the rating database, specialists that wanted to record a particular or severe concern made notes that indicated that the road considered may need further mitigation or may require a different kind of action than those typically recommended for its cost-benefit category.

Table 6. Example of the risk scoring system for a road

| | Risk Categories | H, M, and L Rating | Points for each Rating |
|---------------|---|--------------------|--------------------------------------|
| 1 | Human Caused Fire | M | 2 |
| 2 | Known Cultural Resources | M | 2 |
| 3 | Tribal Use/Traditional Cultural Property | M | 2 |
| 4 | Undesirable Plant Species | L | 1 |
| 5 | Riparian/Aquatic Species | M | 2 |
| 6 | Raptors | L | 1 |
| 7 | Sensitive Plants | H | 3 |
| 8 | Sedimentation into Hydrological Features | L | 1 |
| Total Points: | | | 14 out of 24 possible Medium Risk |

Table 7. Example of the benefit scoring system for a road

| | Benefit Categories | H, M, and L Rating | Points for each Rating |
|--|--------------------|--------------------|------------------------|
|--|--------------------|--------------------|------------------------|

| | | | |
|---------------|--|---|---|
| 1 | Fire and Fuels Management—Agency Access | L | 1 |
| 2 | Fire and Fuels Management – Roads as Control Lines | M | 2 |
| 3 | Vegetation Management Access | L | 1 |
| 4 | Access to Mining Activities | H | 3 |
| 5 | Access for Authorized Users | H | 3 |
| 6 | Access for Recreation | L | 1 |
| 7 | Tribal Access | L | 1 |
| Total Points: | | | 12 out of 21 possible Medium Benefit |

Based on this example, the overall score would be “medium” for risk and “medium” for benefit. See Appendix A – Risk and Benefit Assessment for the overall risk and benefit results for each road.

The Risk and Benefit Matrix (Tables 9 and 10) list a summary of miles and percent of miles for all miles of road analyzed along with the recommendation.

Statistical Distribution of Risk and Benefit Assessment

Risk and Benefit Matrix for Roads (ML1 to ML5)

Of the 209 miles of roads that constitute Existing National Forest System Roads (ML1 – ML5), approximately 90 percent of the roads rated as a medium or high benefit, meaning that these roads have several purposes that are important to Forest Service management or public use. Of those roads that ranked as medium or high benefit, 43 miles or 20% percent of those roads were also a high risk due to resource concerns. These high risk/medium benefit and high risk/high benefit roads should be the focus of road maintenance funds because mitigating their adverse effects will be the most efficient way to lower the impact of the forest transportation system on the surrounding natural resources.

Table 8. Roads risk and benefit matrix and recommendations for existing National Forest System roads

| ROADS - OPERATIONAL ML1 TO ML5 | | | | |
|--------------------------------|-----------------------|--|---|---|
| RISKS ¹ | BENEFITS ² | | | |
| | Scores | Low 9-10 | Medium 11-14 | High 15-17 |
| | High 16-20 | (HL) Decommission, Close, or Mitigate – Highest Priority (0) ³ or (0%) ⁴ | (HM) Mitigate or Admin Use Only (34) or (16%) | (HH) Maintain and Mitigate - Highest Priority (9) or (4%) |
| | Medium 12-15 | (ML) Decommission, Close, or Admin Use Only (7) or (3%) | (MM) Mitigate (74) or (35%) | (MH) Mitigate and Maintain - Second Priority (11) or (5%) |
| | Low 8-11 | (LL) Decommission, Close, or Convert to Trail | (LM) Maintain | (LH) Maintain |

| | | | | |
|--|--|---------------|---------------|-------------|
| | | (39) or (19%) | (34) or (16%) | (2) or (1%) |
| TOTAL OPERATIONAL ML1 TO ML5 = 209 MILES | | | | |

- 1 Risks represent the range of total risk scores assigned to each category.
- 2 Benefits represent the range of total benefit scores assigned to each category.
- 3 Represent the number of road miles assigned to each box in the matrix.
- 4 Represent miles of road in matrix box as a percentage of the total miles of roads in these operational maintenance levels.

Recommendations for Roads and Motorized Trails

Below are the general recommendations based on the risk and benefit assessment. Each road was considered individually by the IDT resulting in a specific recommendation. Final decisions on the disposition of roads are site-specific and require the appropriate level of NEPA analysis. A complete list of the roads, overall rankings, and the specific recommendation are located in Appendix A.

