United States Department of Agriculture
Forest Service

Shasta-Trinity National Forest
Headquarters

2400 Washington Avenue
Redding, CA 96001
(530) 244-2978
(530) 242-2237 - TDD
www.r5.fs.fed.us/shastatrinity

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Subject: Forest Roads Analysis

To: Staff and Rangers

Consider this letter a supplement to the July 23, 2002 Roads Analysis document. This letter should be inserted in or attached to that document. As a part of the review several items were identified that require clarification. They are addressed below.

Coordination with other government agencies

Consistent with the roads analysis public involvement plan, a letter was sent, dated March 25, 2002, to a mailing list of government agencies informing them of the ongoing analysis and asking for points of contacts. A copy of the mailing list, a list of responders and a list of points of contacts are attached and should be considered part of the final package. All the comments were analyzed and incorporated in the list of issues that were addressed by the key questions.

The Transportation Planning Departments and the Boards of Supervisors of Shasta, Trinity and Siskiyou counties were closely involved with the analysis of our primary and secondary routes during the late 1990s in the development of the Access Travel Management (ATM) Plan for the Forest. They were key partners in the Plan and maintain close communication with our Forest as road issues arise. There are no overall access problems related to our Level 3 and Level 4 roads. The Forest has full easements on all primary and secondary routes.

Guidelines for Addressing Road Management Issues and Priorities

Chapter 5 of the Forest Scale Roads Analysis summarizes the recommendations of the analysis. High priority was given to 43 roads with an emphasis on water quality and fish passage issues. The work recommended for these roads involves three categories: deferred maintenance, decommissioning and capital improvements. Projects in the area of these roads and road segments shall capitalize on opportunities to accomplish the actions identified in the analysis report.

Project Level Guidelines:

To complete Roads Analysis at the watershed and/or project level the units should refer to the Project Level Roads Analysis Handbook. The Forest conducted a comprehensive workshop and published a set of guidelines to help the units complete project level roads analysis. An interdisciplinary team worked together to arrive at a separate set of key questions and issues appropriate for the project level. The notebook for project level roads analysis is a living document and is updated as questions arise and new information becomes available. Several issues, not analyzed at the Forest scale, such as noxious weeds, were deferred to the project level due to the localized nature of the issue.

This letter represents the completion of the requirement for Forest Scale Roads Analysis on the Shasta-Trinity National Forest. This analysis will be updated as conditions change and new issues come to our attention. The recommendations of the analysis will be considered for implementation as funding allows and project level analysis will incorporate and validate the recommendations of the report at the project level analysis.

for Ken Showalter
J. SHARON HEYWOOD
Forest Supervisor

Enclosures

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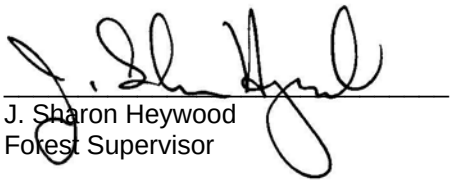
Shasta-Trinity National Forest
Forest Scale Analysis

Prepared By: Forest Roads Analysis Team

Recommended By: 
Kathleen A. Jordan
Team Leader

Approved By: 
J. Sharon Heywood
Forest Supervisor

July 23, 2002
Date

Shasta-Trinity National Forest Roads Analysis Report

EXECUTIVE SUMMARY

Roads analysis is an integrated ecological, social, and economic approach to transportation planning designed to provide Forest Service officials with critical information needed to develop and maintain road systems that meet the National Roads Policy. The Final Road Management Policy issued on January 12, 2001, emphasizes science-based analysis of forest road systems with the goal of optimum road systems that support land management objectives. The Pacific Southwest Regional Forester directed all National Forests to complete a Forest-level roads analysis by January 12, 2003.

The Forest Supervisor of the Shasta-Trinity National Forest formed an Interdisciplinary Team to develop a Forest-level roads analysis in June 2001. The Forest Roads Analysis Team produced a forest roads analysis report and transportation atlas documenting the six-step interdisciplinary process and recommendations resulting from the process for Maintenance Level 3 and 4 roads on the Shasta-Trinity National Forest.

The Interdisciplinary Team included Core Team Members, Extended Team Members, and Forest Line Officers. The Core Team included a team leader, forest planner, road systems manager, hydrologist, wildlife biologist, forester, fire planner, geographic information system specialist, and public affairs officer who work at the Forest level. The Extended Team included field specialists from all management units within the Shasta-Trinity National Forest. These employees have direct field experience and expertise in transportation planning, hydrology, heritage/cultural resources, fisheries science, minerals and geology, recreation, fire management, forestry, wildlife biology, civil rights, and land uses. Forest Line Officers that participated in the analysis included the Forest Supervisor, Deputy Forest Supervisor, and District Rangers.

The public was invited to provide input into the Forest-level roads analysis. A written communication plan was developed that was specifically aimed toward members of the public and government agencies with direct interest in road system management on the Shasta-Trinity National Forest. The target audiences included road users and persons interested in management of the Forest, cooperating road management agencies and other interested agencies, public agency and private company road managers, private landowners who owned land within the boundary or adjacent to the Forest or who had private roads across National Forest System Lands, Native American Indian Tribes, and Forest employees.

Information was distributed by sending a letter and map to more than 750 people, Tribes, organizations, and agencies asking these entities to identify and describe their issues and concerns related to Maintenance Level 3 and 4 roads on the Forest. Information was posted on the Forest Internet Website from March 12 through April 12. District Rangers contacted representatives of Native American Indian Tribes. Comments received from all sources were used in the development of issues addressed in the roads analysis report.

The Forest-level roads analysis focused on the major roads or the "backbone" of the Forest transportation system. The roads analysis report documents the existing road system, risks and benefits evaluation of the major or Maintenance Level 3 and 4 roads, and recommendations for future actions on Maintenance Level 3 and 4 roads that will reduce risks of unacceptable environmental disturbance and increase the benefits provided by these roads where appropriate.

Watershed-level roads analyses will tier to the Forest-level roads analysis but will address all roads within the watershed boundary including local or Maintenance Level 1 and 2 roads and unclassified roads. Project-level roads analyses will be prepared as projects are planned in dispersed areas within the Forest and will include all classified and unclassified roads within the project boundary. The Forest-level roads analysis is focused on existing major travel routes on the Forest. It does not address Maintenance Level 1 or 2 roads, unclassified roads, or unroaded areas.

There are four major findings described in the Forest-level roads analysis. They are:

- Existing major roads do not pose an unacceptable risk to the sustainability of ecosystems.
- The highest risk ratings from existing major roads relate to water quality, hydrologic process, and the aquatic or riparian ecosystems.

- The highest need is to replace and, in some cases, increase the size of culverts and other road-related drainage structures.
- The highest potential economic benefit to local communities is gained from use of major roads for commodity production from public and private lands within the Forest boundary.

Recommendations were developed and documented for use by Forest Line Officers when making future project-level decisions. These recommendations are displayed in tables and on maps included in the Forest-Level Roads Analysis Report. These recommendations include proposals to relocate 1.2 miles of road, decommission 5.9 miles of road, repair existing road surfacing and drainage structures, improve or upgrade road surfacing and drainage structures, and other specific changes to segments of existing Maintenance Level 3 and 4 roads. The total estimated cost to implement all recommendations is about $12.5 million. Recommendations were prioritized into high, medium, and low priorities considering not all actions may be taken depending upon funds available and the urgency of risks or benefits.

The content of the Forest-level roads analysis will be used as a framework for future road-related decisions and as the basis of information that will be assembled for watershed-level roads analysis. A review of the *Forest Land and Resource Management Plan* will be completed to determine the need for a possible amendment to the plan as a result of recommendations contained in the Forest-level roads analysis.

Shasta-Trinity National Forest Roads Analysis Report

CHAPTER 1

SETTING UP THE ANALYSIS

The Forest-Level Roads Analysis for the Shasta-Trinity National Forest was designed to provide the Forest Supervisor with critical information to develop or maintain road systems that are safe, responsive to public needs, efficiently managed, and have minimal negative ecological effects.

The *Final Road Management Policy*, published January 12, 2001, set direction amending Forest Service Manual Title 7700 to ensure that decisions to construct, reconstruct or decommission roads will be better informed using a science-based roads analysis. This analysis completes that effort at the Forest scale. Future roads analyses conducted at the watershed and project scale will refer to this analysis.

The Shasta-Trinity National Forest Roads Analysis complies with the direction detailed in Roads Analysis: Informing Decisions About Managing the National Forest Transportation System (USDA Forest Service 1999); Forest Service Manual, Directive Number 7712 – Roads Analysis; and the Forest Service Transportation Planning Handbook, Directive Number 7709.58.

OBJECTIVES OF THE ANALYSIS

The objectives of the analysis were to evaluate the existing condition of the major road system on the Shasta-Trinity National Forest and to identify management opportunities that may lead to future road-related projects.

SPECIFIC OBJECTIVES:

1. Find a balance between safe and efficient road access to National Forest System lands and protection of healthy ecosystems by using science-based analysis.

2. Display the benefits and risks associated with the current road system.

3. Identify management opportunities to minimize adverse impacts and enhance benefits.

Document the Forest-Level Roads Analysis in a narrative report and accompanying maps.

ASSUMPTIONS OF THE ANALYSIS

This Forest scale analysis considered Maintenance Level 3 and 4 roads only. There are no Level 5 roads on the Forest. Because these Forest scale roads make up the backbone of the Forest transportation system and provide major access to the Forest, no analysis considered closing these roads. Maintenance Level 1 and 2 roads, as well as the unclassified roads, will be analyzed at the watershed and project level scale in future roads analyses. Road closure and decommissioning will be addressed at these levels.

Insufficient road maintenance funding will continue to be a problem because Forest scale roads will not be closed based on recommendations of this roads analysis. This analysis does, however, provide priorities for taking action on these roads based on risks and benefits assessed for each road by an interdisciplinary team of resource specialists. Analytical tools used for the scientific analysis are described in **Appendix B**. Local knowledge was applied where appropriate.

Based on Forest Supervisor direction, the scope of this analysis was established as roaded areas only. New road construction into unroaded or inventoried roadless areas was not analyzed. Road analysis in these areas will be addressed at the watershed scale.

ANALYSIS AREA AND SCALE

The Shasta-Trinity National Forest is located in northern California (see **Figure 1-1**) and includes 2.1 million acres of National Forest System lands,

and 631 thousand acres of non-National Forest System lands within its boundary.

The Forest comprises 440,000 acres in Shasta County, 1,171,000 acres in Trinity County, 432,000 acres in Siskiyou County, 77,000 acres in Tehama County, and 2,000 acres in Humboldt County.

Figure 1-1 Shasta-Trinity National Forest Vicinity

The focus of the analysis was on Maintenance Level 3 and 4 roads within the boundary of the Shasta-Trinity National Forest. These roads make up the framework for the entire road system on the Shasta-Trinity National Forest. There are no Maintenance Level 5 roads on the Forest. Road standards and all Maintenance Levels for National Forest System roads are defined in the *Forest Service Transportation Handbook*. Definitions of road related terms are in **Appendix A** of this report.

Figure 1-2 Maintenance Levels 3 and 4 Defined

Maintenance Level 3: Roads open and maintained for travel by a prudent driver in a standard passenger car. User comfort and convenience are not considered priorities. Typically low speed, single lane with turnouts and native or aggregate surfacing. The road surface is maintained to provide the passage of low clearance vehicles (i.e., passenger cars).

Maintenance Level 4: Roads that provide a moderate degree of user comfort and convenience at moderate speeds. Most are double lane, and aggregate surfaced. Some may be single lane. Some may be dust abated. The road surface is maintained to provide the passage of low clearance vehicles (i.e., passenger cars).

ANALYSIS PLAN

Roads analysis is science-based and is an integrated ecological, social, and economic approach to transportation planning that addresses both existing and future roads. Roads analysis is intended to complement and integrate existing laws, policy, guidance, and practice into the analysis and management of roads on the Shasta-Trinity National Forest.

The analysis is designed to produce an overview of the existing road system using the best available scientific information for ecological effects of roads on terrestrial and aquatic ecosystems including: the economics of constructing, reconstructing, maintaining, and decommissioning roads; recognizing social and economic costs and benefits of roads; and displaying the contributions of existing and proposed roads to management objectives.

The process used was a systematic review of existing information and criteria developed by the Interdisciplinary Team, natural resource professionals, and technical specialists. This formed the basis of a rigorous approach to every step of the roads analysis process. Refer to **Appendix B** of this document to view Criteria for Forest Level Analysis.

A diagram of steps followed to complete the analysis is shown in **Figure 1-3**. Detailed timelines and team member responsibilities are preserved in the analysis file located at the Headquarters Office of the Shasta-Trinity National Forest.

Forest Staff and Line Officers completed a technical review of the Forest-Level Roads Analysis prior to submitting it to the Regional Office. Review comments were incorporated into the final report.

FOREST TRANSPORTATION ATLAS

The *Forest Transportation Atlas* displays the system of roads, trails, and airfields on the Shasta-Trinity National Forest. It is a dynamic document that has been in existence on the Forest, in some form, since the earliest days of the Forest. The first complete atlas was released in 1927. In recent years the atlas has been transformed into an electronic version using geographic information systems and relational databases. The *Forest Road Atlas* is a key component of the *Forest Transportation Atlas* and includes all classified roads and bridges, and unclassified roads. It contains the location, jurisdiction, and road management objectives for classified roads and bridges, and the location of unclassified roads and

management actions taken to change the status of unclassified roads. The *Forest Road Atlas* is an ongoing project and was updated during the current roads analysis as new information was provided. The atlas is available to the public at the Headquarters Office of the Shasta-Trinity National Forest.

INFORMATION NEEDS

The Forest-Level Roads Analysis used information from existing sources. Sources of information were:

1. *Shasta-Trinity National Forest Land and Resource Management Plan, 1995*
2. Infrastructure database (INFRA) for travel routes, deferred maintenance, and authorized use costs
3. Roadless Area Inventory, 1979
4. *Ecological Unit Report*, 1979
5. Visual Quality Index, 1978
6. *Forest Access and Travel Management Plan* (ATM), 2000.
7. Geographic Information System base maps and data for Shasta-Trinity NF coverages:
   a. Roads and trails
   b. Topography (digital elevation model)
   c. Land status
   d. Watershed boundaries (fourth, fifth, sixth, and seventh fields)
   e. Streams, wetlands, ponds, and riparian areas
   f. Developed recreation sites
   g. Cities, towns, communities, and settlements
   h. Soil types
   i. Management area prescriptions
   j. Occurrence of threatened, endangered, and sensitive species
   k. Range allotments
   l. Fire history
   m. Vegetation maps

INTERDISCIPLINARY TEAM

The Forest Supervisor formed an Interdisciplinary Team in June 2001. The Team included Core Team Members, who provided direction and professional expertise for the duration of the project, and extended Core Team Members, who provided significant resource expertise during key segments of the analysis effort.

Core Team Members:

Kathleen Jordan	Team Leader
Arlene Kallis	Co-Team Leader
Bill Branham	Forester
Nancy Hutchins	Wildlife Biologist
Mike Jellison	CE Technician/Road Manager
Duane Lyon	Public Affairs Officer
Karol McGuire	Geographic Information Specialist
Darrel Ranken	Hydrologist
Diane Rubiaco	Assistant Public Uses Officer
Scott Vaughn	Forester / Fire Planner

Extended Core Team Members:

Patti Aberg	Geographic Information Specialist
Bill Brock	Fisheries Biologist
Annie Buma	Assistant Report Editor
Ken DeCamp	Graphic Artist
Rebeca Franco	Assistant Public Affairs Officer
Judy Hahn	Lead Report Editor
Winfield Henn	Archaeologist
Steve Johnston	Land Surveyor
Ralph Phipps	Forester / Silviculturist
Jeff Pope	Information Resource Manager
Robert Ramirez	Forester (followed by Branham in March 2002)
Brad Rust	Soil Scientist
Fran Smith	Assistant Report Editor
Dave Tracy	Civil Engineer, Team Leader (followed by Jordan in Dec. 2001)

PUBLIC INVOLVEMENT

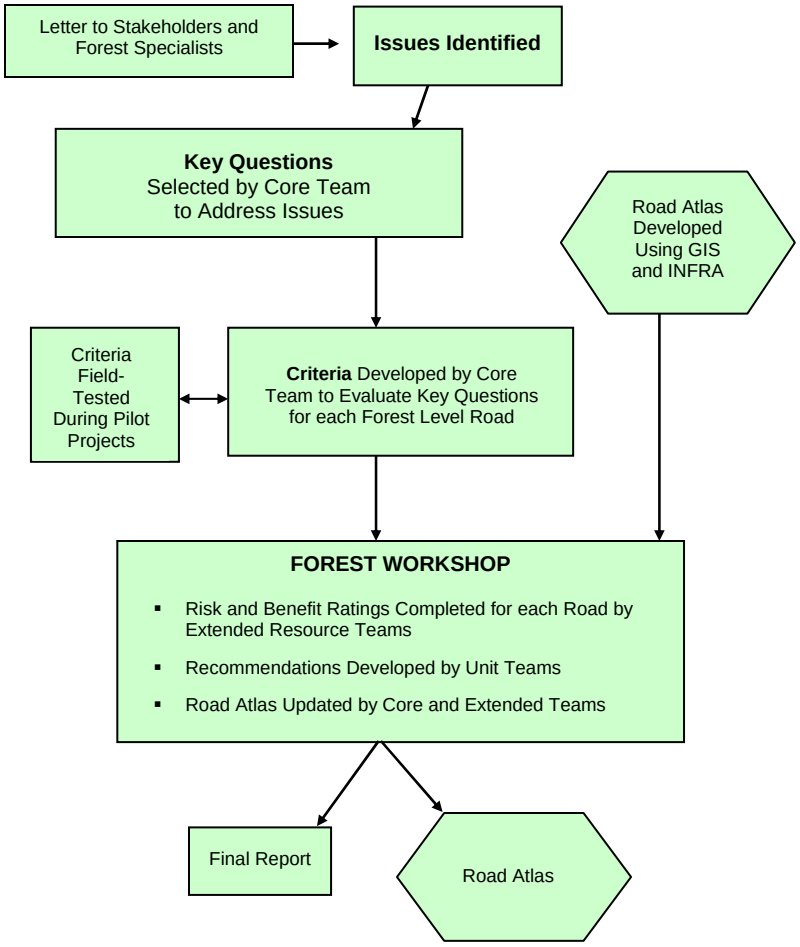
A written communication plan was developed that identifies the primary target audience and the strategy to involve stakeholders in Forest-level roads analysis. Refer to **Appendix C** of this report for the communication plan and summary of comments from stakeholders.

The communication strategy was specifically aimed at members of the public and government agencies with direct interest in road system management on the Shasta-Trinity National Forest. A major objective of the communication plan was to minimize the potential for confusion between previously held roads-related public meetings and the current Forest-Level Roads Analysis effort.

The primary target audience for stakeholders:

1. **Public -** road users and persons interested in management of the Shasta-Trinity National Forest.
2. **Agencies -** cooperating road management agencies and other interested agencies.
3. **Road Managers -** public and private road managers such as industrial cooperators, County road managers, and State road managers.
4. **Private Landowners -** citizens who own land within the boundary or adjacent to the Shasta-Trinity National Forest and those who have private roads across National Forest System lands.
5. **Internal -** Shasta-Trinity National Forest employees.
6. **Native American Tribes -** Federally recognized tribes with whom the Shasta-Trinity National Forest has government-to-government relations.

Figure 1-3
Forest Level Roads Analysis Procedure
Shasta-Trinity National Forest



Shasta-Trinity National Forest Roads Analysis Report

CHAPTER 2

SITUATION

The 2.1 million acres of the Shasta-Trinity National Forest lie in the heart of Northern California. Population centers in Shasta, Trinity, and Siskiyou Counties are the most directly influenced by management activities on the Shasta-Trinity National Forest. These three counties contain 96% of the Forest acreage. The remaining portions are located in Tehama, Humboldt, and Modoc Counties.

SOCIAL SETTING

Shasta and Trinity Counties experienced a steady population increase from 1960 to 1990, as people moved into the area attracted by the quality of life. Rural setting lifestyles available in the area continue to attract and hold new residents even in periods of recession (NRA Guide Page II-4). Population trends show Tehama County and Shasta County poised for significant growth in the next two decades. Siskiyou and Trinity Counties population trends show minimal growth or declining populations. The population of people older than 65 will grow most quickly, followed by people ages 31-39. Though rapid growth is predicted in older populations, children and youth ages 1-17 will still make up the largest population group—accounting for nearly one-quarter of the total population.

Populations within the primary social impact area, when compared to the State of California, can be considered racially homogeneous in nature. In the past decade some diversification has occurred to the area, but it is at a significantly lower rate than the State of California.

The *Shasta-Trinity Land and Resource Management Plan* (LMP or *Forest Plan*) identified four major social categories to group local residents and out-of-area forest visitors (LMP Page 3-3 to 3-5). Local residents who are directly or indirectly associated with the utilization and marketing of the natural resources fit into the **Resource Utilization Emphasis** Social Category. Local individuals who typically value natural resources more for their amenity and symbolic values than their economic conversion values fit into the **Resource Amenity Emphasis** Social Category. **Recreationists** comprise the third category and include individuals who do not live in the area but value the opportunity to escape urban environments by visiting the Shasta-Trinity National Forest. The fourth social category is **Native Americans** which includes American Indians, as well as those of Eskimo and Aleut ancestry.

ECONOMIC SETTING

Compared to the national average, the region derives more income from transfer payments (including retirement, welfare, disability, Medi-Cal, and unemployment insurance) than from return on investments or payment for work immediately performed. Unemployment rates are higher to significantly higher than the state average and 56.5% of workers in the region were underemployed. Compared with the national average, the region earns less of their income from services, finance, manufacturing, and wholesale trade. More jobs in these industries would increase economic diversity. More than 80% of businesses in the region have fewer than ten employees.

Forest activities benefit local economies by providing jobs for wood workers, support industries, and primary manufacturers. Shasta, Siskiyou, and Trinity Counties receive most of the measurable, direct and indirect economic benefits of Forest activities, with lumber manufacturing providing approximately 6% of employment in 1980, and early 1990s (LMP 1995).

The adverse economic effect of declining timber sales from public lands has been dramatic in the last ten years—particularly in Trinity and Siskiyou Counties. Because of the historically strong dominance of the wood product industry, efforts to build economic diversity have been particularly challenging. Tourism offers one of the means of economic diversification and the region has made notable progress in capitalizing on the tourism features of the region.

Tourism represented approximately 9% of total employment in 1990 in Shasta County and 11% in Trinity County. It is estimated that three million visitor days are spent on the Shasta-Trinity National Forest every year. For every visitor day $6.85 of income is generated throughout the area of influence (NRA Guide 1996). Therefore, visitors to the Forest contribute approximately 20 million dollars directly and indirectly to the income of the four counties.

RECREATION SETTING

The estimated three million visitors/year to the Shasta-Trinity National Forest are attracted by the wide range of recreational activities available within the Forest's 2.1 million acres and its location, within a few hours drive of major metropolitan areas such as Sacramento and San Francisco. Developed recreational facilities include 85 campgrounds and 238 areas recognized as receiving concentrated use within general forested areas.

There is a statewide public need for additional water-oriented recreation activities and the Shasta Trinity National Forest has the potential to supply most forms of water-oriented recreation (LMP 1995). Shasta and Trinity Lakes are two of the larger lakes in California providing opportunities to houseboat, motorboat, wake board, water ski, swim, sunbathe, operate personal watercraft, and canoe on 47,000 surface acres at full pool. The facilities on Shasta and Trinity Lakes include 14 boat ramps, 8 boat-in campgrounds, and 17 resorts providing 410 commercial houseboat rentals. The Forest also has three smaller lakes, 50 alpine lakes, and 1,900 miles of streams. There are 105 miles of Wild & Scenic Rivers located on the Forest with the Trinity River providing the opportunity to white water raft and kayak on 24 miles of Class II & III whitewater.

The Chappie Shasta Off-Highway Vehicle (OHV) Area provides 250 miles of routes that access 55,000 acres. The Pilgrim Creek Snowmobile Park provides access to 260 miles of groomed trails on three National Forests. Winter sports enthusiasts can downhill ski, snowboard, cross-country ski, snowshoe, and sled. There are 25 day hike trails within short drives of adjacent communities and 26 picnic areas scattered throughout the Forest. There are also 34 trailheads and 1,292 miles of trails that access over 483,000 acres of wilderness within five designated wilderness areas. Other recreational experiences on the Forest include mountain biking, spelunking, fishing, hunting, scenic and wildlife viewing, and nature photography.

All of these recreational opportunities are only possible because of the 6,484 miles of roads that access the resources available on the Forest. Most of the destination recreation opportunities are accessed by the Maintenance Level 3 and 4 roads addressed in this analysis. Driving for scenic viewing is possible by traveling any portion of those 6,484 miles of roads. The diversity of the driving experiences available covers the entire spectrum from the Interstate to roads requiring four-wheel drive. There are four designated scenic byways that cross the Forest and nine scenic vistas.

CULTURAL SETTING

Forest roads access areas of cultural, traditional, symbolic, sacred, spiritual, or religious significance for Native Americans, ethnic groups, and subcultures. Native Americans indigenous to the area include the Hoopa, Yana, Wintu, Ahjumawi, Shasta, and Chirmariko (LMP 1995). Tribal Members continue to utilize the Forest for cultural and traditional uses such as plant gathering and access to traditional and cultural sites.

ROAD LOCATIONS AND PRIMARY DESTINATIONS OF ROAD SYSTEM USERS

Maintenance Level 3 and 4 roads form the primary access routes for the Shasta-Trinity National Forest. Locations of these roads are identified on the accompanying maps located at the back of the document. They often began as foot trails, following waterways and gentle grades, originating prior to establishment of the National Forest. Over time, the trails were improved to primitive roads status and by the mid -1950s to early 1970s, most primary access routes were established to provide access for fire management, timber management, and mining. Primary roads were often developed in conjunction with adjacent private landowners or with County participation. During the 1950s increases in recreational uses became an important criteria for establishing primary access road standards.

Today, the primary destinations of users vary widely with each road. Some destinations are to Wilderness trailheads while other roads access ski areas, campgrounds, communities, and lands managed for forest commodities, or destinations off the Shasta-Trinity National Forest. Most primary access roads provide a link between state highways and local roads used for land management activities.

UNDERLYING GEOGRAPHY AND GEOLOGY

Most primary roads replaced early trails or railroad logging grades and were located adjacent to floodplains paralleling major streams. As stream gradients increased, roads were often constructed away from the stream and excavated into bedrock. Generally, primary access roads can be described as being constructed on alluvial outwash at major stream confluences and excavated into bedrock as the roads approach riverine headwaters. Major floods have caused infrequent and isolated washouts on primary access roads over the past 100 years. Unstable geomorphic conditions on the

steeper slopes of the Forest have also resulted in periodic road prism failures.

AGE AND DEVELOPMENT HISTORY

The actual age of a road is difficult to determine as initial construction was usually followed by improvement, reconstruction, and resurfacing over a span of decades. Many primary access roads were upgraded from trails or railroad logging grades in the 1930s to provide firefighter access. They were improved again to accommodate commercial log hauling from the 1950s through the 1970s, and they have been improved in more recent decades to provide relatively easy access for recreational uses. No primary access roads have been constructed since 1990 on the Shasta-Trinity National Forest. Future use of the road system is addressed by management direction derived from the *Forest Plan*.

ROAD USE PATTERNS OVER TIME

The use patterns for primary access roads have historically accommodated commercial log haul and recreational use. The same uses exist today and overall use has remained constant, although log haul from National Forest lands has decreased and private land access has increased. Recreational vehicular use has also steadily increased.

FOREST ROADS DATABASE

The Infrastructure Database (INFRA) is a Forest Service corporate database application, managed by each Forest that provides a consistent and accurate inventory of Forest Service physical assets. Roads, trails, and bridges, among other constructed features associated with the transportation system, are managed within the Travel Routes application of INFRA. The methodology of INFRA supports both tabular and spatial data analysis in conjunction with a Geographical Information System (GIS). The inventory information used for this analysis from INFRA is dated June 1, 2002.

ROAD SURFACE TYPES AND MAINTENANCE LEVELS

Table 2-1 displays the current road status including: Road Number, Road Mileage, Cooperator Agreement Number, Road Maintenance Level, INFRA Road Maintenance Objective, Surface Material, and Land Management Prescriptions for all Maintenance Level 3 and 4 roads on the Forest. There are no Maintenance Level 5 roads on the Forest.

Table 2-1 Existing Forest Roads - Maintenance Level 3 and 4

ID #	Road Number	Road Mi.	Coop. Agrmt. Number	Road Mtc. Level	INFRA Road Mtc. Obj.	Surface Mat. 1/	Land Mgmt. Rx 2/
1	1N09	2.5		3	3	Nat	VIII
2	1N12	9.6		3	3	Agg	VIII
3	1N13	5.4		3	3	Agg	VIII
4	1N24	6.6		3	3	AC	VII
5	1S14	14.5		3	3	Agg/Bit	VIII
6	1S22	0.2		4	3	Bit	III
7	1S25	0.6		3	3	Agg	VII
8	1S26	0.6		3	3	Agg	VII
9	1S31	0.2		4	4	Bit	III
10	1S39	0.3		4	4	Bit	III
11	2N01	5.0		3	2	Agg	VIII
12	2N03	3.8		3	2	Agg	VIII
13	2N07	10.4		3	3	Agg/Bit	VIII
14	2N08	0.2		3	3	Agg	VIII
15	2N10	14.2		3	3	Bit/Agg	VIII
16	2N10	7.0		4	4	AC	VIII
17	2N16	12.6		3	3	Agg	VIII
18	3N06	0.1		3	3	Bit	III
19	3N08	15.9		3	3	Agg/Nat	VIII
20	3N10	10.4		3	3	Agg/Nat	VIII
21	3N11	0.2		3	3	Bit	III
22	3N14	5.7		3	3	Agg	II
23	3N15	0.2		3	3	Bit	III
24	3N17	0.1		3	3	Agg	III
25	3N21	3.3		3	2	Agg	VIII
26	3N22	8.8		3	2	Agg	VIII
27	4N05	4.2		3	2	Agg	VII
28	4N08	9.0		3	2	Nat	VIII
29	4N11	13.8		3	2	Agg/Nat	VII
30	4N12	10.8		4	4	AC/Bit	VII
31	4N16	8.2		3	3	Agg	VII
32	4N16	9.8		4	4	AC/Bit	VII
33	4N16P	0.2		3	3	Agg	VII
34	4N16Q	0.1		3	3	Agg	VII
35	4N29	3.2		3	2	Agg	VII
36	4N33	0.1		4	4	AC	VII
37	4N41	1.4		3	2	Agg	VIII
38	4N47	9.8		3	3	Agg	VIII
39	5N03	0.1		3	3	Agg	VII
40	5N04	8.0		3	3	Agg	VI
41	5N04	0.3		4	4	AC	VIII
42	5N09	10.3		3	2	Agg/Nat	VII
43	5N13	3.6		3	2	Nat	VIII

1/ AC = **Asphalt Concrete** Agg = **Aggregate** Bit = **Bituminous** Nat = **Natural**

2/ I = **Unroaded Non-Motorized** II = **Limited Roaded Motorized**

III = **Roaded** IV = **Roaded, High Density** V = **Wilderness Mgmt.**

VI = **Wildlife Mgmt. Habitat** VII = **Late-Successional Reserve**

VIII = **Commercial Wood Products Emphasis** IX = **Riparian Mgmt.**

X = **Special Area Mgmt.** 0 = **Outside Forest Boundary**

ID #	Road Number	Road Mi.	Coop. Agrmt. Number	Road Mtc. Level	INFRA Road Mtc. Obj.	Surface Mat. 1/	Land Mgmt. Rx 2/
44	5N13	8.9		3	3	Agg	VI
45	5N18	6.1		3	2	Agg/Nat	VIII
46	5N22	0.5		3	3	Agg	X
47	5N22A	0.1		4	4	AC	X
48	5N22B	0.1		4	4	AC	X
49	5N23	0.3		3	3	Agg	X
50	5N24	0.5		3	3	Agg	VII
51	5N39	0.1		4	4	AC	X
52	5N60	19.3		4	4	Bit	VIII
53	6N04	4.4		3	3	Nat	VIII
54	6N06	0.4		3	4	Agg	VII
55	6N07	0.1		3	3	Agg	VII
56	7N01	2.5		3	3	Nat	VII
57	7N15	5.5		3	3	Nat	VII
58	7N26	10.1		4	4	AC	VII
59	27N02	6.8		3	3	Agg	VIII
60	27N06	3.7		3	3	Nat	VI
61	27N09	0.2		3	3	Agg	VI
62	27N13	7.8		3	3	Agg/Nat	VI
63	27N17	3.1		3	3	Nat	VIII
64	28N06	0.3		3	3	Nat	I
65	28N10	40.8		3	3	Agg/Nat	VIII
66	28N19	2.3		3	3	Nat	VIII
67	28N19A	0.3		3	3	Nat	VIII
68	28N23	3.9		3	3	Nat	VIII
69	28N35	15.1		3	3	Agg	VIII
70	28N35	15.4		4	3	Bit	VIII
71	28N36	5.8		3	2	Nat	VIII
72	28N40	6.9		3	3	Agg	VII
73	28N49	5.3		3	2	Agg	VII
74	28N62	2.0		3	3	Nat	VII
75	28N64	3.6		3	2	Agg	VIII
76	29N02	5.2		3	3	Agg/Nat	III
77	29N03	0.7		3	3	Nat	VI
78	29N06	6.6		3	3	Nat	I
79	29N07	4.0		3	3	Agg	VII
80	29N19	1.0		4	4	AC	III
81	29N19A	0.5		3	3	AC/Agg	III
82	29N19Y	0.3		3	3	AC	III
83	29N23	0.6		3	3	AC/Agg	III
84	29N23A	0.2		3	3	Nat	III
85	29N28	11.2		3	3	Agg/Nat	VI
86	29N30	11.1		3	4	Agg	VIII
87	29N30	18.1		4	4	AC	VIII
88	29N30	2.9		4	4	AC	VIII
89	29N32	5.7		3	2	Agg	VIII
90	29N33	6.8		3	2	Nat	VIII
91	29N41	5.2		3	2	Agg/Nat	III
92	29N44	0.8		3	3	Nat	III
93	29N45	17.9		3	3	Agg	VI
94	29N48	1.7		3	3	Agg	VIII
95	29N58	9		3	2	Nat	VII
96	29N62	6.2		3	2	Agg/Nat	VIII
97	29N75	4.3		3	2	Agg	VIII
98	30N01	11.1		3	3	Agg/Nat	VII
99	30N02	2.2		3	2	Nat	VII
100	30N04	4.6		3	3	Agg	VII
101	30N15	2.9		3	3	Nat	VII
102	30N29	22.4		3	3	Agg/Nat	VIII
103	30N30	2.5		3	2	Agg	VIII
104	30N31	4.8		3	3	Nat	III
105	30N32	0.1		3	3	Bit	III
106	30N34	2.7		3	2	Nat	VIII
107	30N44	0.4		3	3	Agg	VI
108	31N02	7.6		3	3	Agg/Nat	VII
109	31N19	3.6		3	2	Bit/Nat	III
110	31N20	0.3		3	2	Nat	VI
111	31N29	4.6		3	3	Agg	VIII
112	31N31	7.3		3	3	Agg	VIII
113	31N32	6.4		3	3	Agg	VIII
114	31N34	0.2		4	4	Bit	III
115	31N35	0.2		4	4	AC	III
116	31N42	7.9		3	2	Agg/Nat	VI
117	32N03	0.9		3	3	Agg	VI
118	33N01Y	0.1		3	3	Agg	X
119	33N04	2.2		4	4	Bit	III
120	33N04A	0.2		3	3	Nat	III
121	33N04C	0.2		4	4	AC	III
122	33N09	0.1		4	3	AC	III
123	33N13	0.8		4	4	Bit	III
124	33N13A	0.1		3	3	Bit	III
125	33N13B	0.1		4	4	AC	III
126	33N24	0.5		4	4	AC	III
127	33N26	0.2		4	4	AC	III
128	33N26A	0.1		4	4	Bit	III
129	33N27	0.2		4	4	AC/Bit	III
130	33N33	0.2		4	4	AC	III
131	33N33A	0.1		4	4	AC	III
132	33N36	0.4		4	4	AC	III
133	33N38	2.4	S64, S91	3	3	Agg	III
134	33N44	3.6		3	2	Agg	VII
135	33N47	12.3		3	3	Agg/Nat	VII
136	33N52	4.4		3	2	Agg	VII
137	33N54	0.1		4	4	Bit	0
138	33N61	0.2		3	3	Agg	X
139	33N62	0.3		4	4	AC/Bit	X
140	33N70	0.1		4	4	AC	III
141	33N72	0.2		4	4	AC	III
142	33N72A	0.1		4	4	AC	III
143	33N72B	0.1		4	4	AC	III
144	33N74	0.1		4	4	AC	III
145	33N78	0.2		4	4	AC	III
146	33N79	0.6		4	4	AC	III
147	33N83	0.5		4	4	AC	III
148	33N83A	0.1		4	4	AC	III
149	33N83B	0.2		4	4	AC	III
150	33N84	10.8		3	2	Agg/Nat	VII
151	33N85	1.8		4	4	Bit	III
152	33N85A	0.3		4	4	AC	III
153	33N85B	0.1		4	4	Bit	III
154	33N86	2.5		4	4	Bit	III
155	33N86D	0.1		4	4	AC	III
156	33N86E	0.2		4	4	AC	III
157	33N88	1.0		3	3	Nat	III
158	34N07	0.7		3	3	AC	III
159	34N07Y	12.0		3	3	Agg/Nat	VII
160	34N07YA	0.2		3	3	Agg	VII
161	34N08	0.9		3	3	AC	III
162	34N09	0.5		3	3	Bit	III
163	34N09A	0.5		3	3	Bit	III
164	34N09B	0.8		3	2	Agg	III
165	34N12	2.6		3	3	AC	III
166	34N12A	0.2		3	3	Nat	III
167	34N12B	0.1		3	3	AC	III
168	34N12C	0.2		3	3	Nat	III

1/ AC = **Asphalt Concrete** Agg = **Aggregate** Bit = **Bituminous** Nat = **Natural**

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ID #	Road Number	Road Mi.	Coop. Agrmt. Number	Road Mtc. Level	INFRA Road Mtc. Obj.	Surface Mat. 1/	Land Mgmt. Rx 2/
169	34N12D	0.2		3	3	Nat	III
170	34N12E	0.1		3	3	Nat	III
171	34N16	0.7		4	4	AC	VII
172	34N16A	0.4		4	4	AC	VII
173	34N17	36.4	S36,S95, S114, S117	3	3	Nat/Agg	VI
174	34N17Y	2.5		3	2	Agg	VII
175	34N23Y	0.1		3	3	Bit	III
176	34N25Y	0.1		4	4	Bit	VII
177	34N27	1.7		4	4	AC	III
178	34N27A	0.1		4	4	AC	III
179	34N27B	0.5		4	1	AC/Agg	III
180	34N27C	0.1		4	4	AC	III
181	34N30	0.5		3	2	Nat	III
182	34N30	10.1	S88	3	3	Nat	VIII
183	34N35	0.2		4	4	AC	III
184	34N40	0.2		3	3	Agg	III
185	34N40Y	0.7		4	4	AC	III
186	34N40YA	0.3		4	4	AC	III
187	34N40YB	0.1		4	4	AC	III
188	34N40YC	0.1		4	4	AC	III
189	34N41Y	0.1		4	4	AC	III
190	34N48Y	0.3		4	4	AC	VII
191	34N51	1.1		3	2	Agg	VII
192	34N59	0.3		3	3	Agg	VII
193	34N72	0.1		4	4	AC	VII
194	34N74	1.6	S30	3	3	Agg	VII
195	34N74B	1.4	S30	3	3	Agg	VII
196	34N76	3.0	S8	4	4	AC	VII
197	34N80	9.3		3	2	Agg	VII
198	34N81	1.3		4	4	AC	VII
199	34N90	0.3		4	4	AC	VII
200	34N92	0.5		4	4	AC	III
201	34N92A	0.4		4	4	AC	III
202	34N94	0.2		4	4	AC	VII
203	34N95	4.6	S30	3	2	Agg/Nat	III
204	34N97	1.0	S30	3	3	Agg	VII
205	34N99	0.2		3	3	Agg	III
206	35N02X	1.0		4	4	AC	VII
207	35N02XA	0.2		3	3	Agg	III
208	35N03X	0.1		4	4	AC	VII
209	35N06	8.6		3	3	Nat	VI
210	35N06X	0.2		4	4	AC	VII
211	35N07X	0.4		3	3	Agg	VII
212	35N08	3.4		3	3	AC	III
213	35N08C	0.1		3	3	Agg	III
214	35N08G	0.3		3	3	Bit	III
215	35N10	0.4		3	3	Agg	VII
216	35N10A	0.1		3	3	Nat	VII
217	35N14	2.3		4	4	AC	III
218	35N14B	0.9		4	4	AC	III
219	35N14C	0.1		4	4	AC	III
220	35N14D	0.3		4	4	AC	III
221	35N14E	0.3		3	3	AC	III
222	35N14Y	1.2	S64	4	4	AC	III
223	35N15	2.2		4	4	AC	III
224	35N15A	0.2		4	4	Bit	III
225	35N15B	0.1		3	3	Agg	III
226	35N16	0.9		4	4	AC	III
227	35N17	0.8		4	4	AC	III
228	35N17A	0.1		4	4	AC	III
229	35N17B	0.1		4	4	AC	III
230	35N18Y	0.1		3	3	Agg	III
231	35N23	1.8		3	3	AC	II
232	35N23Y	5.1		3	3	Agg	VII
233	35N24	2.8	S64, S109	3	2	Agg/Nat	VII
234	35N26Y	2.2		4	4	AC	VII
235	35N26YA	1.3		4	4	AC	III
236	35N28	0.2		4	4	AC	VII
237	35N28Y	2.9	S14	3	3	Agg	VII
238	35N29	0.2		4	4	AC	VII
239	35N29A	0.2		4	4	AC	VII
240	35N29B	0.2		4	4	AC	VII
241	35N29C	0.2		4	4	AC	VII
242	35N33Y	2.0	S42	3	3	Agg	VII
243	35N33YA	0.2		3	3	Nat	VII
244	35N36Y	0.2		4	4	AC	VII
245	35N40	0.1		4	4	AC	III
246	35N40A	0.3		4	4	AC	III
247	35N41	0.2		4	4	Bit	III
248	35N42	0.4		4	4	AC	III
249	35N47	0.2		4	4	AC	III
250	35N47A	0.1		4	4	AC	III
251	35N47Y	2.8		3	3	Agg	VII
252	35N47Y	1.0		3	2	Agg	VII
253	35N48	1.5		4	4	AC	III
254	35N48A	0.1		4	4	AC	III
255	35N48B	0.1		4	4	AC	III
256	35N48C	0.1		4	4	AC	III
257	35N48D	0.1		4	4	AC	III
258	35N48E	0.1		4	4	AC	III
259	35N48F	0.2		4	4	AC	III
260	35N49	0.9		4	4	AC	III
261	35N49A	0.1		4	4	AC	III
262	35N50	0.5		4	4	AC	III
263	35N50A	0.1		4	4	AC	III
264	35N50Y	0.2		4	4	AC	VII
265	35N53	0.1		3	3	Nat	III
266	35N56Y	0.1		3	3	Agg	VII
267	35N58	0.2		4	4	AC	III
268	35N59	0.5		4	4	AC	III
269	35N61	0.3		4	4	AC	III
270	35N72Y	5.4	S14,S51	3	3	Agg/Nat	VII
271	35N73Y	0.9	S51	3	3	Nat	VII
272	35N80	0.5		4	4	Ac	VII
273	35N81	0.1		4	4	AC	VII
274	35N82	0.1		4	4	Agg	VII
275	35N83	0.1		4	4	AC	VII
276	35N84	0.1		4	4	AC	VII
277	35N85	1.1		4	4	Bit	VII
278	35N91	0.1		4	4	AC	VII
280	35N93B	0.2		3	2	Nat	VIII
281	35N94	0.2		3	3	Nat	VIII
282	36N04Y	0.1		3	3	Nat	VII
283	36N20	11.9		3	2	Agg	VII
284	36N24	9.7	S16,S71, S109	3	3	Agg/Nat	VIII
285	36N24D	0.1	S71	3	3	Nat	VIII
286	36N25	3.9	S1	3	3	Agg	VIII
287	36N35	8.5	S64	3	3	Agg/Nat	VII
288	36N37	0.4		3	3	AC	III
289	36N75	0.2		3	3	Nat	VII
290	36N91	0.4		3	3	Nat	VII