Table 9. Recommendations for risk / benefit categories for roads

| Risk / Benefit | Recommendations for Roads |
|--|--|
| <p>Low Risk / Low Benefit</p> <p>16.7 miles of ML1 Roads 0.6 miles of ML2 Roads 0.6 miles of ML3 Roads 0 miles of ML4 Roads 0 miles of ML5 Roads</p> | <p>Decommission, Close,² or Convert to Motorized Trail</p> <p>Public road access is not recommended based on the risk/benefit analysis.</p> <p>If there is no compelling administrative or public need for the road in the long-term, then it should be decommissioned. The simplest method of decommissioning a road is to block it to vehicle traffic.</p> <p>Due to declining budget, roads in this category may be closed or converted to a trail depending on the level of interest and recreation potential of the route.</p> <p>If there is a future need for the road but no immediate need, then it should remain on the system as a closed (ML1) road. Closed roads are closed for at least a year and are most effectively managed for short-term uses such as or facility maintenance.</p> <p>If a road is primarily used for motorized recreation, then it should be converted to a motorized trail.</p> <p>The low risk associated with these routes indicates low priority for investment of time and funds to mitigate risk. Drainage features should be inspected before each closure to prevent resource impacts.</p> |

² To “close” a road means that its maintenance level is lowered to ML 1. These roads still exist on the ground but vehicular access is prohibited, except when the road is reopened temporarily for an administrative use.

Table 9. Recommendations for risk / benefit categories for roads

| Risk / Benefit | Recommendations for Roads |
|--|---|
| <p>Low Risk / Medium Benefit</p> <p>12.4 miles of ML1 Roads 2.6 miles of ML2 Roads 2.6 miles of ML3 Roads 0.7 miles of ML4 Roads 1.5 miles of ML5 Roads</p> | <p>Maintain</p> <p>The majority of these roads should remain open for administrative use or open for the general public, depending on which type of access is appropriate to meet resource management objectives. The low risk associated with these routes indicates low priority for investment of time and funds to mitigate risk.</p> <p>For roads in this category that are important for public access, the Forest Service should work with cooperating agencies or user groups to provide adequate maintenance.</p> <p>Maintenance of drainage features and preventing erosion are the highest priority issues for these roads.</p> |
| <p>Low Risk / High Benefit</p> <p>0 miles of ML1 Roads 0 miles of ML2 Roads 0.8 miles of ML3 Roads 0 miles of ML4 Roads 1.3 miles of ML5 Roads</p> | <p>Maintain</p> <p>The low risk associated with these routes indicates low priority for investment of time and funds to mitigate risk.</p> <p>For roads in this category that are important for public access, the Forest Service should work with cooperating agencies to provide adequate maintenance, where appropriate.</p> |
| <p>Medium Risk / Low Benefit</p> <p>1.8 miles of ML1 Roads 0 miles of ML2 Roads 0 miles of ML3 Roads 0 miles of ML4 Roads 0 miles of ML5 Roads</p> | <p>Decommission, Close, or Administrative Use Only</p> <p>General public motorized access is not recommended for these roads, unless the road is essential for the management of the overall public access.</p> <p>Most of these roads should be closed or restricted to administrative use only depending on the access needs.</p> <p>If there is no compelling administrative or public need for the road in the long-term, then it should be decommissioned.</p> |
| <p>Medium Risk / Medium Benefit</p> <p>0.9 miles of ML1 Roads 37.4 miles of ML2 Roads 2.8 miles of ML3 Roads 1.0 miles of ML4 Roads 8.0 miles of ML5 Roads</p> | <p>Mitigate</p> <p>The majority of these roads should remain open for an administrative use or open for the general public, depending on which type of access is appropriate to meet resource management and recreation objectives.</p> <p>The risks associated may require some mitigation. Mitigation depends upon the specific risks and may include, but is not limited to: additional maintenance, reconstruction, relocation, seasonal road closure. The scale and frequency of these activities will depend on the severity of the risk and the availability of funds. Roads that are ranked within the Medium Risk/High Benefit and High Risk/High Benefit categories take a higher priority in the allocation of mitigation and maintenance funding.</p> |

| | |
|---|---|
| <p>Medium Risk / High Benefit 0 miles of ML1 Roads 7.3 miles of ML2 Roads 0 miles of ML3 Roads 0 miles of ML4 Roads 0 miles of ML5 Roads</p> | <p>Mitigate and Maintain - Second Priority</p> <p>The majority of these roads should remain open for administrative use or open for the general public, depending on which type of access is appropriate to meet resource and recreation management objectives.</p> <p>The risks associated may require some mitigation. Mitigation depends upon the specific risks and may include, but is not limited to: additional maintenance, reconstruction, relocation, seasonal maintenance restriction, and seasonal road closure. The scale and frequency of these activities will depend on the severity of the risk and the availability of funds. Roads that are ranked within the High Risk/High Benefit categories take a higher priority in the allocation of mitigation and maintenance funding.</p> |
| <p>High Risk / Low Benefit 0 miles of ML1 Roads 0 miles of ML2 Roads 0 miles of ML3 Roads 0 miles of ML4 Roads 0 miles of ML5 Roads</p> | <p>Decommission, Close, or Mitigate – Highest Priority</p> <p>Vehicle access is not recommended based on the Risk/Benefit Analysis. Roads in this category should be administratively closed or decommissioned.</p> <p>The majority of these roads are not appropriate for administrative use in their current location or condition. If a road is needed for administrative reasons, it should be closed or remain open as a administrative use road.</p> <p>If access to facilities is provided by the route, it is a high priority to evaluate the potential for mitigating risks on these roads.</p> <p>Coordinate with county government or private landowners to determine maintenance responsibility on roads needed for access to private lands.</p> <p>If a road’s primary use is access to communities, request public roads agencies (county, towns, state government) to assume road operational jurisdiction.</p> <p>If a road is needed exclusively for access to private land or needed to manage activities under special use permits, issue a permit for the road.</p> <p>If roads or road segments are not open to the public and not under permit, decommission the road.</p> |
| <p>High Risk / Medium Benefit 0 miles of ML1 Roads 7.5 miles of ML2 Roads 0 miles of ML3 Roads 0 miles of ML4 Roads 0 miles of ML5 Roads</p> | <p>Mitigate or Administrative Use Only</p> <p>For routes within this category that do not have a public benefit, restrict access to administrative use.</p> <p>The risks associated with these routes may require some mitigation activities. Mitigation depends upon the specific risks and may include, but is not limited to: additional maintenance effort, reconstruction, relocation, seasonal maintenance restriction, and seasonal road closure. The scale and frequency of these activities will depend on the severity of the risk and the availability of funds.</p> |

| | |
|---|--|
| <p>High Risk / High Benefit</p> <p>0 miles of ML1 Roads 4.7 miles of ML2 Roads 4.5 miles of ML3 Roads 0 miles of ML4 Roads 0 miles of ML5 Roads</p> | <p>Maintain and Mitigate - Highest Priority</p> <p>Most of these routes are appropriate for general public access to the Forest. Some routes may be open for administrative use only in order to control access to sensitive cultural or biological resources.</p> <p>The risks associated with them may require some mitigation activities. 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. The scale and frequency of these activities will depend on the severity of the risk and the availability of funds.</p> |
|---|--|

Guidelines for Mitigating Road Risks

The general guidelines for mitigating the risks discussed in the previous section are listed below. These guidelines should be used for existing roads or when a road needs to be relocated due to unacceptable resource risks.

Road Management:

- close or seasonally restrict road use to minimize adverse impacts to wildlife species that require solitude or tolerate only minimal disturbance
- control road use over perennial streams
- 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 maintenance
- treat non-native invasive species before roads are decommissioned; follow-up based on initial inspection and documentation
- close or seasonally restrict road use when the roads are impassable due to wet conditions to minimize adverse resource damage

Step 5: Describing Opportunities and the Minimum Road System

Purpose

The purpose of this step is to:

- Define the Minimum Road System
- Describe actions that would implement the minimum road system
- Describe actions that respond to the issues

Actions that Would Implement the Minimum Road System

The Minimum Road System

In the Travel Management Rule, 36 CFR 212.5 (b) 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 (MRS) 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.”

The interdisciplinary team recommended the minimum road system for the Project area using the direction in 36 CFR 212.5 (b). The recommended MRS includes 171.8 miles of existing maintenance level 1-3 roads. Refer to Appendix A for roads recommended for inclusion in the MRS and Maps 7 and 8 for the location of the roads.

The MRS in this document is the IDT’s recommendation only. Prior to any roads being added or deleted from the system, proper analysis will be completed through the NEPA process.

A final consideration in developing the MRS is road maintenance. Based on funding levels over the previous five years, the Prescott National Forest can only afford to maintain about 10% of the existing system (See Appendix H). A road system that is economically in balance with funds available for maintenance will not result in a road system that meets the access needs for public or for administrative purposes.

Actions that Respond to the Issues

The following section describes strategies that the Forest may choose to employ in projects and situations where the issues occur (see Step 3). The scale at which these actions may be

implemented is dependent on the site and the compatibility of the action with the overall management focus of the surrounding area. The list below is intended to provide options that project leaders and decision-makers may consider when implementing changes to the road system.

Issue 1: Environmental impacts from authorized routes

Action: Reduce the number of road located in occupied habitat for species-of-concern and species-of-interest

Action: Reduce the number of high-use routes that go through raptor nesting sites.

Action: Place seasonal restrictions on roads going through key nesting and roosting areas.