1/ AC = **Asphalt Concrete** Agg = **Aggregate** Bit = **Bituminous**

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ID #	Road Number	Road Mi.	Coop. Agrmt. Number	Road Mtc. Level	INFRA Road Mtc. Obj.	Surface Mat. 1/	Land Mgmt. Rx 2/
291	36N98	0.7		4	4	AC	III
292	36N98A	0.3		4	4	AC	III
293	37N02	10.5		3	3	Bit/Agg	VII
294	37N08Y	8.7		3	3	Agg/Nat	VIII
295	37N19Y	0.1		3	3	Agg	III
296	37N20Y	0.1		4	4	AC	III
297	37N27Y	0.4		3	3	Nat	VII
298	37N34Y	0.1		4	4	AC	III
299	37N35Y	0.5		4	4	AC	III
300	37N35YA	0.1		4	4	Nat	III
301	37N35YB	0.1		4	4	AC	III
302	37N48	12.6	S1	3	3	Nat	VII
303	37N52	3.1	S10,S56	3	3	Agg	III
304	37N52	0.7	S56	3	2	Agg	VII
305	37N53	7.0	S53	3	3	Agg	VII
306	37N55	7.4	S10 S21, S71	3	3	Agg	VII
307	37N55	2.7	S10,S21, S71	3	2	Nat	VII
308	37N60	0.1		4	4	AC	III
309	37N60Y	12.0		3	3	Bit/Agg	VIII
310	37N63Y	0.5		4	4	AC	III
311	37N66Y	0.5		3	3	Nat	VII
312	37N66YA	0.2		3	3	Nat	VII
313	37N78	9.0	S10	4	4	Bit/Nat	VII
314	37N79	2.7		3	3	Bit/Agg	VII
315	37N80Y	4.7		3	2	Agg	VIII
316	37N81	6.9		3	2	Nat	VII
317	37N82	0.3		4	3	Agg	0
318	37N83	0.4		3	3	Agg	III
319	38N04Y	8.0		3	3	Agg	III
320	38N07Y	0.2		4	4	AC	III
321	38N11	18.1	S10	3	3	Bit/Agg	VII
322	38N11	9.2		4	4	AC/Agg	VII
323	38N11H	0.1		3	3	Nat	VII
324	38N21	19.5	S70,S82, S90	3	3	Nat/Agg	VIII
325	38N22	4.4	S3	3	3	Agg	VII
326	38N23	0.4	S60	3	3	Bit	VI
327	38N27	7.6	S3,S47, S96	3	3	Nat/Agg	III
328	38N34	4.5	S3,S96	3	3	Nat	VII
329	38N71	0.4		3	3	Agg	VII
330	38N75	0.2		3	3	Nat	III
331	38N81	0.3		4	4	AC	III
332	38N83	0.1		3	3	Agg	III
333	38N85	3.6		3	2	Agg	VI
334	39N03Y	0.2		3	3	Nat	III
335	39N05	5.1	S111	3	3	Agg/Nat	VII
336	39N06	0.9	H4	4	4	AC	VII
337	39N13	0.3	S31	3	3	AC/Nat	III
338	39N17	7.3		3	3	Nat	III
339	39N20	3.7	S64	3	3	Nat	VII
340	39N21	4.4		3	2	Agg	VII
341	39N22	0.4		3	3	AC	III
342	39N22A	0.3		4	4	AC	VII
343	39N23	0.2		4	4	AC	III
344	39N23H	0.1		4	4	AC	III
345	39N25	19.0	S33,S57, S82,R1	3	3	Bit/Agg/N	VIII
346	39N26	9.7	S53	3	3	Nat	VI
347	39N28	0.7		3	3	Agg/Nat	III
348	39N28	0.7		4	4	Bit	III
349	39N28B	0.1		4	4	AC	III
350	39N30	0.3		4	4	Bit	III
351	39N30A	0.3		3	3	Bit	III
352	39N30B	0.3		3	3	Bit	III
353	39N30C	0.1		4	4	Bit	III
354	39N45Y	2.0	R4,R6	3	3	Nat	VIII
355	39N88	0.2		3	3	Nat	X
356	39N90	1.4		3	2	Nat	VII
357	40N02X	0.2		3	3	AC	III
358	40N11	4.6		3	2	Agg	VII
359	40N12	5.7	H2	3	3	Agg	VIII
360	40N21	0.3		4	4	Bit	VIII
361	40N21A	0.2		4	4	Bit	VIII
362	40N24Y	10.7		4	4	AC/Bit	VIII
363	40N26.	20.4	R1,R7, R10	4	4	Bit/Nat	III
364	40N26E	0.1		3	3	Agg	III
365	40N28	0.2		4	4	AC	VII
366	40N35	1.1		3	3	Nat	III
367	40N37	0.7		3	3	AC/Nat	III
368	40N38	5.5		3	2	Bit	VIII
369	40N39	0.1		4	4	AC	III
370	40N39XA	0.1		4	4	AC	III
371	40N39XB	0.1		4	4	AC	III
372	40N44	6.6	H6,H10	3	3	Agg	III
373	40N44A	0.2		4	4	AC	III
374	40N44B	0.4		3	3	Nat	III
375	40N44G	0.1		4	4	AC	III
377	40N64	10.4		3	3	Nat	III
379	40N80Y	0.7		3	1	Agg	VIII
380	40N88	4.3	S19	4	4	AC	III
381	40N89	4.2		3	1	Agg	VII
382	40N92X	0.2		4	4	AC	III
383	41N03	8.9		3	3	Bit	VIII
384	41N14	1.0	H8	3	3	Nat	VIII
385	41N15	5.0		3	3	Agg	VIII
386	41N16	2.3	S2,S72	3	3	Agg	III
387	41N19	3.3		3	2	Agg	VIII
388	41N19X	11.8	S2,S9, S32	4	4	Agg	VIII
389	41N26	6.8	R8	3	3	Nat/Bit	VIII
390	41N30	0.3		3	3	AC	III
391	41N31	22.7	S2,S19,S 20,S24, S48,S52	3	3	Bit/Agg/N at	VII
392	41N36	8.2		3	2	Agg	VIII
394	41N46	1.8	H2	3	3	Nat	VII
395	41N53	7.0		3	3	Nat	VII
396	41N60	1.6		3	3	Nat	VII
397	41N78	0.1		3	3	Nat	III
398	42N02	5.7	S25	3	3	Agg	VII
399	42N03	8.0		3	2	Bit/Agg	VIII
400	42N06	5.1		3	2	Agg	VIII
401	42N09	4.5	H1,S58; 3.7 miles goes to Level 2	3	2	Agg	VIII
402	42N10	3.1	S9	3	3	Agg	VII
403	42N13	22.7	H1,H2	4	4	Bit	VIII
404	42N17	22.8	S81,S102	4	4	Bit	VII
405	42N17C	0.1		3	3	Agg	VII

1/ AC = **Asphalt Concrete** Agg = **Aggregate** Bit = **Bituminous** Nat = **Natural**

2/ I = **Unroaded Non-Motorized** II = **Limited Roaded Motorized** III = **Roaded** IV = **Roaded, High Density** V = **Wilderness Mgmt.** VI = **Wildlife Mgmt. Habitat** VII = **Late-Successional Reserve** VIII = **Commercial Wood Products Emphasis** IX = **Riparian Mgmt.** X = **Special Area Mgmt.** 0 = **Outside Forest Boundary**

ID #	Road Number	Road Mi.	Coop. Agrmt. Number	Road Mtc. Level	INFRA Road Mtc. Obj.	Surface Mat. 1/	Land Mgmt. Rx 2/
406	42N17Y	1.1		3	3	Bit	VIII
407	42N23	2.6		3	2	Agg	VIII
408	42N32	5.3	H10	3	2	Agg	VIII
409	42N35	1.1		3	3	Agg	VIII
410	42N61	3.6	S9	3	3	Agg	VII
411	43N11	11.0		3	3	Agg	VI
412	43N15	27.0	S80, S105	4	4	AC/Bit	VIII
413	43N18	4.1		3	3	Bit/Agg	VI
415	43N26	0.8		3	2	Nat	VIII
416	43N44	5.0	S7,S74	3	3	Agg/Nat	VIII
417	43N49	19.3		4	4	Bit	III
Total Number of Roads: 412				**Total Miles: 1,408**			

1/ AC **= Asphalt Concrete** Agg **= Aggregate** Bit **= Bituminous** Nat **= Natural**

2/ I **= Unroaded Non-Motorized** II **= Limited Roaded Motorized** III **= Roaded** IV **= Roaded, High Density** V **= Wilderness Mgmt.** VI **= Wildlife Mgmt. Habitat** VII **= Late-Successional Reserve** VIII **= Commercial Wood Products Emphasis** IX **= Riparian Mgmt.** X **= Special Area Mgmt.** 0 **= Outside Forest Boundary**

FIRE AND FUELS MANAGEMENT

Forest roads provide access for firefighters and fire equipment to suppress wildfires and provide access for hazardous fuel reduction activities that protect Forest resources.

The Shasta-Trinity National Forest experiences moderate to high fire activity during each fire season. Fire season normally occurs from mid-May through mid-October. The Forest averaged 215 fires annually over the period 1970 through 2000 and was equally divided between human-caused and lightning-caused fires. The Forest averaged 15,377 acres/year burned over this time period, with 1999 being the largest burned acreage year at 203,648 acres. It is common for the Forest to experience several large fires per year that require an Incident Management Team to be deployed.

Fuel reduction activities average 6,000 acres per year and are split between 1,500 acres in resource activity-related fuels and 4,500 acres of natural fuels treatment.

Natural fuel treatment projects are based upon the objectives of the Cohesive Fuel Strategy. This strategy establishes a framework that restores and maintains ecosystem health in fire-adapted ecosystems for priority areas. Projects are prioritized by their effect upon communities at-risk, protection of municipal watersheds, protection of threatened and endangered species habitat, and maintenance of Condition Class 1 areas (areas that are closest to natural fire regime).

ROAD MANAGEMENT AND TERRESTRIAL SPECIES

The road system exists primarily along ridge tops and in riparian corridors. These locations also provide habitat and travel corridors for wildlife such as deer, elk, marten, fisher, and forest bat species. Roads can have both positive and negative impacts upon plants and animals. Road density, or miles of open road per square mile is often used as an environmental indicator to determine the potential impact to intrusive-sensitive species such as marten and fisher and to estimate habitat capability for species such as deer, bear, and elk.

CONNECTIVITY BETWEEN ROAD SYSTEM AND STREAM SYSTEM

The close proximity of many primary access roads to stream channels along with frequent stream crossings may create a high degree of hydrologic connectivity between the road system and stream system. On primary access roads most stream crossings are in the form of bridges, culverts, and arches, and some low water crossings. Culverts and low water crossings represent the highest risk for hydrologic connectivity, arches a moderate risk, and bridges have little risk. As primary access roads approach headwaters both road proximity to stream channels and the number of road stream crossings diminish thus reducing the risk of hydrologic connectivity higher up in a watershed.

ROAD DENSITY

Road density is an important parameter to consider for overall road management decisions. It is a useful measure when considering environmental risks and public desire for access. Road density is expressed as the number of road miles within a square mile area and can vary considerably depending on the area. For instance, a large area that includes urban development, general forest area, and wilderness may have an overall road density of two miles per square mile (2 m/sm). Subdividing this area into three smaller areas, each containing the bulk of only one of the land uses described above may show that the road density varies from zero for the wilderness, 1.5 m/sm for the general forest area to 4.5 m/sm for the urban area. It is important, therefore, to look at road density at various scales.

Table 2-2 displays road densities across the Forest at two scales (density classifications include classified and unclassified roads). The larger units are the seven major river basins that are partially within the boundaries of the Shasta-Trinity National Forest. These are called 4th field watersheds (greater than 250,000 acre). The smaller units are 5th field watersheds (ranging in size from 40,000 to 250,000 acres) that fit entirely within larger 4th field watersheds. Road densities in this table show variation in road density with the scale of the area being examined. For example the 5th field watersheds within the Trinity River watershed vary in road density from a low of 0.3 m/sm for the North Fork Trinity River to a high of 3.9 m/sm for the East Fork Trinity River. These figures substantiate the knowledge that the North Fork Trinity River is largely wilderness and that the East Fork Trinity River has been extensively roaded for timber management.

Examining road densities at smaller scales yield more precise information that is useful for roads analysis. With the use of the GIS system, road densities have been calculated for 7th field watersheds (ranging in size from 3,000 to 10,000 acres). The number of 7th field watersheds on the Shasta-Trinity National Forest is several hundreds and cannot be displayed here. Examination of results at this scale shows a bigger difference in the value of road densities. Road densities at the 7th field watershed level range from zero to 6.2. The highest density 7th field watersheds are located in the highest density 5th field watersheds, the same being true for the lowest density watersheds.

The most sensitive level of road density examination appears to be at the 7th field watershed scale. Because this data is readily available using the GIS system road density at this scale will be used for the Forest-level analysis in Chapter 4.

Table 2-2 Mileage and Road Density of all Forest Roads by 4TH and 5TH Field Watershed

4th Field Watershed	5th Field Watershed	SQ. Miles	Total Road Miles	Road Density 1/
SHASTA RIVER	Parks Creek-Shasta River	89.1	110.9	1.2
	Upper Shasta River	126.2	417.8	3.3
	Whitney-Sheep Rock	173.4	330.7	1.9
	Willow Creek	87.7	66.3	0.8
Totals and Road Density		**476.4**	**925.7**	**1.9**
UPPER SACRAMENTO RIVER	Box Canyon	121.4	473.3	3.9
	Lower Sacramento River	169.4	783.9	4.6
	Sacramento Arm Shasta Lake	172.6	363.7	2.1
	Upper Sacramento River	128.4	535.2	4.2
Totals and Road Density		**591.8**	**2,156.1**	**3.6**
LOWER SACRAMENTO RIVER	Beegum Creek	88.8	191.0	2.2
	Clear Creek	118.3	330.9	2.8
	Dry Creek	116.9	99.1	0.8
	Middle Fork Cottonwood Creek	105.0	169.3	1.6
	South Fork Cottonwood Creek	172.7	155.8	0.9
Totals and Road Density		**601.7**	**946.1**	**1.6**
McCLOUD RIVER	Ash Creek	177.9	655.0	3.7
	Lower Mccloud River	105.6	243.1	2.3
	Mccloud Arm Shasta Lake	64.4	140.1	2.2
	Squaw Valley Creek	104.3	362.1	3.5
	Upper Mccloud River	228.5	1048.0	4.6
Totals and Road Density		**680.7**	**2,448.3**	**3.6**
PIT RIVER	Bear Creek	170.1	729.9	4.3
	Burney	181.6	316.0	1.7
	Fall River	346.9	273.1	0.8
	Lake Britton-Iron Canyon	276.2	911.3	3.3
	Medicine Lake-Whitehorse	214.6	557.6	2.6
	Pit Arm Shasta Lake	102.0	156.0	1.5
	Pit No 7	131.8	417.2	3.2
	Squaw Creek	100.0	201.5	2.0
Totals and Road Density		**1,523.2.4**	**3,562.6**	**2.3**

1/ Road Density = average miles of road/square mile of land area or "m/sm"

Table 2-2 Mileage and Road Density of all Forest Roads by 4TH and 5TH Field Watershed (Continued)				
4th Field Watershed	**5th Field Watershed**	**SQ. Miles**	**Total Road Miles**	**Road Density 1/**
TRINITY RIVER	Browns Creek	73.6	156.1	2.1
	Burnt Ranch	210.1	273.7	1.3
	Canyon Creek	124.1	220.4	1.8
	Coffee Creek	116.2	74.9	0.6
	East Fork Trinity River	114.4	448.8	3.9
	Grass Valley-Weaver	221.7	456.6	2.1
	Main Trinity River	183.2	513.6	2.8
	New River	233.4	135.3	0.6
	North Fork Trinity River	152.2	46.6	0.3
	Stuart Fork	193.3	386.5	2.0
	Trinity Reservoir	110.9	359.4	3.2
Totals and Road Density		**1,733.1**	**3,071.9**	**1.8**
S FK TRINITY RIVER	Lower Hayfork Creek	221.9	638.9	2.9
	Lower South Fork Trinity	201.8	353.4	1.8
	Middle South Fork Trinity	185.3	680.7	3.7
	Upper Hayfork Creek	165.3	528.7	3.2
	Upper South Fork Trinity	157.2	369.0	2.3
Totals and Road Density		**931.5**	**2,570.7**	**2.8**
1/ Road Density = average miles of road/square mile of land area or "m/sm"				

DATA DEVELOPMENT

Refer to **Appendix B** under "Tools to Consider" for each criteria.

FOREST PLAN DIRECTION

The Shasta-Trinity National Forest maintains a Transportation Development System consisting of about 6,484 miles of road. These roads are managed and maintained within the framework of goals, standards and guidelines of the *Shasta-Trinity Land and Resource Management Plan (Forest Plan)*. The Roads Analysis Procedure being conducted for the Shasta-Trinity National Forest is viewed as part of the implementation process of the *Forest Plan*.

Appendix D contains a complete listing of *Forest Plan* goals, standards, and guidelines relating to Shasta-Trinity National Forest road management.

1979 INVENTORIED ROADLESS AREAS

In 1979 the Shasta-Trinity National Forest inventoried approximately 510,000 acres of roadless areas. Of this, 190,000 acres were subsequently designated as wilderness in the *1984 California Wilderness Act*. The remaining 320,000 acres were released for multiple-use under the Forest planning process. These released roadless areas were designated to a variety of prescriptions in the *Forest Plan* as described in Table 2-3.

Of the 320,000 released inventoried roadless area acres, an estimated 30,000 to 40,000 acres have been roaded since 1984.

Table 2-3 1979 Inventoried Roadless Areas	
***Forest Plan* Category**	**1979 Roadless Acres**
Designated Wilderness, 1984	190,000
No Road Building, LMP	129,000
Roads Permitted, LMP	191,000
Total 1979 Roadless Acres	510,000
Prescriptions Where Road Building is Not Currently Permitted via the *Forest Plan*	
Wilderness (1984 *California Wilderness Act*)	
Semi-primitive, Non-Motorized Recreation	
Research Natural Areas/Special Interest Areas	
Roadless Areas in Key Watersheds	
Prescriptions Where Road Building is Currently Permitted via the *Forest Plan*	
Late-Successional Reserves (limited)	
Limited Roaded Recreation	
Roaded Recreation	
Developed Recreation	
Wildlife Management	
Commercial Wood Products	
Heritage Areas	

UNROADED AREAS

Unroaded areas outside of inventoried roadless areas have not been defined or mapped. The Forest-level roads analysis does not recommend any road construction or reconstruction in unroaded areas.

New roads in unroaded areas would most likely be Maintenance Level 1 and 2 roads. Identification and analysis of roading in these areas will be considered at the watershed/project scale.

Shasta-Trinity National Forest Roads Analysis Report

CHAPTER 3

ISSUES

Issues identified in this chapter were derived from two sources. The **Public** was invited to describe those issues that were important to them related to roads and road management on the Forest. Internally, the **Forest** queried land managers and an interdisciplinary team of specialists to find additional issues. Listed below are nine issues derived from these two sources.

Once issues were identified, Key Questions were selected from the *Roads Analysis Handbook* (1999) that could be used to assess each of the nine issues. Specialists subsequently designed science-based criteria to work with each question. Key Questions and the analytical criteria developed to answer the questions can be found in **Appendix B**.

Issues and Key Questions are summarized in **Table 3-1**.

Table 3-1 Summary of Issues and Selected Key Questions

Issue	Question
1 – Access for Fire Management	PT (2) and PT (3).
2 – Access for Vegetation Management	RM (1), PT (1), TM (2), and TM (3).
3 – Roads Affect the Quality of Terrestrial Species	TW (1) (4)
4 – Access for Authorized Uses and Recreation Opportunities (Hunting, Access for Persons with Disabilities, etc.)	GT (1), GT (2), GT (3), GT (4), MM (1), SU (1), SI (1), WP (1), WP (3), and RR (6).
5 – Water Quality	AQ (2), AQ (3), AQ (4), AQ (5), AQ (7), and WP (2)
6 – Hydrologic Function	AQ (1)
7 – Aquatic and Riparian Habitats	AQ (10), AQ (12) and AQ (14)
8 – Heritage Resources and Traditional Cultural Areas	SI (3), SI (4), and SI (11)
9 – Economics of the Road System	EC (1), EC (2), and EC (3)

Issues were developed through inspection of the public participation content analysis and summarized in **Table 3-2**. Refer to **Appendix C** for a complete listing of comments received.

Table 3-2 Public Participation Comment Summary

Issue 1/	Comments
1	• Road 1N24 (Miller Springs Road) is very overgrown and access by large trucks for fire suppression is jeopardized. When well maintained, this road (and other roads) provides a firebreak. • Access for fire suppression should be a second priority. • Focus fire suppression efforts only on areas close to concentrations of human habitation. • We question the assumption that roads are needed to suppress wildfires.
2	• The era of exploitation of God's forests as a "crop" must come to an end. • The existing road network is more than sufficient to meet the access needs required.
3	• Recommend no new roads, simply improve existing roads, particularly in the Trinity Unit NRA. • Wildlife would significantly benefit from removal of roads.
4	• Recommend no new roads, simply improve quality of existing roads. • Major through routes and access roads to recreation sites should be maintained to a high standard. • We support access roads to Wilderness trailheads. • Upgrade the maintenance level for trailhead and recreation site access roads. • Concerning access for persons with disabilities—focus paving of the forest's most scenic routes using the minimum amount of asphalt necessary for access.
5	• Water quality, hydraulic functions, and riparian habitat should be used as primary concerns in managing road networks. • Too many roads are located directly adjacent or otherwise influence stream courses and the aquatic system. • We have concerns about off-site resource protection (water quality) from the use of cooperative roads during the winter period. • Sediment inventory and deliverability to streams evaluations should be a part of the initial road analysis process. • We recommend that wherever possible, roads be re-engineered to a state of low maintenance to provide greater water quality protection.
6	• The road system is much too large and poorly maintained. Hydrologic closers and decommissions should be an ongoing process until the road system is a maintainable size. • The best way to ensure minimizing downstream sediment delivery is to keep streams from becoming hydrologically connected with the road network.
7	• Prioritizing upgrades and hydrologic closures that threaten fisheries should be first priority.
8	• Yearly road monitoring is a necessity for effective management of the road system and protection of our natural resources. • No new roads should be considered to facilitate access to these sites.
9	• The FS has about 25-35% of funds needed on the STNF and nationally for road maintenance. As a result the current road system is generating unacceptable environmental impacts and is a danger to road users. • Need to address problems related to winter use, maintenance, and environmental hazards related to cooperative roads. • Do not designate major transportation routes if you do not have reasonable expectations of adequate funding.

1/ Refer to **Table 3-1** for issue name.

The following issue narratives describe issue type(s), origin, status of the current data, additional information needs, and resources and skills needed for an effective analysis.

ISSUE 1 – ACCESS FOR FIRE MANAGEMENT

To what extent do roads provide adequate access for wildfire suppression on both public and private lands?

Key Question(s): PT (2) and PT (3).

Type: Environmental, Social, and Economic

Origin: This issue was identified through public input in conjunction with the Access and Travel Management Planning Effort.

Status of Current Data: Data used to analyze this issue is the Fire History database in GIS. GIS can provide information on high fire occurrence areas where road access is necessary for fire suppression

purposes. Topographic information in GIS can provide information on road location in relation to its position on the slope. This information can be used to determine which roads could be used as fireline anchor points during fire suppression activities.

Additional Information Needs: None

Resources and Skills Needed for an Effective Analysis:

- Resource specialists experienced in analyzing *Fire Occurrence Areas* to determine adequate access to specifically identified areas of the Forest.
- Fire suppression specialists with experience in identifying roads that could be used for fireline use.

ISSUE 2 - ACCESS FOR VEGETATION MANAGEMENT

To what proportion and magnitude do roads provide adequate access to manage vegetation for timber production, terrestrial species habitat, fuels reduction, firewood gathering, etc.?

Access needs are largely dependent upon the land allocation and compatible uses as described in the *Forest Plan*.

Key Question(s): RM (1), PT (1), TM (2), and TM (3).

Type: Environmental, Social, and Economic

Origin: This issue was identified through public participation workshops held in conjunction with the Access and Travel Management Planning Effort.

Status of Current Data: Data used to evaluate this issue are derived from analyzing the existing road system's ability to provide economically efficient vehicular access for sizeable equipment to remove products from the forest and deliver them to production facilities. Unroaded portions of lands allocated to uses compatible with roaded access will be evaluated for future road construction. Data used to identify access for fuels reduction projects is available in GIS. Also available in GIS are locations of high priority fuel treatment areas for communities at-risk and T&E species habitat data.

Additional Information Needs: None

Resources and Skills Needed for an Effective Analysis:

- Forester experienced with the capabilities of logging equipment, GIS products displaying land allocation, slope, vegetation size and density, economic models, geologic stability maps, aerial photography, and local knowledge.
- Fuels Specialist experienced in the Cohesive Fuels Strategy that can identify specific areas of the Forest that are of a high priority for hazardous fuels reduction projects.
- Wildlife Biologist experienced in identifying key habitats for wildlife species and using habitat capability models.

ISSUE 3 – ROADS AFFECT THE QUALITY OF TERRESTRIAL SPECIES HABITAT

What are the direct effects of the road system on terrestrial species habitat?

The presence of roads directly affects habitat for many species of plants and animals. Direct effects include habitat loss and fragmentation and edge effects, both positive and negative. The magnitude of these effects depends on road density, intensity of road use, road location, types of habitats traversed by roads, and the status of populations in the surrounding area.

Key Question(s): TW (1) (4)

Type: Environmental

Origin: Management Concern

Status of Current Data: Data are available in the GIS system to evaluate roads based on road density, maintenance levels (road condition inferred), vegetation types, and TES species and habitat layers. Methods of using these data are explained in the description of the criteria for TW (1) (4).

Additional Information Needs: Wildlife Biologist and GIS specialist to develop stratification system (batching) for vegetation type layer to facilitate estimation of types of habitats traversed by roads.

Resources and Skills Needed for an Effective Analysis:

- GIS Specialist with skills to produce map products combining a variety of data types and features.
- Biologist with experience in determining locations of unique populations including Threatened,

Endangered, and Sensitive species and in describing ecotypes and key habitat areas.

- Engineer or others with knowledge of road condition status and road use levels.
- Hydrologist with experience in analyzing road density by watershed and stream channel-road proximity.

ISSUE 4 - ACCESS FOR AUTHORIZED USES AND RECREATION OPPORTUNITIES (HUNTING, ACCESS FOR PERSONS WITH DISABILITIES, ETC.)

How does road access and road maintenance standards affect recreational opportunities?

Road access is necessary to supply products and services on National Forest lands that are demanded by the public and authorized by the Forest Service. Authorized uses include: minerals; range; water systems; hydroelectric power generation; utility corridors; resorts; marinas; communication sites; outfitter guides on public lands; and activities on private lands. Since the majority of recreational opportunities are available through use of the existing road system, it is important to consider the effect road management has on recreational opportunities and their rate of use.

The beneficial effect of road access for recreation use is two fold. First there is the benefit of being able to access recreational opportunities, the more recreational opportunities accessed the higher the benefit. Second, the rate of use is taken into consideration, the higher the use—independent of the number of recreational opportunities—the higher the benefit. The level of traffic and the maintenance level can affect the quality, quantity, and type of recreational opportunity.

Key Question(s): GT (1), GT (2), GT (3), GT (4), MM (1), SU (1), SI (1), WP (1), WP (3), and RR (6).

Type: Economic

Origin: Management Concern

Status of Current Data: Mineral operations and special-use authorizations are plotted and displayed in the *Forest Transportation Atlas* located at the Forest Headquarters. Since legal descriptions were used for plotting the information, they are not spatially correct but will provide a sense of the number of authorized uses within a specific section. Local knowledge will be used to determine the frequency of use or the number of beneficiaries.

The Forest is collecting statistically valid visitor use information that will become available in FY 2004. In the absence of current data the Forest will rely on the professional judgment of those individuals with local knowledge of conditions to assess the risk and benefit of a specific road on recreational opportunities and uses.

Additional Information Needs: None

Identify Resources and Skills Available: Permit administrators and recreation managers on each of the units will be able to provide assistance in determining the criteria rating and discussing proposed management opportunities.

ISSUE 5 – WATER QUALITY

To what proportion and magnitude do roads affect production and delivery of water quality pollutants, especially production and delivery of sediment, that in turn affect beneficial uses of aquatic and riparian habitats, both locally and downstream?

This issue includes consideration of all beneficial uses but will highlight effects on habitats of at-risk fish species.

Key Question(s): AQ (2), AQ (3), AQ (4), AQ (5), AQ (7), and WP (2)

Type: Environmental

Origin: Management and Public Concern

Status of Current Data: Data are available in the GIS system to evaluate roads based on slope position and class, proximity to stream channels, density, and road-stream intersects. Methods of using these data are explained in the description of criteria for AQ (2), AQ (3), AQ (4), AQ (5), AQ (7), and WP (2).

Additional Information Needs: There may be a limited amount of information in GIS for Geomorphology and Bedrock Geology. Other information needs outside of GIS include *Opportunity Identification* for haul routes of potential pollutants and a Forest-Wide inventory of beneficial uses.

Resources and Skills Needed for an Effective Analysis:

- GIS Specialist with skills to produce map products combining a variety of data types and features.

- Earth Scientist with experience in determining erosion rates from road features, high-risk geomorphic terrains and geologic hazards related to roads, and the diversion potential and hydrologic connectivity of the road system.
- Forest or Unit Biologists able to determine the locations of key populations of aquatic species, riparian habitats, and stream beneficial uses.
- Unit Engineers or others with knowledge of the nature and frequency of hazardous materials transport.

ISSUE 6 – HYDROLOGIC FUNCTION

To what proportion and magnitude do roads alter the hydrologic function of the watersheds they traverse?

Hydrologic function is here defined as the natural interplay of physical factors affecting the flow of water through the forest environment including subsurface and surface flow; all forms of aquatic habitat and function of riparian areas as they relate to physical processes of water movement.

Key Question(s): AQ (1)

Type: Environmental

Origin: Management Concern

Status of Current Data: Data are available in the GIS system to evaluate roads based on slope position and class, proximity to stream channels, density, and road-stream intersects. Methods of using these data are explained in the description of the criteria for AQ (1).

Additional Information Needs: None

Resource and Skills Needed for an Effective Analysis:

- GIS Specialist with skills to produce map products combining a variety of data types and features.
- Hydrologist with experience identifying the locations of roads relative to groundwater-controlled ecosystem components, springs, and seeps to determine road drainage re-routing areas and the hydrologic connectivity of the road system.

ISSUE 7 – AQUATIC AND RIPARIAN HABITATS

To what proportion and magnitude do roads affect the natural function and quality of aquatic and riparian habitats?

The Forest will consider not only the physical affects of the roads, but will also address non-direct anthropomorphic affects as well.

Key Question(s): AQ (10), AQ (12) and AQ (14)
Type: Environmental

Origin: Management Concern

Status of Current Data: Data are available in the GIS system to evaluate roads based on fishable stream channel proximity, road-fishable stream intersects, and density. Methods of using these data are explained in the description of the criteria for AQ (12) and AQ (14).

Additional Information Needs – Additional information needs include a Forest-Wide Inventory of Special Values.

Resources and Skills Needed for an Effective Analysis:

- GIS Specialist with skills to produce map products combining a variety of data types and features.
- Biologist able to determine the distribution of at-risk aquatic species, and key areas of species diversity, high productivity, and refugia.
- Hydrologist with experience analyzing road densities, road-stream proximity, and road-stream intersects.

ISSUE 8 - HERITAGE RESOURCES AND TRADITIONAL CULTURAL AREAS

Is the benefit of being able to access cultural and traditional uses and sites diminished because the accessibility actually decreases the ability to protect paleontological, archaeological, and historical sites and/or decreases the spiritual experience gained from visiting the sites?

This issue is a double-edged sword. On one hand individuals appreciate the ability to utilize roads to access cultural and traditional uses and sites on the National Forest. However, on the other hand, that

same access affects the ability to protect the very resources individuals desire access to.

The Forest will capture the benefit of access versus the risk to the resources resulting from the access in the criteria rating.

Key Question(s): SI (3), SI (4), and SI (11)

Type: Social

Origin: Public Concern

Status of Current Data: The information collected regarding paleontological, archaeological, and historical sites is confidential. In absence of this information local Heritage Resource Specialist will be relied on heavily to provide their professional judgment and local knowledge of conditions to assess the risk and benefit of specific roads on heritage resources.

Additional Information Needs: None

Identify Resources and Skills Available: Heritage Resource Specialist will be able to provide assistance in determining the criteria rating and discussing proposed management opportunities.

ISSUE 9 – ECONOMICS OF THE ROAD SYSTEM

What are the economic implications of managing the road system?

Key Question(s): EC (1), EC (2), and EC (3)

Type: Social and Environmental

Origin: Public and Administrative Concern

Status of Current Data: The economic implications of managing the road system are key to this analysis. Data to deal with the "economic" questions are developed in the INFRA database and by assigning values to roads.

Additional Information Needs: None

Identify Resources and Skills Available: Road managers and the INFRA database.

Shasta-Trinity National Forest Roads Analysis Report

CHAPTER 4

ASSESSING BENEFITS, PROBLEMS, AND RISKS

In this step the evaluation criteria were developed by resource specialists in order to quantitatively assess the benefits and risks of all roads in the analysis. These criteria were field-tested and revised.

All criteria used a rating system based on a scale of 1 to 5 as shown in **Table 4-1**.

Table 4-1 Rating Scale

Rating	Definition
0	No Affect
1	Low
2	Low to Moderate
3	Moderate
4	Moderate to High
5	High

For example, applying the rating system to question AQ(4): **(How and where do road-stream crossings influence local stream channels and water quality?)** the Forest hydrologist designed the following table to arrive at the risk rating:

Risk Rating	# of Road Stream Intersects/Mile
0	Less than 1
1	1 – 1.9
2	2 – 2.9
3	3 – 3.9
4	4 – 4-9
5	Greater than 4.9

When numerical data was not directly available, other quantifiable criteria were used to determine the ranking. In the example of question PT(1): **(How does the road system affect fuels management?)** the Forest fuels specialist designed the following rating system:

Benefit Rating	Benefit Criteria
0= No Affect	Road has no effect on fuels management.
1 = Low	Road is located within or provides access to only Condition Class I areas.
3 = Moderate	Road is located within or provides access to only one of the following: Communities at Risk OR T&E species habitat OR municipal watersheds.
5 = High	Road is located within or provides access to two or more of the following: Communities at Risk, T&E species habitat, municipal watersheds.

Appendix B contains a list of all criteria developed for Key Questions selected for inclusion in the analysis. It also lists the questions from the *Roads Analysis Handbook* (1999) that were not applied at the Forest scale and an explanation of why they were not used.

Once the rating criteria were finished, a Forest road risk and benefit ratings summary table was designed by the ID Team to group issues and questions into categories for scoring. Some categories contained multiple numbers of issues and multiple numbers of questions. In these cases the resource specialist determined the scoring system to arrive at a single number per category; refer to **Table 4-4** Forest Road Risks and Benefits Ratings.

In April of 2002 the Forest ID Team organized a roads analysis workshop that brought together all line officers, resource specialists, and transportation planners for one week. The workshop provided an ideal opportunity for everyone to work together on the analysis at the same time. Smaller teams worked together by resource areas for two days to review all roads and complete the risk and benefit table (**Table 4-4**). For example, biologists from all four management units of the Forest completed the scoring for the terrestrial wildlife category. At the end of the weeklong workshop the scoring was completed for each road, priorities were evaluated, and recommendations were presented to line officers.

The workshop provided the first known opportunity for a Forest-wide team of resource specialists to come together for the single purpose of looking at all major routes on the Forest. This discussion was valuable because every resource was represented and the risks and benefits were discussed at the Forest-level in terms of future management and recommendations. Team members that participated in the workshop are listed in **Tables 4-2** and **4-3**.

During the workshop, the decision was made to drop all short campground spurs and administrative roads from the Forest-level roads analysis. Based on guidance from the Regional Office and Forest Service Manual direction, the Forest Supervisor determined these short campground roads were not appropriate for Forest-level analysis because they did not constitute major travel routes, the "backbone" of the Forest transportation system. Of the 412 roads identified in INFRA at the beginning of the analysis, 199 roads for a total of 53 miles were eliminated from further analysis. See **Appendix E** for a list of these roads.

Table 4-2 Resource Specialists

Specialty	Resource Team Member
Aquatics/ Fisheries	Steve Bachmann, Loren Everest, John Lang, Bob Olson, Darrel Ranken, Joe Zustak
Heritage Resources	Mark Arnold, Julie Cassidy, Elaine Sundahl
Special Uses	Bob Forbes, Ginger Shaw, Stacy Smith, Kathy Valenzuela
Minerals	Ron Armstrong, Larry McLean
Recreation	Mary Ellen Grigsby, Ed Hatakeda, Mike Mitchell, Marla Peckinpah
Fire/Fuels	Larry Hayes, Teresa Neikirk, Jack Rogers, Jim Ratliff, Mike Rothenberger, Scott Vaughn
Commodity Production	Bill Branham, Steve Funk, Jeff Paulo, Dennis Poehlmann
Terrestrial Species	Debby Derby, Dennis Garrison, Nancy Hutchins, Bob Olson, Tom Quinn, Barbara Williams
Transportation	Jeff Huhtala, Mike Jellison, Dale Stanley
Social/Economic	Duane Lyon, Rebeca Franco

Table 4-3 Interdisciplinary Team Members by Management Unit

Management Unit	ID Team Members
National Recreation Area	Mary Ellen Grisgby, Nancy Hutchins, Ginger Shaw, Marla Peckinpah, Cheryl Adcock, Bob Olson, Kristy Cottini
South Fork	Larry Hayes, Jeff Paulo, Donna Harmon
Management Unit	**ID Team Members**
Shasta McCloud	Dennis Poehlmann, Jeff Huhtala, Steve Bachman, Steve Funk, Bob Hammond
Trinity River	Mike Mitchell, Dale Stanley, Joyce Andersen

After the risks and benefits table was completed at the workshop, the teams reorganized by management unit to propose actions to minimize risks and increase benefits. Details of this process are covered in Chapter 5.

SYNTHESIS OF RISKS, BENEFITS, AND PROBLEMS OF THE CURRENT ROAD SYSTEM

RISKS

Review of the risk ratings highlighted a number of important factors. Of the 213 roads that were analyzed, 23 roads had an average total risk score greater than 3 (moderate risk). The highest risk category cited among these 23 roads were Water Quality, followed by Hydrologic Process, and Aquatic Riparian. The risk to wildlife was in the moderate range and the risk to heritage resources was in the low-moderate range.

Table 4-4 summarizes the scoring for each road by categories of risk and benefit.

RESOURCE RISKS – AQUATICS/RIPARIAN, HYDROLOGIC PROCESS, AND WATER QUALITY

Results of the analysis highlighted roads with high risks to the aquatic environment associated with individual roads or road segments. Roads with scores of 3.0 or above for Hydrologic Processes, Water Quality or Aquatic/Riparian were separated out for further analysis. These roads were considered to have the highest potential risk in their current condition. Further analysis consisted of crosschecking these roads with local knowledge to determine if evaluation criteria results matched the condition of the road as it exists in the environment. In some

cases the subsequent evaluation revealed specific problems associated with high-risk roads. In sixteen cases the evaluation identified roads in need of upgraded culverts or other drainage structures in order to reduce current risks. In other cases roads were merely identified as being of high risk in general, requiring further evaluation and maintenance. Combining risk scores and local knowledge was an effective means of identifying high risk roads and actions needed to reduce those risks.

BENEFITS

Review of the benefit ratings also pointed out a number of important factors. Of the 213 roads that were analyzed, 104 roads had an average total benefit score greater than 3 (moderate benefit). The highest benefit category was Commodity Production followed by Economics. The benefit scores for both of these categories were in the moderate to high range. The next three highest benefit categories (Fire Protection, Fuels Management, and Public Uses) all scored in the moderate range, and next category (General Transportation/Water Production/Range Management) was in the low-moderate range of benefits for these roads.

For the roads with moderate or lower average benefit ratings, 102 roads were in the low-moderate ranking and only 8 roads were in the low benefit ranking.

PROBLEMS

Migratory Fish Passage Barriers: Some of the Maintenance Level 3 and 4 roads analyzed were identified as having fish passage problems or having potential fish passage problems associated with specific road stream intersects. The expanded ID Team, utilizing local knowledge and limited inventory information, identified these sites. Roads having these problems are listed in **Table 5-3**, Forest Level Recommendations.

Inventories of fish passage barriers being conducted concurrently with this roads analysis were not available for use in this document. It is expected that additional fish passage barriers associated with level 3 and 4 roads will be identified.

Sediment Sources: The most critical water quality problem associated with roads is excess sediment from road surface erosion. Seventy-six roads or segments were identified as having at least partial surfacing of native material. Roads with native surface materials are generally considered to be of high risk for surface erosion problems. These roads were identified in the analysis process and evaluated according to their length. Smaller sections not meeting other criteria of having stream crossings or being within a Riparian Reserve were discarded from further analysis. The remaining roads were individually evaluated incorporating local expertise to determine their need for surfacing. The results of the final analysis are displayed in Chapter 5. In summary, 20 roads were recommended for surfacing with rock and 15 roads were recommended for spot rocking to address known water quality problems.

Inaccurate Classification of Maintenance Level: Some roads that appear in the inventory as being Maintenance Level 3 or 4 were found to not meet the criteria for these Maintenance Levels and were recommended for changing to a more appropriate level of maintenance, usually Maintenance Level 2. These recommendations appear in **Table 5-4** in Chapter 5.

Roads Determined Not to be Needed: Two Maintenance Level 3 roads in the inventory were determined to be unnecessary for management needs and were recommended for decommissioning. The environmental risks associated with these roads as well as protection of cultural resources and public safety were the main factors for these recommendations.

Refer to next page for **Table 4-4** which displays the risk and benefit ratings for the Maintenance Level 3 and 4 roads on the Shasta-Trinity National Forest.

The roads in this table are organized numerically by road number. A few road numbers are listed twice because different segments were at different maintenance levels or had significantly different environmental conditions. There are a total of 213 roads (or road segments) and 1,353 miles that were a part of this analysis.

The shaded columns are the average rating of the numbers in the risk and benefit sections. Separate column numbers were calculated according to the instructions of the resource specialist for each criterion. Records of the worksheets for the composite ratings are available at the Forest Headquarters.