Action: Reduce the road width and maintenance level to minimum needed for safe vehicle passage and to meet the intended need in sensitive wildlife areas.

Action: Where feasible, reroute existing roads that impact important heritage sites. Perimeter barriers may be necessary if unauthorized use is occurring within the site.

Action: Implement the guidelines for mitigating road risks to reduce soil and drainage impacts from roads.

Action: Restrict use of road through key wildlife habitat to Administrative Use Only.

Action: Provide information and education about motor vehicle regulations and responsible use of motorized vehicles on the National Ranger District. Install information board at area trailheads, recreation sites, and parking areas.

Action: Install route numbers on all system roads at junctions with system and unauthorized routes to assist users with compliance of motor vehicle use regulations.

Action: Educate the public 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.

Action: Utilize 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.

Action: Rehabilitate areas damaged by off-route driving. State recreation trail programs, EPA's Clean Water Act 319 grant program, and state OHV funds are all potential outside funding sources to rehabilitate and revegetate damaged areas in addition to federal appropriations.

Issue 2: Insufficient resources for maintenance of the existing system roads

Action: Reduce the number of road miles that need to be maintained or reduce the maintenance level to reduce maintenance costs. Reducing the miles of roads that need to be maintained by converting closed roads into motorized trails would effectively increase trail maintenance costs and is not a recommended action solely to address this issue.

Action: Leverage funds/efforts to increase maintenance capabilities. Continue to seek opportunities within the Forest, with other Forests, with counties and private individuals to increase the amount of maintenance accomplished through

cooperative efforts. . For trails there are opportunities to work with volunteers to maintain them.

Action: Prioritize roads that are good candidates for transfer of jurisdiction to counties, which reduces the number of road miles requiring maintenance with NFS funds. NFS roads that provide access to private inholdings would be good candidates to transfer to county jurisdiction.

Issue 3: Need to obtain right-of-way and access

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.

Action: Negotiate with landowners to obtain formal right-of-way access to routes needed.

Action: Maximize cooperation from adjacent landowners by proposing to issue a reciprocal easement.

Issue 4: Need for access to private lands for landowners and state lands

Action: Maximize cooperation from landowners by proposing to issue a reciprocal easement

Action: Transfer road jurisdiction to the county.

Action: Enter into a special use agreement with the landowner, stipulating that the permittee has maintenance responsibilities.

Issue 5: Need for roads as evacuation routes during wildfires

Action: Utilize traffic devices such as signs and physical barriers that discourage use of unauthorized roads. Natural material to prevent use (downed trees, boulders, etc.) is preferred in most cases, but in situations where previous decommissioning efforts have been unsuccessful, more aggressive means may be employed.

Action: Monitor unauthorized roads after the installation of barriers and other mitigation measures. Keep records of successful and unsuccessful strategies for discouraging travel to improve future rehabilitation projects.

Issue 6: Human-caused fire

Action: Reduce road density in areas with high fire risk to reduce the potential for human-caused fires.

Action: Instead of decommissioning roads in high fire risk areas, close them for use as fire line roads during prescribed burns and wildfires in consultation with the fire staff.

Action: Restrict motorized vehicle use on the district to a designated road system through travel management.

Issue 7: Need for access to forest product gathering areas

Action: Consult with tribes to determine areas that are a high priority for product gathering. Maintain access to these areas so there are enough well-maintained access points to prevent resource damage and proliferation of unauthorized roads.

Issue 8: Trespass onto private lands from National Forest System lands

Action: Private land access may be managed under permits, rather than a publicly open road. This will help discourage the public from using the road while maintaining access to the property.

Action: Clearly sign boundaries where there has been a history of trespass and vandalism on adjacent private land.

Step 6: Reporting

Purpose

The purpose of this step is to report the key findings of the analysis.

Key Findings of the Analysis

Through the travel analysis process, the IDT does not recommend adding motorized trails, areas, or constructing additional roads. The IDT ranked routes based on their *risks* to natural and cultural resources and their benefits to recreation use, permittee access, firewood-gathering access, and emergency (namely, fire) access. The IDT recommends that about 18 percent (37 miles) of NFS roads analyzed could be decommissioned, closed, converted to a trail, or mitigated to reduce resource risk, and 82 percent of the current road system should be mitigated to reduce resource risk and then maintained. Map 3 shows the TAP recommendations (Appendix G). A complete list of the individual rankings of each criterion for each road can be found in Appendix A.

Literature Cited

USDA Forest Service. 1999. Roads Analysis: Informing decisions about managing the National Forest Transportation System. Misc. Rep. FS-643. Washington, D.C.: U.S. Dept. of Agriculture Forest Service. 222 pp.