Table 4-4 Forest Road Risk and Benefit Ratings

ID#	ROAD NUMBER	MANAGEMENT UNIT 1/	RANGER DISTRICT 2/	MILES	ROAD NAME	CURRENT RESOURCE RISKS (IMPACTS)					Total Current Environmental **Risk Score**	CURRENT RESOURCE BENEFITS (ACCESS)							Total Current Environmental **Benefit Score**
						Aquatics Riparian AQ10, AQ12, AQ14	Hydrologic Process AQ1	Water Quality AQ2-5, AQ7, WP2	Terrestrial Species TW1,4	Public Use SI11		Fire Protection PT2, PT3	Fuels Management PT1	Economics EC1, EC2, EC3	Commodity Production TM2, TM3	Public Use MM1,SI3,SI4,SU1,RR6	Social Issues SI1	Access GT1-4, WP1&3, RM1	
1	1N09	SFMU	HF	2.5	Naufus Creek	3.3	5.0	5.0	2.9	0	3.3	3	2	2.5	5	2	2	1.7	2.6
2	1N12	SFMU	HF	9.6	Copper Mine	2.3	3.6	3.7	3.6	3	3.2	3	2	3.0	5	3	2	1.9	2.8
3	1N13	SFMU	HF	5.4	Post Flume	3.3	3.7	3.7	4.4	2	3.4	3	2	4.0	5	3	2	1.9	3.0
4	1N24	SFMU	HF	6.6	Mc Clellen	0.8	1.6	1.9	2.1	2	1.7	3	3	5.0	4	3	2	2.3	3.2
5	1S14	SFMU	HF	14.5	Bear Wallow (FA14)	2.0	3.0	4.0	3.2	2	2.8	4	5	4.3	5	3	2	2.5	3.7
7	1S25	SFMU	HF	0.6	Scott Flat Campground	2.4	5.0	4.8	2.1	1	3.1	3	3	3.0	0	4	2	1.6	2.4
8	1S26	SFMU	HF	0.6	Moores	0.8	2.8	3.6	2.2	2	2.3	2	5	3.0	0	4	2	2.0	2.6
11	2N01	SFMU	HF	5.0	Indian Butter Tie	2.6	2.8	3.2	4.3	0	2.6	3	3	3.0	5	2	2	1.8	2.8
12	2N03	SFMU	HF	3.8	Buck Gulch	1.5	2.4	2.7	4.3	0	2.2	3	3	4.0	5	2	2	1.9	3.0
13	2N07	SFMU	HF	10.4	Post Mtn (FA07)	1.7	0.0	1.7	4.4	3	2.2	5	5	4.3	5	3	4	2.2	4.1
15	2N10	SFMU	HF	14.2	Indian Valley (FA10)	4.7	3.0	4.0	4.3	3	3.8	5	3	4.3	5	3	4	2.3	3.8
16	2N10	SFMU	HF	7.0	Indian Valley (FA10)	3.0	0.0	2.0	4.5	3	2.5	5	5	5.0	5	3	2	2.6	3.9
17	2N16	SFMU	HF	12.6	Limedyke L.O.	1.9	2.3	2.8	4.3	3	2.9	4	3	4.0	5	3	2	1.5	3.2
19	3N08	SFMU	HF	15.9	Butter Creek	1.7	0.0	2.4	4.2	1	1.9	3	5	2.8	5	4	2	1.8	3.4
20	3N10	SFMU	HF	10.4	Pelletreau (FA40)	0.9	1.2	2.8	2.9	2	2.0	5	5	3.8	5	4	2	2.0	3.8
22	3N14	SFMU	HF	5.7	Kerlin Creek	1.6	2.2	2.9	2.7	1	2.1	4	5	4.0	4	3	4	1.6	3.7
25	3N21	SFMU	HF	3.3	Fir Root Springs	0.8	1.1	1.9	2.4	0	1.2	3	3	3.0	5	2	2	1.9	2.8
26	3N22	SFMU	HF	8.8	Halfway Ridge	1.0	1.3	1.9	3.0	1	1.6	3	3	3.0	5	2	2	1.9	2.8
27	4N05	TRMU	BB	4.2	Hayshed Creek	2.1	2.4	2.9	3.9	0	2.3	3	3	3.0	5	2	2	1.3	2.8
28	4N08	SFMU	HF	9.0	Miners Creek	3.3	3.6	5.0	4.1	0	3.2	4	5	2.5	5	4	2	1.1	3.4
29	4N11	TRMU	BB	13.8	Eagle Rock	1.7	1.7	2.9	3.9	1	2.2	3	3	2.8	5	5	2	1.2	3.1
30	4N12	SFMU	HF	10.8	South Fk Mtn (FA12)	0.7	0.8	1.5	4.0	5	2.4	3	5	4.8	5	4	4	3.0	4.1
31	4N16	TRMU	HF	8.2	Packers Creek (FA16)	2.0	2.2	3.6	4.2	1	2.6	4	4	4.0	4	2	4	1.7	3.4
32	4N16	SFMU	HF	9.8	Packers Creek (FA16)	1.3	2.2	2.7	4.4	1	2.3	3	5	4.8	5	2	4	2.1	3.7
33	4N16P	TRMU	BB	0.2	Poverty Flat Campground	1.0	5.0	4.1	2.3	0	2.5	3	3	4.0	0	0	2	1.3	1.9
35	4N29	TRMU	BB	3.2	Corral Creek	1.2	2.7	2.9	4.2	0	2.2	3	3	3.0	5	2	2	1.3	2.8
37	4N41	TRMU	BB	1.4	Chaparral, Pvt. Access	1.2	2.7	3.0	3.2	0	2.0	3	3	4.0	5	2	2	1.3	2.9
38	4N47	TRMU	BB	9.8	Corral Bottom (FA47)	2.7	3.1	3.4	4.0	1	2.8	4	4	4.0	5	3	4	1.7	3.7
40	5N04	TRMU	BB	8.0	Big Mtn L.O. (FA04)	4.3	2.2	2.6	3.7	1	2.8	4	4	4.0	5	3	4	1.3	3.6
42	5N09	TRMU	BB	10.3	Big Lake	0.9	2.4	3.8	3.9	1	2.4	3	3	3.8	5	3	2	1.7	3.1
43	5N13	TRMU	BB	3.6	Big French Creek Trailhead	2.3	1.6	2.9	2.6	1	2.1	3	3	2.5	2	4	4	1.1	2.8
44	5N13	TRMU	BB	8.9	Big French Creek	1.7	1.6	2.2	2.6	1	1.8	3	3	4.0	2	4	2	1.3	2.8
45	5N18	TRMU	BB	6.1	Ironside L.O.	1.7	1.5	2.7	2.7	2	2.1	3	3	3.8	5	5	2	1.2	3.3
52	5N60	TRMU	HF	19.3	Underwood Mtn (FA60)	2.0	2.6	2.4	3.3	1	2.3	4	4	4.5	5	3	4	2.2	3.8
53	6N04	TRMU	BB	4.4	Devils Canyon Trailhead	1.7	0.0	1.6	3.4	1	1.5	3	3	2.5	2	4	4	1.1	2.8
56	7N01	TRMU	BB	2.5	E Fork New River	3.3	2.4	3.6	1.9	1	2.4	3	3	2.5	1	4	4	1.1	2.7
57	7N15	TRMU	BB	5.5	Fawn Ridge	3.5	2.4	3.4	2.6	1	2.6	3	3	3.5	1	4	4	1.1	2.8
58	7N26	Off For.	6	10.1	Happy Camp Mtn Rd.	0.3	1.8	1.7	2.5	2	1.7	3	3	5.0	2	4	2	1.7	3.0
59	27N02	SFMU	YB	6.8	Jones Ridge	1.7	2.1	2.9	2.9	4	2.7	3	3	3.0	4	4	2	2.0	3.0
60	27N06	SFMU	YB	3.7	Tomhead Mtn Electronic Site	0.6	1.5	2.7	2.8	0	1.5	3	3	3.5	5	3	2	1.1	2.9
62	27N13	SFMU	YB	7.8	Cold Fork	1.6	2.6	3.6	3.8	3	2.9	3	3	2.8	5	4	2	1.8	3.1
63	27N17	SFMU	YB	3.1	Bolly Boundary	1.7	2.6	4.0	2.4	1	2.3	3	2	3.5	5	4	2	1.7	3.0
65	28N10	SFMU	YB	40.8	Stuart Gap (FA41)	5.0	3.3	5.0	3.0	3	3.9	3	3	3.8	5	5	4	2.0	3.7
66	28N19	SFMU	YB	2.3	White Rock	1.7	0.0	2.9	2.2	0	1.4	3	3	2.5	4	3	2	1.7	2.7
67	28N19A	SFMU	YB	0.3	White Rock GS, Primitive CG	1.7	5.0	4.8	3.3	0	3.0	3	3	2.5	0	1	2	1.3	1.8
68	28N23	SFMU	YB	3.9	Devils Camp	1.7	1.8	3.1	3.3	0	2.0	2	3	2.5	5	2	2	1.7	2.6
69	28N35	SFMU	YB	15.1	Rat Trap Gap (FA35)	1.0	0.0	1.0	4.0	4	2.0	4	3	4.0	5	4	3	2.2	3.6
70	28N35	SFMU	YB	15.4	Rat Trap Gap (FA35)	2.8	2.3	2.7	4.3	4	3.2	4	3	4.5	5	4	4	2.3	3.8
71	28N36	SFMU	YB	5.8	Post Creek L.O.	4.3	3.2	4.3	2.9	0	2.9	2	2	3.5	4	4	2	1.7	2.7
72	28N40	SFMU	YB	6.9	West Low Gap	1.7	2.2	2.9	3.9	0	2.1	3	3	4.0	5	2	2	1.9	3.0
73	28N49	SFMU	YB	5.3	Bierce Ridge	1.7	0.0	1.2	3.9	0	1.4	3	3	4.0	4	2	2	1.8	2.8

Table 4-4 Forest Road Risk and Benefit Ratings (Continued)

ID#	ROAD NUMBER	MANAGEMENT UNIT 1/	RANGER DISTRICT 2/	MILES	ROAD NAME	CURRENT RESOURCE RISKS (IMPACTS)					Total Current Environmental **Risk Score**	CURRENT RESOURCE BENEFITS (ACCESS)							Total Current Environmental **Benefit Score**
						Aquatics Riparian AQ10, AQ12, AQ14	Hydrologic Process AQ1	Water Quality AQ2-5, AQ7, WP2	Terrestrial Species TW1,4	Public Use 3/ SI11		Fire Protection PT2, PT3	Fuels Management PT1	Economics EC1, EC2, EC3	Commodity Production TM2, TM3	Public Use MM1,SI3,SI4,SU1,RR6	Social Issues SI1	Access GT1-4, WP1&3, RM1	
74	28N62	SFMU	YB	2.0	Hulse, Trailhead	1.7	0.0	2.3	2.6	0	1.3	3	3	2.5	2	4	2	1.3	2.5
75	28N64	SFMU	YB	3.6	Round Mtn	1.1	2.3	2.8	4.1	0	2.1	3	3	3.0	5	2	2	1.8	2.8
76	29N02	SFMU	YB	5.2	Knob Peak L.O.	1.0	1.5	4.1	3.5	0	2.0	4	5	3.8	5	3	2	1.2	3.4
77	29N03	SFMU	YB	0.7	Primitive Campground	1.0	0.0	3.0	3.5	0	1.5	4	5	2.5	2	3	2	1.1	2.8
78	29N06	SFMU	YB	6.6	Beegum Gorge Campground	1.1	3.2	4.3	1.7	0	2.1	2	1	3.5	0	2	2	1.1	1.7
79	29N07	SFMU	YB	4.0	Hall City Creek	1.5	0.0	1.1	4.4	1	1.6	3	5	3.0	4	3	4	1.3	3.3
85	29N28	SFMU	YB	11.2	String Bean Creek	1.7	0.0	2.1	3.3	1	1.6	3	5	2.8	5	2	2	1.8	3.1
86	29N30	SFMU	YB	11.1	Wild-Mad (FA30)	3.3	0.0	3.1	4.2	3	2.7	2	3	4.0	5	4	2	2.3	3.2
87	29N30	SFMU	YB	18.1	Wild-Mad (FA30)	3.3	0.0	3.1	4.5	3	2.8	5	3	5.0	5	4	3	2.7	4.0
88	29N30	SFMU	YB	2.9	Wild-Mad (FA30)	3.3	0.0	3.1	4.5	3	2.8	3	3	5.0	5	4	4	2.7	3.8
89	29N32	SFMU	YB	5.7	Dubakella	1.7	0.0	1.0	3.3	3	1.8	3	3	3.0	5	3	2	1.9	3.0
90	29N33	SFMU	YB	6.8	Panther Ridge	1.7	0.0	2.0	4.4	1	1.8	2	1	2.5	4	2	2	1.7	2.2
91	29N41	SFMU	YB	5.2	Baker Flat	1.3	0.0	3.0	4.2	0	1.7	3	5	2.8	4	3	2	1.5	3.0
92	29N44	SFMU	YB	0.8	N Fk Beegum Campground	2.3	5.0	4.7	2.7	0	2.9	3	3	3.5	0	0	2	1.1	1.8
93	29N45	SFMU	YB	17.9	Tedoc Gap (FA45)	1.7	2.6	3.1	3.8	1	2.4	3	1	4.0	4	2	4	2.2	2.9
94	29N48	SFMU	YB	1.7	N Fk Smokey Creek	1.7	2.4	3.2	3.4	0	2.1	3	3	3.0	5	2	2	1.9	2.8
95	29N58	SFMU	HF	9.0	Rattlesnake RG	2.0	1.8	3.1	4.3	1	2.4	4	5	3.5	5	4	5	2.3	4.1
96	29N62	SFMU	HF	6.2	Peyton Creek	1.7	0.0	2.8	3.5	0	1.6	3	3	2.8	4	2	2	1.8	2.7
97	29N75	SFMU	YB	4.3	Upper Smokey	1.7	0.0	1.2	3.7	0	1.3	3	3	3.0	5	2	2	1.9	2.8
98	30N01	SFMU	YB	11.1	Browns Creek	1.1	0.0	3.5	4.1	1	1.9	4	5	3.8	5	3	4	1.4	3.7
99	30N02	SFMU	YB	2.2	Fox Gulch	0.6	0.0	2.2	3.7	1	1.5	2	3	2.5	3	2	4	1.1	2.5
100	30N04	SFMU	YB	4.6	Potato Creek	3.0	0.0	2.2	3.3	0	1.7	4	3	4.0	3	2	4	1.3	3.0
101	30N15	SFMU	YB	2.9	Chanchelulla GU	1.5	0.0	1.8	3.4	0	1.4	4	3	2.5	4	3	2	1.1	2.8
102	30N29	SFMU	YB	22.4	BRAMLET (FA29)	3.3	0.0	2.5	4.1	3	2.6	4	5	3.8	5	4	2	2.0	3.7
103	30N30	SFMU	HF	2.5	Double Plate	1.7	0.0	2.2	3.3	0	1.4	4	3	4.0	3	2	4	1.8	3.1
104	30N31	SFMU	HF	4.8	Plummer Peak L.O.	4.3	0.0	3.6	3.7	0	2.3	4	1	3.5	4	3	2	1.6	2.7
106	30N34	SFMU	HF	2.7	Lower Philpot	1.7	0.0	3.7	5.0	0	2.1	3	3	3.5	3.5	2	2	1.1	2.6
107	30N44	SFMU	YB	0.4	Gemmill Tie	0.8	0.0	0.9	1.8	0	0.7	0	0	4.0	0	0	2	1.3	1.0
108	31N02	SFMU	YB	7.6	County Line (FA02)	0.5	0.0	2.0	2.7	1	1.2	3	3	3.8	4	4	2	1.2	3.0
109	31N19	SFMU	HF	3.6	Bridge Gulch	1.5	5.0	5.0	2.4	0	2.8	3	1	3.0	0	3	2	2.0	2.0
110	31N20	SFMU	HF	0.3	Natural Bridge	3.3	5.0	4.4	4.6	5	4.5	3	3	2.5	0	5	2	1.3	2.4
111	31N29	SFMU	HF	4.6	East Tule Creek	3.0	0.0	1.2	4.2	ND	2.1	3	3	3.0	2	2	2	1.3	2.3
112	31N31	SFMU	HF	7.3	Main Tule	4.6	0.0	1.2	4.2	2	2.4	4	3	4.0	4	3	2	1.3	3.0
113	31N32	SFMU	HF	6.4	Philpot	1.7	3.1	3.0	4.6	1	2.7	2	3	4.0	4	2	2	1.3	2.6
116	31N42	SFMU	HF	7.9	East Kingsbury	1.2	2.9	3.8	2.4	0	2.1	4	3	3.8	4	4	2	2.0	3.2
117	32N03	SFMU	HF	0.9	Barker Creek	1.2	5.0	4.5	3.9	0	2.9	3	3	4.0	2	2	2	1.8	2.5
133	33N38	TRMU	WV	2.4	Weaver Bally	1.7	1.9	3.6	4.1	5	3.2	4	5	4.0	5	5	2	2.4	3.9
134	33N44	TRMU	BB	3.6	Rose Ranch	1.0	0.0	0.8	3.0	1	1.1	3	3	4.0	5	5	2	1.6	3.4
135	33N47	TRMU	HF	12.3	Soldier Creek	3.3	0.0	5.0	4.4	1	2.7	3	5	3.8	3	3	2	1.4	3.0
136	33N52	TRMU	BB	4.4	Hayfork Bally L.O.	0.9	2.0	2.3	3.9	0	1.8	3	3	4.0	5	3	2	1.3	3.0
147	33N83	NRA	SL	0.5	Centimudi	0.0	0.0	2.6	1.8	0	0.9	3	3	5.0	0	4	2	1.7	2.7
150	33N84	SFMU	HF	10.8	Soldier 10	1.7	2.5	3.3	4.5	1	2.6	3	5	2.8	4	3	2	1.8	3.1
151	33N85	NRA	SL	1.8	Silverthorn Resort	0.0	0.0	2.6	2.7	0	1.1	3	4	4.5	0	5	5	1.5	3.3
154	33N86	NRA	SL	2.5	Jones Valley Resort	1.7	5.0	4.7	2.2	3	3.3	3	3	4.5	0	5	5	1.5	3.1
159	34N07Y	TRMU	BB	12.0	Hobo Gulch	1.7	0.0	1.8	3.5	1	1.6	3	3	2.8	0	4	5	1.2	2.7
161	34N08	NRA	SL	0.9	North O'Brian	0.0	0.0	2.8	1.9	1	1.1	3	3	5.0	0	5	5	1.7	3.2
165	34N12	NRA	SL	2.6	Lakeview Resort	0.3	5.0	4.2	1.8	0	2.3	3	5	5.0	0	5	2	1.7	3.1
173	34N17	SMMU	SL	36.4	Fender Ferry (FA27)	4.0	0.0	5.0	3.8	3	3.2	4	3	3.8	5	5	5	2.3	4.0
174	34N17Y	TRMU	WV	2.5	Red Flat	1.7	0.0	1.0	3.6	0	1.3	3	3	3.0	5	2	2	1.3	2.8
177	34N27	NRA	SL	1.7	Packers Bay	0.3	5.0	4.5	1.8	0	2.3	3	5	5.0	0	5	2	1.9	3.1
181	34N30	NRA	WV	0.5	Papoose	1.0	5.0	5.0	4.0	0	3.0	3	3	3.0	5	3	2	1.7	3.0
182	34N30	NRA	WV	10.1	Papoose	2.0	5.0	4.7	4.0	2	3.5	3	3	3.5	5	3	2	1.9	3.1
185	34N40Y	NRA	SL	0.7	Bailey Cove Campground	0.0	5.0	4.2	2.0	0	2.2	3	3	5.0	0	5	2	1.7	2.8

Table 4-4 Forest Road Risk and Benefit Ratings (Continued)

ID#	ROAD NUMBER	MANAGEMENT UNIT 1/	RANGER DISTRICT 2/	MILES	ROAD NAME	CURRENT RESOURCE RISKS (IMPACTS)					Total Current Environmental **Risk Score**	CURRENT RESOURCE BENEFITS (ACCESS)							Total Current Environmental **Benefit Score**
						Aquatics Riparian AQ10, AQ12, AQ14	Hydrologic Process AQ1	Water Quality AQ2-5, AQ7, WP2	Terrestrial Species TW1,4	Public Use 3/ SI11		Fire Protection PT2, PT3	Fuels Management PT1	Economics EC1, EC2, EC3	Commodity Production TM2, TM3	Public Use MM1,SI3,SI4,SU1,RR6	Social Issues SI1	Access GT1-4, WP1&3, RM1	
191	34N51	TRMU	WV	1.1	Buckeye	1.3	1.2	1.1	3.1	0	1.3	3	3	4.0	4	3	2	1.3	2.9
194	34N74	TRMU	WV	1.6	Kinney Camp	1.4	5.0	4.5	3.3	0	2.9	3	3	4.0	4	2	2	2.1	2.9
195	34N74B	TRMU	WV	1.4	Kinney Camp	1.4	0.0	0.8	3.3	0	1.1	3	3	4.0	2	2	2	2.1	2.6
196	34N76	NRA	WV	3.0	Pettijohn	1.3	1.5	2.0	4.3	0	1.8	5	5	5.0	5	5	2	3.2	4.3
197	34N80	NRA	WV	9.3	Haylock Ridge	2.7	0.0	0.8	4.6	0	1.6	4	3	4.0	2	3	2	1.3	2.8
203	34N95	TRMU	WV	4.6	Musser Hill	1.0	0.0	2.5	3.0	1	1.5	4	5	3.8	5	3	2	2.0	3.5
204	34N97	TRMU	WV	1.0	Rush Creek Campground	0.3	0.0	2.2	2.5	0	1.0	1	3	4.0	0	4	2	2.1	2.3
206	35N02X	NRA	WV	1.0	Minersville Campground	1.2	0.0	1.0	3.4	0	1.1	3	3	5.0	0	4	2	1.7	2.7
209	35N06	SMMU	SL	8.6	Sugarloaf Mtn, Pvt. Easement	0.3	0.0	3.1	2.6	1	1.4	3	3	3.5	5	3	4	1.5	3.3
212	35N08	NRA	SL	3.4	Lakeshore AKA Sugarloaf	2.7	5.0	3.9	2.0	2	3.1	3	3	5.0	5	5	5	1.7	4.0
215	35N10	TRMU	WV	0.4	East Stuart	1.0	0.0	0.4	3.0	0	0.9	3	3	3.0	2	3	5	1.6	2.9
217	35N14	NRA	SL	2.3	Antlers	0.0	0.0	1.2	2.6	0	0.8	3	5	5.0	1	4	2	1.7	3.1
222	35N14Y	NRA	WV	1.2	Alpine View	0.0	0.0	2.2	3.5	5	2.1	5	3	5.0	1	4	5	2.5	3.6
223	35N15	NRA	SL	2.2	Gregory Creek	0.0	0.0	3.0	2.4	1	1.3	5	3	5.0	0	5	2	1.7	3.1
226	35N16	NRA	SL	0.9	Halfway Cove	0.0	0.0	3.0	2.4	1	1.3	3	3	5.0	1	1	2	1.7	3.0
227	35N17	NRA	SL	0.9	Conflict Point	0.0	0.0	3.2	3.3	1.3	1.3	3	3	5.0	0	5	5	1.7	3.2
232	35N23Y	TRMU	WV	5.1	Mule Creek Campground	2.2	0.0	1.5	4.2	0	1.6	3	3	4.0	5	3	2	1.3	3.0
233	35N24	NRA	WV	2.8	Bowerman	1.3	0.0	2.1	4.2	1	1.7	5	3	3.8	4	3	2	2.0	3.3
234	35N26Y	NRA	WV	2.2	Hayward Flat Campground	1.3	0.0	1.0	3.5	0	1.2	2	3	5.0	2	4	5	1.7	3.2
237	35N28Y	TRMU	WV	2.9	Granite Peak	1.3	0.0	1.2	4.2	1	1.5	3	3	4.0	0	3	2	2.1	2.4
242	35N33Y	TRMU	WV	2.0	Stuart Fork	3.1	5.0	4.7	2.6	1	3.3	3	3	4.0	2	4	5	2.4	3.3
251	35N47Y	TRMU	BB	2.8	Big East Fork, Mining, Trailhead	1.7	2.5	3.3	2.5	2	2.4	3	3	4.0	0	4	2	1.3	2.5
252	35N47Y	TRMU	BB	0.9	Big East Fork, Mining Trailhead	0.4	0.0	1.2	2.6	0	0.8	3	3	4.0	0	4	2	1.3	2.5
253	35N48	NRA	SL	1.5	Hirz Bay Recreation CG	0.0	5.0	3.5	2.1	3	2.7	3	3	5.0	0	4	2	1.7	2.7
270	35N72Y	TRMU	WV	5.4	Granite	1.3	1.5	3.2	2.6	ND	2.2	3	3	3.8	5	3	2	2.1	3.1
271	35N73Y	TRMU	WV	0.9	Stoney Ridge	1.3	2.3	3.2	3.2	ND	2.5	3	3	3.5	1	2	2	1.9	2.3
280	35N93B	SMMU	SL	0.2	Hogback L.O.	0.3	0.0	0.6	1.4	0	0.5	3	3	3.5	0	3	2	1.1	2.2
283	36N20	SMMU	MS	11.9	Slate Creek, Pvt. Easement	3.0	0.0	1.4	4.3	4	2.6	5	3	4.0	5	5	2	2.1	3.7
284	36N24	TRMU	WV	9.7	Lake Eleanor	2.1	2.7	4.0	2.9	0	2.3	3	1	3.8	5	4	2	2.0	3.0
285	36N24D	TRMU	WV	0.1	Lake Eleanor	1.5	1.9	1.7	2.6	0	1.5	3	1	3.5	0	4	2	1.9	2.2
286	36N25	TRMU	WV	3.9	Swift Creek	0.9	0.0	2.9	2.1	0	1.2	5	3	4.0	0	4	5	2.1	3.3
287	36N35	NRA	WV	8.5	Bowerman Ridge	1.1	1.6	2.7	4.4	2	2.3	5	3	3.8	5	3	2	2.0	3.4
290	36N91	NRA	WV	0.4	Jackass Spring Campground	1.0	0.0	4.4	3.3	2	2.1	3	3	1.5	0	4	2	1.1	2.1
293	37N02	SMMU	SL	10.5	Summit Lake (FA37)	1.0	0.0	3.3	4.0	0	1.7	3	3	4.3	2	4	3	1.6	3.0
294	37N08Y	TRMU	WV	8.7	Hall Gulch (FA08)	2.8	2.4	4.4	3.5	2	3.0	4	3	3.8	5	5	2	2.0	3.5
295	37N19Y	TRMU	WV	0.1	Boulder Lake, off Co. Rd. 104	0.3	5.0	4.1	2.8	0	2.4	3	3	3.0	0	2	2	1.5	2.1
302	37N48	SMMU	SL	12.6	Van Sicklin	0.0	0.0	3.8	4.1	0	1.6	3	3	3.5	5	4	2	1.1	3.1
303	37N52	TRMU	WV	3.1	Buckeye Creek	1.3	0.0	1.2	4.0	0	1.3	3	3	4.0	5	3	2	2.2	3.2
304	37N52	TRMU	WV	0.7	Buckeye Creek	1.3	3.7	3.8	3.1	0	2.4	3	3	4.0	5	2	2	2.2	3.0
305	37N53	TRMU	WV	7.0	Up Little Boulder	1.8	2.4	3.6	4.0	1	2.6	4	3	4.0	5	3	4	2.1	3.6
306	37N55	TRMU	WV	7.4	N Fk Swift Creek	0.5	2.8	3.8	4.5	1	2.5	3	3	4.0	5	4	2	2.1	3.3
307	37N55	TRMU	WV	2.7	N Fk Swift Creek	2.1	2.8	3.7	4.5	1	2.8	3	3	3.5	5	2	2	1.9	2.9
309	37N60Y	SMMU	SL	12.0	Pit River (FA50) PGE access	2.0	0.0	2.3	4.2	1	1.9	3	3	4.3	2	5	2	1.4	3.0
310	37N63Y	TRMU	WV	0.5	Coffee Cr Ranger Station	1.0	0.0	1.0	2.8	0	1.0	5	3	5.0	0	1	2	1.7	2.5
313	37N78	SMMU	SL	9.0	Iron Canyon	4.3	5.0	5.0	4.3	1	3.9	4	4	4.0	5	5	3	2.1	3.9
314	37N79	SMMU	SL	2.7	Kosk Creek	1.7	0.0	3.0	3.6	1	1.9	3	3	4.3	2	2	2	1.7	2.6
315	37N80Y	TRMU	WV	4.7	Deadhorse Cr, poss. Cost Share	0.0	3.7	3.9	2.7	0	2.0	3	3	4.0	5	3	2	1.3	3.0
316	37N81	SMMU	SL	6.9	Reynolds Creek	1.0	0.0	5.0	3.4	0	1.9	3	3	3.5	2	2	2	1.1	2.4
319	38N04Y	SMMU	MC	8.0	Star City, Pvt. Easement	0.3	0.0	3.0	4.5	ND	1.9	3	3	4.0	0	3	4	1.7	2.7
321	38N11	SMMU	MC	18.1	Hawkins Cr (FA11), Pvt. Esmnt.	2.3	0.0	3.2	3.9	2	2.3	4	3	4.5	5	5	3.5	2.1	3.9
322	38N11	SMMU	MC	9.2	Hawkins Creek (FA11)	2.3	0.0	3.2	5.0	2	2.5	4	3	4.3	5	5	2	2.5	3.7
324	38N21	SMMU	MS	19.5	Highland Lakes	2.2	3.2	5.0	2.1	1	2.7	3	3	3.8	5	3	2	2.0	3.1
325	38N22	TRMU	WV	4.4	Ripple Creek	1.9	0.0	1.8	2.5	0	1.2	3	3	4.0	3	3	2	2.1	2.9
326	38N23	SMMU	MS	0.4	Fall Creek	0.0	3.2	2.4	2.7	ND	2.1	3	3	4.5	0	2	2	2.3	1.5

Table 4-4 Forest Road Risk and Benefit Ratings (Continued)

ID#	ROAD NUMBER	MANAGEMENT UNIT 1/	RANGER DISTRICT 2/	MILES	ROAD NAME	CURRENT RESOURCE RISKS (IMPACTS)					Total Current Environmental **Risk Score**	CURRENT RESOURCE BENEFITS (ACCESS)							Total Current Environmental **Benefit Score**
						Aquatics Riparian AQ10, AQ12, AQ14	Hydrologic Process AQ1	Water Quality AQ2-5, AQ7, WP2	Terrestrial Species TW1,4	Public Use 3/ SI11		Fire Protection PT2, PT3	Fuels Management PT1	Economics EC1, EC2, EC3	Commodity Production TM2, TM3	Public Use MM1,SI3,SI4,SU1,RR6	Social Issues SI1	Access GT1-4, WP1&3, RM1	
327	38N27	TRMU	WV	7.6	Eagle Creek	2.3	1.6	3.7	2.4	0	2.0	3	3	3.8	5	3	2	2.0	3.1
328	38N34	TRMU	WV	4.5	Chinquapin	1.0	0.0	3.0	3.0	0	1.4	3	3	3.5	2	2	2	2.0	2.5
333	38N85	TRMU	WV	3.6	Scorpion Cr, possible Cost Share	2.1	0.0	2.0	2.7	1	1.5	1	3	4.0	5	3	2	1.3	2.8
335	39N05	SMMU	MC	5.1	Bartle Gap	1.7	3.0	3.5	4.4	1	2.7	1	3	3.8	2	3	2	2.7	2.5
336	39N06	SMMU	MC	0.9	Stouts Meadow	3.0	2.8	1.8	3.5	2	2.6	1	3	5.0	2	3	2	2.6	2.7
337	39N13	SMMU	MS	0.3	Girard Ridge	0.7	0.0	1.3	2.5	ND	1.1	1	1	5.0	5	2	2	2.5	2.6
338	39N17	SMMU	MS	7.3	Bradley L.O., Pvt. Easement	0.0	0.0	3.7	2.6	ND	1.6	1	3	3.5	0	5	2	1.5	2.3
339	39N20	TRMU	WV	3.7	Tangle Blue	0.7	0.0	2.9	3.6	2	1.8	1	3	3.5	5	4	2	1.9	2.9
340	39N21	SMMU	MC	4.4	Squaw Valley Cr, Pvt. Easement	3.3	5.0	5.0	3.1	2	3.7	3	3	4.0	2	3	2	1.7	2.7
345	39N25	SMMU	MS	19.0	Whalen	5.0	5.0	5.0	4.2	3	4.4	1	3	4.0	5	4	4	2.7	3.4
346	39N26	TRMU	WV	9.7	Ramshorn Mumbo	2.0	2.8	4.8	3.5	2	3.0	3	1	3.5	5	3	2	2.1	2.8
354	39N45Y	SMMU	MC	2.0	Deadhorse Road, Pvt. Easement	1.6	4.2	3.8	2.4	0	2.4	1	3	3.5	0	0	2	1.9	1.6
356	39N90	SMMU	MC	1.4	Cow Cr, possible Cost Share	3.5	3.2	3.4	2.7	2	3.0	1	3	3.5	2	2	2	1.1	2.1
357	40N02X	SMMU	MS	0.2	CAP, Powder House	0.0	0.0	1.1	2.5	ND	0.9	3	3	3.0	0	1	2	1.7	2.0
358	40N11	SMMU	MC	4.6	Sheep Heaven, possible Esmnt.	0.0	2.2	1.5	4.4	1	1.8	3	3	4.0	2	3	2	1.3	2.6
359	40N12	SMMU	MC	5.7	Bear Wallow	0.0	2.3	1.5	3.2	1	1.6	3	3	4.0	5	2	2	2.8	3.1
362	40N24Y	SMMU	MC	10.7	Tom Young (FA24)	1.0	2.9	1.8	4.4	2	2.4	3	3	4.8	5	3	2	2.5	3.3
363	40N26	SMMU	MS	20.4	South Fork (FA26)	5.0	5.0	5.0	4.4	2	4.3	3	3	4.0	5	3	4	3.0	3.6
366	40N35	SMMU	MS	1.1	Spring Hill	0.0	2.5	2.6	3.0	ND	2.0	5	3	2.5	0	2	2	1.1	2.2
368	40N38	SMMU	MC	5.5	Whitlow Ridge	0.3	2.3	1.2	4.1	3	2.2	3	3	3.0	5	4	2	1.8	3.1
372	40N44	SMMU	MC	6.6	Middle Falls	1.3	0.0	0.6	3.5	3	1.7	3	3	4.0	4	4	2	2.4	3.2
377	40N64	SMMU	MS	10.4	Toad Lake	5.0	3.1	5.0	2.8	0	3.2	3	3	2.8	5	3	2	2.0	3.0
379	40N80Y	SMMU	MC	0.7	Red Mill	0.0	3.0	2.7	3.0	0	1.7	3	3	3.0	5	2	2	1.6	2.8
380	40N88	SMMU	MS	4.3	Everitt Hill AKA Ski Park Hwy	0.0	3.1	2.6	3.6	0	1.9	3	3	5.0	5	5	2	2.7	3.7
381	40N89	SMMU	MC	4.2	Shirttail	0.0	2.6	2.8	3.6	3	2.4	1	3	4.0	2	3	2	1.8	2.4
383	41N03	SMMU	MC	8.9	Mayfield (FA03), Pvt. Easement	0.0	1.7	0.8	3.2	4	1.9	3	3	4.5	5	4	2	2.7	3.5
384	41N14	SMMU	MC	1.0	Widow Spring East	0.3	3.0	3.7	3.3	0	2.1	5	3	3.5	0	2	2	2.0	2.5
385	41N15	SMMU	MC	5.0	Widow Spring	0.3	2.3	2.2	3.1	2	2.0	5	3	4.0	5	4	2	1.8	3.5
386	41N16	SMMU	MC	2.2	Sugar Pine Butte	0.0	1.9	1.3	4.1	0	1.5	1	3	4.0	2	3	4	2.1	2.7
387	41N19	SMMU	MC	3.3	Hambone Butte	0.0	1.6	1.5	2.7	3	1.7	1	3	3.0	5	2	2	2.0	2.6
388	41N19X	SMMU	MC	11.8	Sugar Pine/Military (FA19)	0.3	2.7	2.4	4.6	3	2.6	4	3	4.0	5	3	4	2.7	3.7
389	41N26	SMMU	MS	6.8	Eddy Creek Rd	1.0	5.0	4.5	2.1	ND	3.1	3	3	4.0	4	0	2	2.1	2.6
391	41N31	SMMU	MS	22.7	McKenzie Butte (FA31)	0.7	3.1	4.0	4.2	1	2.6	5	5	4.0	5	4	4	2.4	4.2
392	41N36	SMMU	MC	8.2	Lava Spur AKA Porcupine Butte	0.3	0.0	0.5	4.2	2	1.4	3	3	3.0	5	3	2	2.0	3.0
394	41N46	SMMU	MC	1.8	Sugar Pie	0.0	2.5	3.4	4.2	1	2.2	1	3	3.5	5	2	2	2.3	2.7
395	41N53	SMMU	MS	7.0	North Fork, Pvt. Easement	2.0	0.0	5.0	3.9	4	3.0	3	3	3.5	5	4	2	1.7	3.2
396	41N60	SMMU	MS	1.6	Sand Flat Loop, Microwave Site	0.3	3.3	3.9	2.3	0	2.0	1	1	3.5	2	4	2	1.1	2.1
398	42N02	SMMU	MC	5.7	Gravel Creek	0.0	0.0	1.3	4.3	0	1.1	3	1	4.0	3	3	2	2.1	2.6
399	42N03	SMMU	MC	8.0	Red Lava	0.3	0.0	0.6	3.0	2	1.2	3	3	3.3	5	3	2	2.1	3.1
400	42N06	SMMU	MC	5.1	Asperin Butte	1.7	1.7	1.1	2.7	2	1.8	3	3	3.0	5	4	2	1.6	3.1
401	42N09	SMMU	MC	4.5	Trout Creek	3.7	5.0	5.0	3.7	3	4.1	1	3	4.0	5	4	2	2.1	3.0
402	42N10	SMMU	MC	3.1	Brewer Creek	0.3	1.3	1.3	2.9	0	1.2	1	1	4.0	2	4	2	2.1	2.3
403	42N13	SMMU	MC	22.7	Pilgrim Creek (FA13)	0.0	2.3	0.8	4.5	2	1.9	2	3	4.5	5	5	3	3.2	3.7
404	42N17	SMMU	MS	22.8	Parks Creek (FA17)	5.0	2.7	3.3	3.2	3	3.5	3	3	4.5	5	5	5	3.0	4.1
406	42N17Y	SMMU	MC	1.1	Old Pilgrim Creek	0.0	0.0	0.6	2.7	0	0.7	3	3	4.5	4	3	2	2.2	3.1
407	42N23	SMMU	MC	2.6	Black Lava	0.3	0.0	0.4	2.3	0	0.6	3	3	3.0	4	3	2	1.3	2.8
408	42N32	SMMU	MC	5.3	Harris Mtn	0.0	0.0	0.5	3.9	1	1.1	3	3	4.0	5	3	2	2.4	3.2
409	42N35	SMMU	MC	1.1	Obsidian	0.3	1.5	0.9	2.2	0	1.0	1	1	3.0	5	3	2	1.5	2.4
410	42N61	SMMU	MC	3.6	Whitnum	0.3	0.0	1.5	3.0	0	1.0	2	3	4.0	2	2	2	2.1	2.4
411	43N11	SMMU	MC	11.0	Medicine Mtn	0.3	1.4	1.1	4.1	4	2.2	3	3	3.0	5	5	2	1.5	3.2
412	43N15	SMMU	MC	27.9	Harris Spring (FA15)	1.0	1.7	1.7	4.3	4	2.5	4	3	4.8	5	5	3.4	3.3	4.1
413	43N18	SMMU	MC	4.1	Cinder Cone	0.3	0.0	0.9	2.8	3	1.4	3	3	3.3	5	3	2	1.4	3.0
415	43N26	SMMU	MC	0.8	Paint Pot	1.0	1.6	2.5	1.8	0	1.4	1	1	2.5	4	0	2	1.1	1.7

Table 4-4 Forest Road Risk and Benefit Ratings (Continued)

ID#	ROAD NUMBER	MANAGEMENT UNIT 1/	RANGER DISTRICT 2/	MILES	ROAD NAME	CURRENT RESOURCE RISKS (IMPACTS)					Total Current Environmental **Risk Score**	CURRENT RESOURCE BENEFITS (ACCESS)							Total Current Environmental **Benefit Score**
						Aquatics Riparian AQ10, AQ12, AQ14	Hydrologic Process AQ1	Water Quality AQ2-5, AQ7, WP2	Terrestrial Species TW1,4	Public Use SI11		Fire Protection PT2, PT3	Fuels Management PT1	Economics EC1, EC2, EC3	Commodity Production TM2, TM3	Public Use MM1,SI3,SI4,SU1,RR6	Social Issues SI1	Access GT1-4, WP1&3, RM1	
416	43N44	SMMU	MC	5.0	Stephens Pass (FA06)	0.3	2.3	2.8	4.1	2	2.3	3	3	3.8	5	3	2	2.0	3.1
417	43N49	SMMU	MC	19.3	Powder Hill (FA49)	0.0	1.6	1.3	4.4	4	2.2	4	3	4.5	5	5	3.8	2.3	3.9

1/ NRA = National Recreation Area **SFMU** = South Fork Management Unit **SMMU** = Shasta McCloud Management Unit **TRMU** = Trinity River Management Unit

2/ BB = Big Bar Ranger District **HF** = Hay Fork Ranger District **MC** = McCloud Ranger District **MS** = Mt. Shasta Ranger District **SL** = Shasta Lake Ranger District **WV** = Weaverville Ranger District **YB** = Yolla Bolla Ranger District

3/ ND = No data available

Shasta-Trinity National Forest Roads Analysis Report

CHAPTER 5

DESCRIBING OPPORTUNITIES AND SETTING PRIORITIES

METHODOLOGY

Recommendations and priorities were developed by interdisciplinary teams from each of the four management units using risk and benefit ratings (**Table 4-3**) and local knowledge of individual roads and road issues. Roads were given a high, medium, or low priority for implementation. Line Officers from each unit reviewed results of the analysis and provided their input. Recommendations and priorities were made for the major access routes on the Forest (Maintenance Level 3 and 4 roads). As described in Chapter 4, short campground spurs and administrative roads were excluded from the analysis.

Methods to identify high priority roads were consistent with management objectives for each unit. Priority was based upon: high risk ratings for aquatic, riparian, hydrological process (sediment problems), water quality, and terrestrial species, and local knowledge of resource problems, current levels of use and benefit, and general road condition.

OVERALL FOREST ROAD SYSTEM

GENERAL CONCLUSIONS

The road system as a whole does not pose an unacceptable risk to ecosystem sustainability. None of the roads were identified as unacceptable based on legal, social, or land management planning criteria. However, several road segments have been identified as having a potential risk to downstream water quality or as barriers to upstream fish passage (refer to **Table 4-3** for risk ratings and **Appendix B** for criteria).

The roads in this analysis are the main routes needed by the Shasta-Trinity NF to manage and protect National Forest System lands. The *Forest Land and Resource Management Plan*, 1995, describes the multiple uses of the Forest and the need for access to these lands. Private landowners within the boundary of the National Forest also require access. The lack of sufficient funding remains an issue for maintaining the road system considered in this analysis. Additional annual funding is needed to maintain these routes to design standards according to the intended road management objectives.

It was learned that many of the culverts on the Forest are past the age of their design life. It is recommended that a culvert inventory be included as a priority recommendation along with the other priority recommendations of this report.

SUMMARY OF RECOMMENDATIONS

- Recommendations were made on 127 of the 213 roads analyzed. High priority was given to 43 of these roads. Medium priority was given to 84 roads, and low priority (no action) was given to the remaining 86 roads.
- Repair or upgrade is the action category most often identified on the high priority roads.
- A reduced Maintenance Level is recommended on 63 roads (from Maintenance Level 3 to 2).
- Relocation is recommended for one road segment on 42N17 for a total of 1.2 miles.
- Decommissioning is recommended on two road segments for a total of 5.9 miles. The two roads are: 31N20 (0.3 miles) and 41N26 (5.6 miles).
- No new construction is recommended for Maintenance Level 3 or 4 roads.
- Fourteen roads are recommended to upgrade from Maintenance Level 2 to 3 for a total of 59 miles.
- A culvert inventory is recommended.

Table 5-1 located at the end of this chapter contains a complete listing of the priority (high, medium or low), the recommended action and the effects on resources for all 213 roads in the Forest-level analysis.

The **Map Packet** located at the end of this report includes maps listed below. These maps make it easy to look at all recommendations at once and understand the spatial features along with the different road recommendations.

Map 1 Existing Forest Roads –East Side

Map 2 Existing Forest Roads – West Side

Map 3 Priority Recommendations – East Side

Map 4 Priority Recommendations –West Side

The following **Figures 5-1** through **5-3** display a graphic summary of recommendations based on priorities.

Figure 5-1 Number of Roads and Miles of Roads by Priority

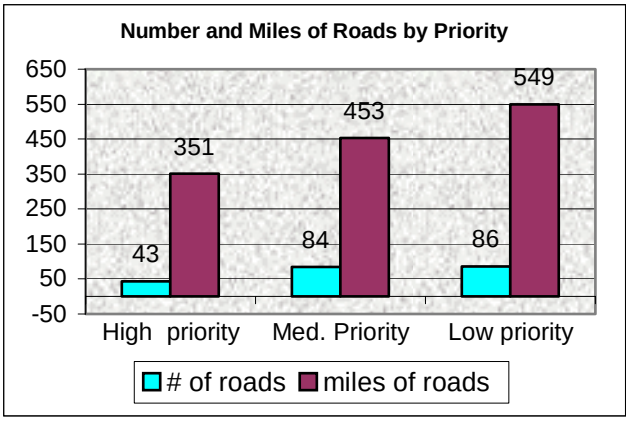


Figure 5-2 Recommendation Categories for High Priority Roads

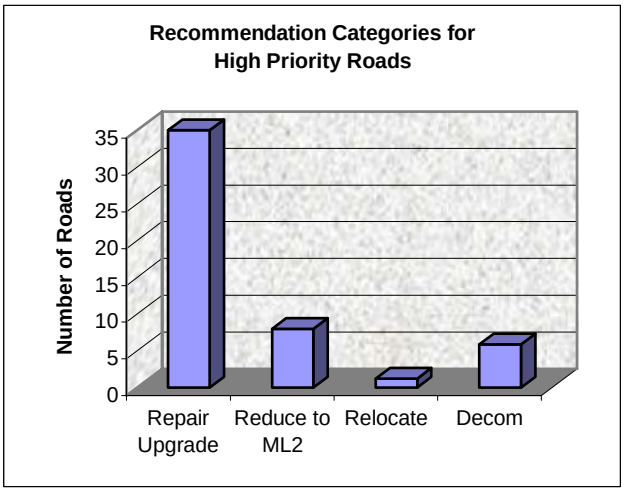
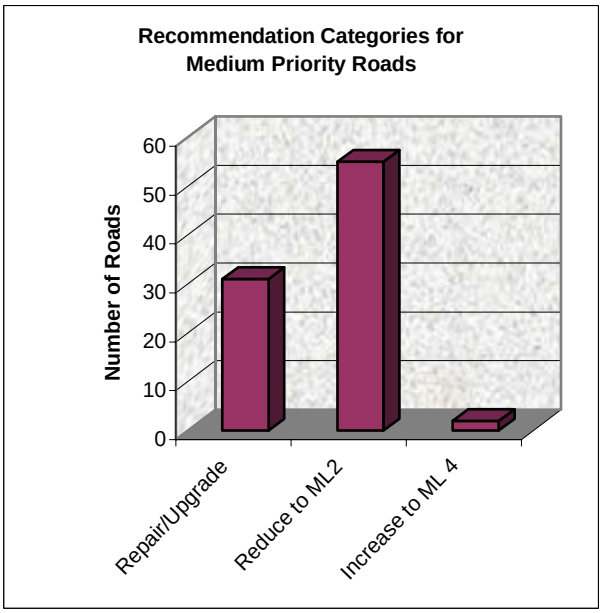


Figure 5-3 Recommendation Categories for Medium Priority Roads



RECOMMENDATIONS BY MANAGEMENT UNIT

Teams from each management unit developed recommendations during the Forest-level workshop. Representatives from each management unit considered all the available information including the risk and benefit ratings (see **Table 4-3**), mapping, and local knowledge before agreeing on their high medium and low priority roads. The results for each management unit are displayed below in **Table 5-1**.

Table 5-1 Number and Mileage of High, Medium, and Low Priority Roads by Management Unit

Management Unit	Number of Roads	Miles of Roads
HIGH PRIORITY		
National Recreation Area	4	9
South Fork	10	99
Shasta McCloud	10	136
Trinity River	19	107
TOTAL HIGH	**43**	**351**
MEDIUM PRIORITY		
National Recreation Area	4	12
South Fork	31	159
Shasta McCloud	42	258
Trinity River	7	24
TOTAL MEDIUM	**84**	**453**
LOW PRIORITY		
National Recreation Area	15	40
South Fork	31	262
Shasta McCloud	13	120
Trinity River	27	128
TOTAL LOW	**86**	**549**

It was noted during the workshop that the National Recreation Area shows a relatively low number of

roads compared to the other three management units. This is due to the high number of short recreation or administrative site roads that were not analyzed using the Forest-level roads analysis process. Many of these roads are Maintenance Level 3 or 4 and need repair or improvement.

RECOMMENDATIONS FOR SELECTED MAINTENANCE LEVEL 2 ROADS

During the course of the analysis, resource specialists expressed concerns about other roads not included in the Forest-wide analysis. In order to take advantage of their firsthand knowledge, the Forest ID Team decided to include a list of Maintenance Level 2 roads that are recommended for upgrading or road improvements; displayed in **Table 5-2**. This is not a complete survey of Level 2 roads. Additional analysis at the watershed or project level scale may indicate other recommendations.

Table 5-2 Maintenance Level 2 Roads Identified for Possible Upgrade To Maintenance Level 3

Road Number	Road Name	Miles To Upgrade	Agrmts.	Surface 1/	INFRA Road Mtc. Obj.
1S23	Horse Ridge	6.4		Nat/Agg	2
28N43	Buck Ridge	3.5		Nat	2
36N67A	Bolli	0.2		Nat	2
38N53	Ah-Di-Na	7.3	DTFS 42S Hearst	Nat	2
39N13	Girard Ridge	0.6		Bit	3
39N96	Walking Bear	1.7		Nat	2
40N45	Bear Creek	14.0	SPLC #03, R02	Agg/Nat	3
41N25Y	Cold Clear Cr.	3.3	SPLC #85	Agg/Nat	2
41N61	Cold Creek	9.2	SPLC #52, #85	Agg	2
42N16	Andesite Logging	3.4		Nat	2
42N97	Wren	0.7		Nat	1
42N97A	Finch	0.6		Nat	1
43N19	Military Pass	4.2		Agg/Nat	2
38N23	Fall Creek	4.9		Agg/Nat	3

1/ Agg = Aggregate **Bit** = Bituminous **Nat** = Natural

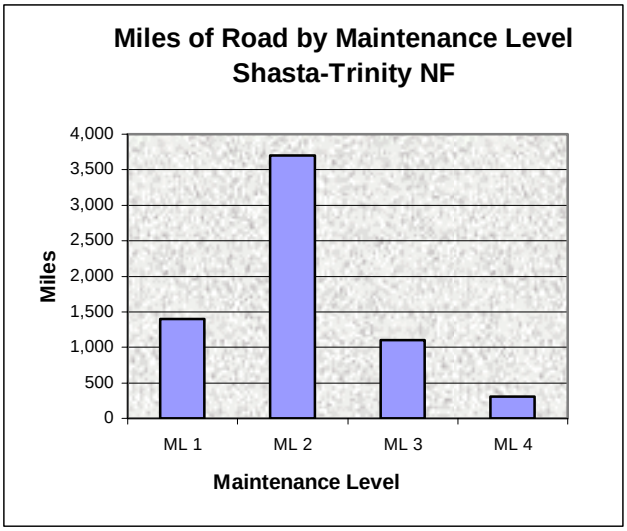
RELATIONSHIP OF ROADS ANALYSIS TO THE FOREST ROADS BUDGET

ECONOMIC HEALTH

Miles of Roads

The Shasta-Trinity National Forest has approximately 1,100 miles of Maintenance Level 3 and 308 miles of Maintenance Level 4 roads that are under Forest Service jurisdiction. There are over 5,000 miles of Maintenance Level 1 and Level 2 roads Forest-wide under Forest Service jurisdiction.

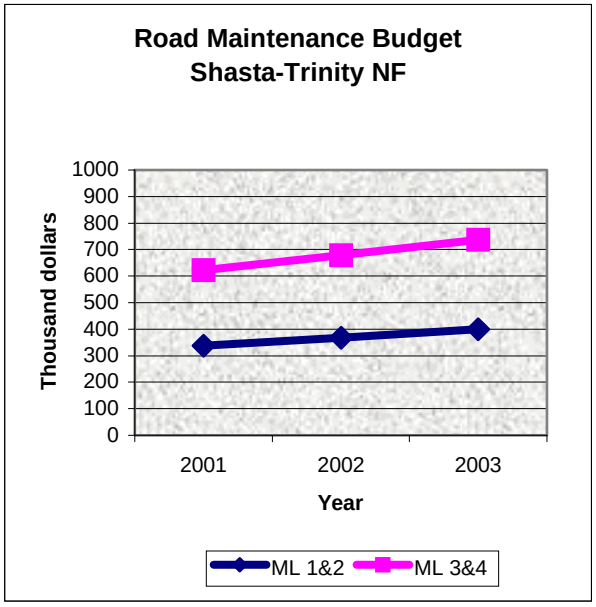
Figure 5-4 Miles of Road by Maintenance Level



Road Maintenance Budgets

The Forest's FY 2002 road maintenance budget is $677,600 for Maintenance Level 3 and Level 4 roads and $368,000 for Maintenance Level 1 and Level 2 roads. This is approximately 9% higher than the previous year's budget (FY 2001). The FY 2003 preliminary budget indicates a possible increase of about 9%, which could bring the annual maintenance dollars to approximately $763,000 for Maintenance Level 3 and Level 4 roads, and $400,000 for Maintenance Level 1 and Level 2 roads.

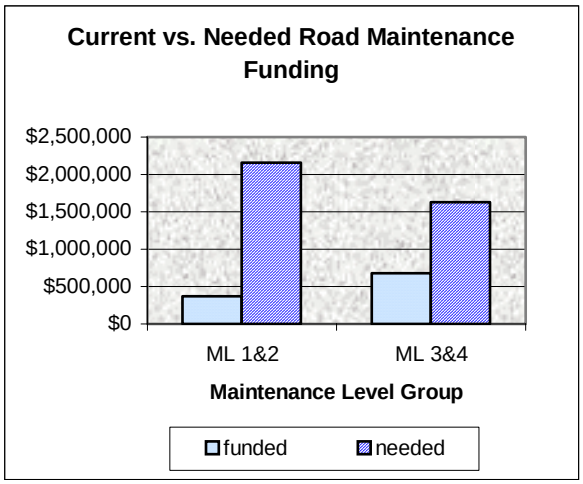
Figure 5-5 Road Maintenance Budget



Maintenance Level 3 and 4 Funding Needs

The estimated yearly cost to maintain Maintenance Level 3 and Level 4 roads to design standards, as shown in the Forest's INFRA database, is $1,629,000. The Forest receives about 42% of the needed funding for annual road maintenance of these roads (based on FY 2002) when measured against the objective of maintaining all miles annually to full design standards.

Figure 5-6 Current vs. Needed Road Maintenance



Road maintenance funding priorities are established annually based on seriousness (risk) of maintenance needs and available funding. Health and safety of forest users is the highest priority and resource protection is the next highest priority. Due to the accumulating shortfall of maintenance funding, many roads are overgrown with vegetation and lack complete and adequate drainage. A portion of the annual maintenance budget goes into deferred maintenance to return roads to design standards based on priority needs for health and safety and resource protection. This has led to a situation where only about 20% of the Forest roads are actually maintained to full design standard on an annual basis.

The amount of deferred maintenance continues to increase annually. This work includes re-surfacing, pipe replacement, bridge replacement, brushing, signing, and other items. The estimated total, accumulated deferred maintenance cost for Maintenance Level 3 and Level 4 roads is $76,900,000.

During extreme winters with high amounts of precipitation, the Forest has incurred heavy storm damage. During the 1995, 1997, and 1998 years the Forest had approximately $10 million in road damage during winter storm events. While not all damage was due to lack of annual and deferred maintenance, it was a factor in some cases.

Work identified for the high priority roads in the Forest Roads Analysis falls into three categories: deferred maintenance, decommissioning, and capital improvements. These High Priorities will be considered along with other priorities for projects in the annual maintenance plan.

Table 5-3 displays the estimated costs to accomplish high priority road management opportunities identified in the Forest Roads Analysis Process. On some roads the recommendation applies to less than the total miles of the entire road.

Table 5-3 High Priority Road Costs

Road No.	Road Name	Mgt. Unit	Mi.	Type of Work Recommended	Cost $
1N09	Naufus Cr	SFMU	2.5	Change to ML2/rock	80,000
1N12	Copper Mine	SFMU	9.6	Spot rock	700,000
1N13	Post Flume	SFMU	5.4	Repair slump	395,000
1S25	Scott Flat CG	SFMU	0.6	Rock	50,000
2N10	Indian Valley	SFMU	14.2	Upgrade culvert/fish passage/surface	840,000
4N05	Hayshed Cr	TRMU	4.2	Change to ML2	250,000
4N08	Miners Cr	SFMU	9.0	Repair slide/rock rd	300,000
4N16	Packers Cr	TRMU	8.2	Surface/annual mtc./in contracting	400,000
5N09	Big Lake	TRMU	10.3	Change to ML2	0
5N18	Ironside LO	TRMU	6.1	Surface replacement	370,000
7N01	E Fk New River	TRMU	2.5	Change to ML2	8,000
7N15	Fawn Ridge	TRMU	5.5	Brushing/agg mtc.	10,000
28N10	Stuart Gap	SFMU	40.8	Upgrade culvert/fish passage/surface	440,000
28N35	Rat Trap Gap	SFMU	15.4	Repair slump	85,000
31N20	Nat. Bridge	SFMU	0.3	Decommission (Low water crossing)	10,000
32N03	Barker Cr	SFMU	0.9	Surface/ fish passage	170,000

Table 5-3 High Priority Road Costs

Road No.	Road Name	Mgt. Unit	Mi.	Type of Work Recommended	Cost $
33N38	Weaver Bally	TRMU	2.4	Resurface	170,000
33N47	Soldier Cr	TRMU	12.3	Surface	305,000
33N85	Silverthorn Resort	NRA	1.8	Widen road/surface	240,000
34N12	Lakeview (Resort)	NRA	2.6	Upgrade culvert	415,000
34N17	Fender Ferry	SMMU	36.4	Drainage/surface	1,158,000
34N40Y	Bailey Cove CG	NRA	0.8	Widen road/ surface	550,000
34N74	Kinney Camp	TRMU	1.6	Surface/drainage improvement	125,000
35N08	Lakeshore (Sugarloaf)	NRA	3.4	Upgrade culvert/ surface	500,000
35N33Y	Stuart Fork	TRMU	2	Widen road	85,000
35N47Y	Big East Fk, Mining, TH	TRMU	2.8	Annual mtc./ change to ML2	200,000
35N72Y	Granite	TRMU	5.4	Surface native part	355,000
35N73Y	Stoney Ridge	TRMU	0.9	Spot rock/semiperm dust abate	60,000
36N24	Lake Eleanor	TRMU	9.7	Aggregate surface	655,000
37N08Y	Hall Gulch	TRMU	8.7	Spot rock/ improve drain	600,000
37N55	N Fk Swift Cr	TRMU	2.7	Aggregate surface	185,000
37N55	N Fk Swift Cr	TRMU	7.4	Aggregate surface	510,000
37N78	Iron Canyon	SMMU	9.0	Upgrade culvert/ fish passage	225,000
37N79	Kosk Cr	SMMU	2.7	Upgrade culvert	75,000
37N80Y	Deadhorse Cr	TRMU	4.7	Change to ML2	320,000
39N05	Bartle Gap	SMMU	5.1	Improve drainage/ spot rock	295,000
39N25	Whalen	SMMU	19.0	Spot rock/storm proof upgrade culvert/xdrains	610,000
39N26	Ramshorn Mumbo	TRMU	9.7	Spot rock/improve drainage/culverts	150,000
40N26	South Fork	SMMU	20.4	Stormproof	70,000
40N64	Toad Lake	SMMU	10.4	Stabilize slide/ xdrain/upgrade culvert/rock	100,000
41N26	Eddy Cr Road	SMMU	5.6	Decommission	100,000
42N09	Trout Cr	SMMU	4.5	Improve/relocate along CG	30,000
42N17	Parks Cr	SMMU	22.8	Relocate	260,000
Totals	**43 Roads**		**307.0 Miles**		**$12,456,000**

ROADS ANALYSIS AT THE WATERSHED AND PROJECT LEVEL SCALE

The Shasta-Trinity National Forest completed Phase I (pilot phase) of project level RAP in February of 2002. The pilot project included the development of a project level notebook, a Forest-wide workshop to share the experience gained from the pilot projects, and updated project level criteria. The Forest is currently in Phase II (Forest implementation) in which all road-related projects include roads analysis, where appropriate. The Forest Roads Analysis Team continues to review selected projects from each management unit. The pilot phase has demonstrated that management units have successfully incorporated roads analysis into their project planning and are applying results of the analyses into projects.

With the completion of the Forest-level roads analysis, the long-range goal is to complete roads analysis at the watershed scale. This is needed to evaluate risks and benefits of Maintenance Level 1 and Level 2 roads and to consider other issues and criteria that were not addressed at the Forest scale.

Table 5-4 Forest-Level Recommendations

ID#	ROAD NUMBER	MANAGEMENT UNIT 1/	RANGER DISTRICT 2/	MILES	ROAD NAME	RISK RATING	PRIORITY	RECOMMENDATIONS					EFFECT OF OPPORTUNITIES ON RESOURCES										REMARKS
								Repair or Upgrade	Decommission	Change Mtc. Level	Relocate	No Action	Aquatic Riparian	Hydrologic Process	Water Quality	Terrestrial Species	Fire Protection	Fuels Management	Commodity Prod	Public Use	Social Issues	Change in Mtc. Costs	
1	1N09	SFMU	HF	2.5	Naufus Creek	3.3	H	X		X 2			+	+	+	0	0	0	0	0	0	+	Rock road. Parallels Naufus Creek
2	1N12	SFMU	HF	9.6	Copper Mine	3.2	H	X					+	+	+	+	0	0	0	0	0	0	Spot rock sensitive riparian xings
3	1N13	SFMU	HF	5.4	Post Flume	3.4	H	X					+	+	+	+	0	0	0	0	0	0	Slump. Crosses N. Fork Rattle-snake
7	1S25	SFMU	HF	0.6	Scott Flat Campground	3.1	H	X					+	+	+	0	0	0	0	0	0	0	Repair vertical cut south bridge and rock road
15	2N10	SFMU	HF	14.2	Indian Valley	3.8	H	X					+	0	0	0	0	0	0	0	0	0	Fish passage concerns
27	4N05	TRMU	BB	4.2	Hayshed Creek	2.3	H			X2			0	0	0	0	0	0	0	-	-	+	Surface replacement
28	4N08	SFMU	HF	9.0	Miners Creek	3.2	H	X					+	+	+	0	0	0	0	0	0	0	Repair slide above Little Creek. Rock road.
31	4N16	TRMU	HF	8.2	Packers Creek	2.6	H	X					+	+	+	0	+	+	0	+	+		Surface: Critical annual mainte-nance need
42	5N09	TRMU	BB	10.3	Big Lake	2.4	H			X2			0	0	0	0	0	0	0	-	-	+	Annual maintenance
45	5N18	TRMU	BB	6.1	Ironside Lookout	2.1	H			X2			0	0	0	0	0	0	0	-	-	+	Surface replacement; fire needs access to lookout
56	7N01	TRMU	BB	2.5	E Fork New River	2.4	H			X2			0	0	0	0	0	0	0	-	-	+	Surface blading
57	7N15	TRMU	BB	5.5	Fawn Ridge	2.6	H	X					+	+	+	0	+	+	0	+	+		Brushing aggregate annual main-tenance need
65	28N10	SFMU	YB	40.8	Stuart Gap	3.9	H	X					+	+	+	0	0	0	0	0	0	0	Fish passage concerns
70	28N35	SFMU	YB	15.4	Rat Trap Gap	3.2	H	X					+	+	+	0	0	0	0	0	0	0	Repair small slump near south fork Beegum Bridge
110	31N20	SFMU	HF	0.3	Natural Bridge	4.5	H		X				+	+	+	+	0	0	0	-	+	+	Natural Bridge access. Low-water crossing, TES
117	32N03	SFMU	HF	0.9	Barker Creek	2.9	H	X					+	+	+	0	0	0	0	0	0	0	Fish barrier on Barker Creek
133	33N38	TRMU	WV	2.4	Weaver Bally	3.2	H	X					+	+	+	0	+	+	0	+	+	+	High use – resurface
135	33N47	TRMU	HF	12.3	Soldier Creek	2.7	H	X					+	+	+	0	+	+	0	+	+		Surfacing
151	33N85	NRA	SL	1.80	Silverthorn Resort	1.1	H	X					0	0	0	0	+	0	0	+	0		
165	34N12	NRA	SL	2.6	Lakeview Resort	2.3	H	X					+	+	+	0	0	0	0	0	0	0	Upgrade culvert, possibly recon-struct/realignment, poor construc-tion. Culverts are undersized. High potential for future failure.
173	34N17	SMMU	SL	36.4	Fender Ferry	3.2	H	X					+	+	+	-				+	+	+	Draining improvement, spot rock
185	34N40Y	NRA	SL	0.8	Bailey Cove Campground	2.2	H	X					0	0	0	0	+	0	0	+	0		
194	34N74	TRMU	WV	1.6	Kinney Camp	2.9	H	X					+	+	+	0	+	+	0	+	+		Native soil-aggregate
212	35N08	NRA	SL	3.4	Lakeshore AKA Sugarloaf	3.1	H	X					+	+	+	0	0	0	0	0	0	0	Culverts are old and undersized. Problems with failures are immi-

Table 5-4 Forest-Level Recommendations

ID#	ROAD NUMBER	MANAGEMENT UNIT 1/	RANGER DISTRICT 2/	MILES	ROAD NAME	RISK RATING	PRIORITY	RECOMMENDATIONS					EFFECT OF OPPORTUNITIES ON RESOURCES										REMARKS
								Repair or Upgrade	Decommission	Change Mtc. Level	Relocate	No Action	Aquatic Riparian	Hydrologic Process	Water Quality	Terrestrial Species	Fire Protection	Fuels Management	Commodity Prod	Public Use	Social Issues	Change in Mtc. Costs	
																							nent. Spill potential is high. High priority.
242	35N33Y	TRMU	WV	2	Stuart Fork	3.3	H	X					+	+	+	0	+	+	0	+	+	+	High use-widen surface
251	35N47Y	TRMU	BB	2.8	Big East Fork, Mining, Trail-head	2.4	H			X2			0	0	0	0	0	0	0	-	-	+	Annual maintenance, surface re-placement
270	35N72Y	TRMU	WV	5.4	Granite	2.2	H	X					+	+	+	0	+	+	0	+	+		Surface native portion
271	35N73Y	TRMU	WV	0.9	Stoney Ridge	2.5	H	X					+	+	+	0	+	+	0	+	+		Spot rock – semi-permanent dust abatement
284	36N24	TRMU	WV	9.7	Lake Eleanor	2.3	H	X					+	+	+	0	+	+	0	+	+		Aggregate
294	37N08Y	TRMU	WV	8.7	Hall Gulch	3.0	H	X					+	+	+	0	+	+	0	+	+		Spot rock-improve drainage
306	37N55	TRMU	WV	2.7	N Fk Swift Creek	2.5	H	X					+	+	+	0	+	+	0	+	+		
307	37N55	TRMU	WV	7.4	N Fk Swift Creek	2.8	H	X					+	+	+	0	+	+	0	+	+		Aggregate
313	37N78	SMMU	SL	9.02	Iron Canyon	3.9	H	X					+									+	Upgrade culverts for fish passage, TES
314	37N79	SMMU	SL	2.7	Kosk Creek	1.9	H	X					+	+	+								Drainage, culvert upsize, spot rock
315	37N80Y	TRMU	WV	4.7	Deadhorse Creek	2.0	H			X2			0	0	0	0	0	0	0	-	-	+	Surface replacement
335	39N05	SMMU	MC	5.1	Bartle Gap	2.7	H	X					+	+	+	+						+	Improve drain, spot rock
345	39N25	SMMU	MS	19.0	Whalen	4.4	H	X					+	+	+							+	Spot rock, stormproof, upsize culverts, more crossdrains, emphasis – Whalen to the west and Root Creek area
346	39N26	TRMU	WV	9.7	Ramshorn Mumbo	3.0	H	X					+	+	+	0	+	+	0	+	+	+	Spot rock – improve drainage
363	40N26	SMMU	MS	20.4	South Fork	4.3	H	X					+	+	+							+	Stormproof, TES
377	40N64	SMMU	MS	10.4	Toad Lake	3.2	H	X					+	+	+					+	+	+	Stabilize slide, crossdrain, culvert upsize, spot rock
389	41N26	SMMU	MS	5.6	Eddy Creek Road	3.1	H		X				+	+	+		+			+		+	Existing Roseburg easement
401	42N09	SMMU	MC	4.5	Trout Creek	4.1	H	X		L2 for 3.7 mi	X		+	+	+							+	Possible relocate along CG., drainage improvement, change ML to 2 for upper end of road, TES
404	42N17	SMMU	MS	22.8	Parks Creek	3.5	H	X			X		+	+	+							+	Crossdrains, culvert upsize, relocate out of Trinity River
8	1S26.	SFMU	HF	0.6	Moores	2.3	M	X					+	+	+	0	0	0	0	0	0	0	Rock road
26	3N22	SFMU	HF	8.8	Halfway Ridge	1.6	M			X 2													
33	4N16P	TRMU	BB	0.2	Poverty Flat Campground	2.5	M			X 2			0	0	0	0	0	0	0	-	-	+	
62	27N13	SFMU	YB	7.8	Cold Fork	2.9	M	X					+	+	+	0	0	0	0	0	0	0	Spot rock
63	27N17	SFMU	YB	3.1	Bolly Boundary	2.3	M	X					+	+	+	0	0	0	0	0	0	0	Rock road
66	28N19	SFMU	YB	2.3	White Rock	1.4	M			X 2													

Table 5-4 Forest-Level Recommendations

ID#	ROAD NUMBER	MANAGEMENT UNIT 1/	RANGER DISTRICT 2/	MILES	ROAD NAME	RISK RATING	PRIORITY	RECOMMENDATIONS					EFFECT OF OPPORTUNITIES ON RESOURCES										REMARKS
								Repair or Upgrade	Decommission	Change Mtc. Level	Relocate	No Action	Aquatic Riparian	Hydrologic Process	Water Quality	Terrestrial Species	Fire Protection	Fuels Management	Commodity Prod	Public Use	Social Issues	Change in Mtc. Costs	
67	28N19A	SFMU	YB	0.3	White Rock Guard Station, Primitive Campground	3.0	M			X 2													White Rock CG
68	28N23	SFMU	YB	3.9	Devils Camp	2.0	M			X 2													
69	28N35	SFMU	YB	15.1	Rat Trap Gap	2.0	M	X					+	+	+	0	0	0	0	0	0	0	Repair slide S Fork Beegum
71	28N36	SFMU	YB	5.8	Post Creek L.O.	2.9	M			X 2													Change to ML 2. Fix chronic crossing failure
72	28N40	SFMU	YB	6.9	West Low Gap	2.1	M			X 2													ML 2 between 28N43 loop
73	28N49	SFMU	YB	5.3	Bierce Ridge	1.4	M			X 2													
75	28N64	SFMU	YB	3.6	Round Mtn	2.1	M	X					+	+	+	0	0	0	0	0	0	0	Repair slide
76	29N02	SFMU	YB	5.2	Knob Peak L.O.	2.0	M	X					+	+	+	0	0	0	0	0	0	0	
77	29N03	SFMU	YB	0.7	Primitive Campgrund	1.5	M			X 2													
78	29N06	SFMU	YB	6.6	Beegum Gorge	2.1	M	X		X 2			+	+	+	0	0	0	0	0	0	0	Rock road. Needs crossdrains
79	29N07	SFMU	YB	4.0	Hall City Creek	1.6	M			X 2													
85	29N28	SFMU	YB	11.2	String Bean Creek	1.6	M	X					+	+	+	0	0	0	0	0	0	0	Spot rock
87	29N30	SFMU	YB	11.1	Wild-Mad	2.8	M	X					+	+	+	0	0	0	0	0	0	-	Chip seal. Widen clearing
88	29N30	SFMU	YB	2.9	Wild-Mad	2.8	M	X					+	+	+	0	0	0	0	0	0	0	Rock or chip seal
90	29N33	SFMU	YB	6.8	Panther Ridge	1.8	M			X 2													
91	29N41	SFMU	YB	5.2	Baker Flat	1.7	M			X 2													
92	29N44	SFMU	YB	0.8	N Fk Beegum Campground	2.9	M	X					+	+	+	0	0	0	0	0	0	0	N Fork Beegum CG. Rock road
94	29N48	SFMU	YB	1.7	N Fk Smokey Creek	2.1	M			X 2													
96	29N62	SFMU	HF	6.2	Peyton Creek	1.6	M			X 2													
99	30N02	SFMU	YB	2.2	Fox Gulch	1.5	M	X					+	+	+	0	0	0	0	0	0	0	Repair slide
100	30N04	SFMU	YB	4.6	Potato Creek	1.7	M			X 2													
106	30N34	SFMU	HF	2.7	Lower Philpot	2.1	M			X 2													TES
109	31N19	SFMU	HF	3.6	Bridge Gulch	2.8	M	X		X 2			+	+	+	0	0	0	0	0	0	0	Change to ML 2 from 31N42 to Wildwood Road. Rock road
111	31N29	SFMU	HF	4.6	East Tule Creek	2.1	M	X					+	+	+	0	0	0	0	0	0	0	Repair slump, TES
112	31N31	SFMU	HF	7.3	Main Tule	2.4	M	X					+	+	+	0	0	0	0	0	0	0	Fish barrier Tule Creek
116	31N42	SFMU	HF	7.9	East Kingsbury	2.1	M			X 2													Change to ML 2 from int 31N18
159	34N07Y	TRMU	BB	12.0	Hobo Gulch	1.6	M	X															Surface, high rec; turnouts needed
161	34N08	NRA	SL	0.9	North O'Brian	1.1	M	X					0	0	0	0	+	0	0	+	0		
174	34N17Y	TRMU	WV	2.5	Red Flat	1.3	M			X 2			0	0	0	0	0	0	0	-	-	+	
182	34N30	NRA	WV	10.1	Papoose	3.0	M	X		X2			+	+	+	0	0	0	0	0	0	+	Surfacing of native portions, TES
191	34N51	TRMU	WV	1.1	Buckeye	1.3	M			X 2			0	0	0	0	0	0	0	-	-	+	
203	34N95	TRMU	WV	4.6	Musser Hill	1.5	M	X															Gate control problems
206	35N02X	NRA	WV	1.0	Minersville Campground	1.1	M	X															**Minersville** CIP reconstruction w/in 3 years

Table 5-4 Forest-Level Recommendations

ID#	ROAD NUMBER	MANAGEMENT UNIT 1/	RANGER DISTRICT 2/	MILES	ROAD NAME	RISK RATING	PRIORITY	RECOMMENDATIONS					EFFECT OF OPPORTUNITIES ON RESOURCES										REMARKS
								Repair or Upgrade	Decommission	Change Mtc. Level	Relocate	No Action	Aquatic Riparian	Hydrologic Process	Water Quality	Terrestrial Species	Fire Protection	Fuels Management	Commodity Prod	Public Use	Social Issues	Change in Mtc. Costs	
209	35N06	SMMU	SL	8.6	Sugarloaf Mtn, Pvt. Easement	1.4	M			X 2				+		+						+	Drop to ML 2 from ridge on out, ML 3 to lookout, drainage
280	35N93B	SMMU	SL	0.3	Hogback L.O.	0.6	M			X 2						+						+	
283	36N20	SMMU	MS	11.9	Slate Creek, Pvt. Easement	2.6	M			X 2				+	+	+						+	From Incline Cr up, drop to ML 2, Sanford possible, TES
285	36N24D	TRMU	WV	0.1	Lake Eleanor	1.5	M	X															Aggregate
290	36N91	NRA	WV	0.4	Jackass Spring Campground	2.1	M	X															Road w/in Recreation Facility, (AQ) Surface
293	37N02	SMMU	SL	10.5	Summit Lake	2.1	M	X					+	+	+					+		+	Improve drainage, TES
302	37N48	SMMU	SL	12.6	Van Sicklin	1.6	M			X 2						+						+	TES
309	37N60Y	SMMU	SL	12.0	Pit River	1.9	M	X					+	+	+					+	+		Drainage, stability, TES
316	37N81	SMMU	SL	6.9	Reynolds Creek	1.9	M			X 2				+									Drop to ML 2, stormproof, drainage
319	38N04Y	SMMU	MC	8.01	Star City	2.0	M			X 2						-							Drop to ML 2 from Star City up
321	38N11	SMMU	MC	18.2	Hawkins Creek	2.5	M			X 4-5			+	+	+					+	+	+	Up to Level 4 or 5 from Big Bend to Iron Canyon, give to County, drainage, TES
322	38N11	SMMU	MC	9.2	Hawkins Creek	2.3	M	X					+	+	+					+	+		Slope stabilize, drain, TES
324	38N21	SMMU	MS	19.5	Highland Lakes	2.7	M	X		X 2			+	+	+	+						+	Upgrade crossings for POC, drop ML 2 Highland to Whalen
326	38N23	SMMU	MS	0.4	Fall Creek Road	2.1	M			X 3			+	+	+	-	+			+		-	Raise to ML 3 for entire length
333	38N85	TRMU	WV	3.6	Scorpion Creek	1.5	M			X 2			0	0	0	0	0	0	0	-	-	+	
337	39N13	SMMU	MS	0.3	Girard Ridge	1.1	M			X 2						+						+	Drainage
338	39N17	SMMU	MS	7.3	Bradley L.O.	1.6	M			X 2				+	+	+						+	Drainage
340	39N21	SMMU	MC	4.4	Squaw Valley Creek	3.7	M			X 2													
354	39N45Y	SMMU	MC	2.0	Deadhorse Road	2.4	M			X 2						+				+			PCT access, drop to ML 2
356	39N90	SMMU	MC	1.4	Cow Creek	3.0	M			X 2			+	+	+	+						+	Needs drainage drop to ML 2
357	40N02X	SMMU	MS	0.2	Cap	0.9	M			X 2						+						+	
358	40N11	SMMU	MC	4.6	Sheep Heaven	1.8	M			X 2						+						+	TES
359	40N12	SMMU	MC	5.7	Bear Wallow	1.6	M			X 2				+		+						+	Drop to ML 2, spot rock
366	40N35	SMMU	MS	1.1	Spring Hill	2.0	M			X 2						+						+	
368	40N38	SMMU	MC	5.5	Whitlow Ridge	2.2	M			X 2						+						+	Drop to ML 2, maintain rock in riparian, TES
379	40N80Y	SMMU	MC	0.7	Red Mill	1.7	M			X 2						+						+	
381	40N89	SMMU	MC	4.2	Shirttail	2.4	M			X 2						+						+	Drop to ML 2, spot rock
384	41N14	SMMU	MC	1.0	Widow Spring East	2.1	M			X 2						+	-					+	Fire escape route
385	41N15	SMMU	MC	5.0	Widow Spring	2.0	M	X						+									Spot rock, drainage, TES
386	41N16	SMMU	MC	2.2	Sugar Pine Butte	1.5	M			X 2				+		+					+	+	Low water crossing

Table 5-4 Forest-Level Recommendations

ID#	ROAD NUMBER	MANAGEMENT UNIT 1/	RANGER DISTRICT 2/	MILES	ROAD NAME	RISK RATING	PRIORITY	RECOMMENDATIONS					EFFECT OF OPPORTUNITIES ON RESOURCES										REMARKS
								Repair or Upgrade	Decommission	Change Mtc. Level	Relocate	No Action	Aquatic Riparian	Hydrologic Process	Water Quality	Terrestrial Species	Fire Protection	Fuels Management	Commodity Prod	Public Use	Social Issues	Change in Mtc. Costs	
387	41N19	SMMU	MC	3.3	Hambone Butte	1.8	M			X 2						+						+	
388	41N19X	SMMU	MC	11.8	Sugar Pine/Military	2.6	M	X					+	+	+								Improve drain below 41N12, TES
391	41N31	SMMU	MS	22.7	Mckenzie Butte	2.6	M	X						+						+	+	-	Upgrade Ash Creek crossing, TES
394	41N46	SMMU	MC	1.8	Sugar Pie	2.2	M			X 2				+		+						+	Drop to ML 2, resize culverts
395	41N53	SMMU	MS	7.0	North Fork	3.0	M			X 2			+	+	+	+				-		+	Down to ML2, improve drainage, TES
396	41N60	SMMU	MS	1.6	Sand Flat Loop	2.0	M	X												+	+	-	Spot rock
398	42N02	SMMU	MC	5.7	Gravel Cr	1.1	M			X 2						+						+	ML 2 from 42N10, TES
399	42N03	SMMU	MC	8.0	Red Lava	1.2	M			X 2						+						+	ML 2 from Lava spur
415	43N26	SMMU	MC	0.8	Paint Pot	1.4	M			X 2						+						+	
416	43N44	SMMU	MC	5.0	Stephens Pass	2.3	M	X										+		+	+	+	Spot rock, TES
4	1N24	SFMU	HF	6.6	Mc Clellen	1.7	L					X											
5	1S14	SFMU	HF	14.5	Bear Wallow	2.8	L					X											
11	2N01	SFMU	HF	5.0	Indian Butter Tie	2.6	L					X											
12	2N03	SFMU	HF	3.8	Buck Gulch	2.2	L					X											
13	2N07	SFMU	HF	10.4	Post Mtn	2.2	L					X											
16	2N10	SFMU	HF	7.0	Indian Valley	2.5	L					X											
17	2N16	SFMU	HF	12.6	Limedyke L.O.	2.9	L					X											
19	3N08	SFMU	HF	15.9	Butter Creek	1.9	L					X											
20	3N10	SFMU	HF	10.4	Pelletreau	2.0	L					X											Obtain ROW access
22	3N14	SFMU	HF	5.7	Kerlin Creek	2.1	L					X											
25	3N21	SFMU	HF	3.3	Fir Root Springs	1.2	L					X											Fir Root Spring
29	4N11	TRMU	BB	13.8	Eagle Rock	2.2	L					X											
30	4N12	SFMU	HF	10.8	South Fk Mtn	2.4	L					X											
32	4N16	SFMU	HF	9.8	Packers Creek	2.3	L					X											
35	4N29	TRMU	BB	3.2	Corral Creek	2.2	L					X											
400	42N06	SMMU	MC	5.1	Asperin Butte	1.9	M			X 2						+						+	
407	42N23	SMMU	MC	2.6	Black Lava	0.6	M			X 2						+						+	
409	42N35	SMMU	MC	1.1	Obsidian	1.0	M			X 2						+						+	Drop to ML 2
410	42N61	SMMU	MC	3.6	Whitnum	1.0	M			X 2						+						+	Drop to ML 2
411	43N11	SMMU	MC	11.0	Medicine Mtn	2.2	M			X 4						-	+			+	+	+	Raise to ML 4, TES
413	43N18	SMMU	MC	4.1	Cinder Cone	1.4	M			X 2						+						+	
37	4N41	TRMU	BB	1.4	Chaparral	2.0	L					X											
38	4N47	TRMU	BB	9.8	Corral Bottom	2.8	L					X											Critical annual maintenance need
40	5N04	TRMU	BB	8	Big Mtn L.O.	2.8	L					X											Critical annual maintenance need
43	5N13	TRMU	BB	3.6	Big French Creek Trailhead	2.1	L					X											
44	5N13	TRMU	BB	8.9	Big French Creek	1.8	L					X											

Table 5-4 Forest-Level Recommendations

ID#	ROAD NUMBER	MANAGEMENT UNIT 1/	RANGER DISTRICT 2/	MILES	ROAD NAME	RISK RATING	PRIORITY	RECOMMENDATIONS					EFFECT OF OPPORTUNITIES ON RESOURCES										REMARKS
								Repair or Upgrade	Decommission	Change Mtc. Level	Relocate	No Action	Aquatic Riparian	Hydrologic Process	Water Quality	Terrestrial Species	Fire Protection	Fuels Management	Commodity Prod	Public Use	Social Issues	Change in Mtc. Costs	
52	5N60	TRMU	HF	19.3	Underwood Mtn	2.3	L					X											
53	6N04	TRMU	BB	4.4	Devils Canyon Trailhead	1.5	L					X											
58	7N26	SFMU	HF	10.1	Happy Camp Mtn Rd.	N/A	L					X											Happy Camp Mtn. Road, Maintained by Six Rivers NF
59	27N02	SFMU	YB	6.8	Jones Ridge	2.7	L					X											
60	27N06	SFMU	YB	3.7	Tomhead Mtn Electronic site	1.5	L					X											
74	28N62	SFMU	YB	2.0	Hulse, Trailhead	1.3	L					X											Stuart Gap Trailhead
98	30N01	SFMU	YB	11.1	Browns Creek	1.9	L					X											
101	30N15	SFMU	YB	2.9	Chanchelulla GU	1.4	L					X											
102	30N29	SFMU	YB	22.4	Bramlet	2.6	L					X											
103	30N30	SFMU	HF	2.5	Double Plate	1.5	L					X											
104	30N31	SFMU	HF	4.8	Plummer Peak L.O.	2.3	L					X											
107	30N44	SFMU	YB	0.4	Gemmill Tie	0.7	L					X											Short Deerlick tie-in
108	31N02	SFMU	YB	7.6	County Line	1.2	L					X											Browns Creek road
113	31N32	SFMU	HF	6.4	Philpot	2.7	L					X											
134	33N44	TRMU	BB	3.6	Rose Ranch	1.1	L					X											
136	33N52	TRMU	BB	4.4	Hayfork Bally L.O.	1.8	L					X											
147	33N83	NRA	SL	0.5	Centimudi	0.9	L					X											Centimudi Road within Recreation Facility
150	33N84	SFMU	HF	10.8	Soldier 10	2.6	L					X											
154	33N86	NRA	SL	2.5	Jones Valley Resort	3.3	L					X											Bituminous surface mitigates hydrological issues
177	34N27	NRA	SL	1.7	Packers Bay	2.3	L					X											Great road, hydrologic impacts are mitigated
86	29N30	SFMU	YB	18.1	Wild-Mad	2.7	L					X											
89	29N32	SFMU	YB	5.7	Dubakella	1.8	L					X											
93	29N45	SFMU	YB	17.9	Tedoc Gap	2.4	L					X											
95	29N58	SFMU	HF	9.0	Rattlesnake RG	2.4	L					X											
97	29N75	SFMU	YB	4.3	Upper Smokey	1.3	L					X											
181	34N30	NRA	WV	0.5	Papoose	3	L					X											Paved portion over dam, TES
195	34N74B	TRMU	WV	1.4	Kinney Camp	1.1	L					X											
196	34N76	NRA	WV	3.0	Pettijohn	1.8	L					X											TES
197	34N80	NRA	WV	9.3	Haylock Ridge	1.6	L					X											LSR
204	34N97	TRMU	WV	1.0	Rush Creek Campground	1.0	L					X											
215	35N10	TRMU	WV	0.4	East Stuart	0.9	L					X											
217	35N14	NRA	SL	2.3	Antlers	0.8	L					X											
222	35N14Y	NRA	WV	1.2	Alpine View	2.1	L					X											

Table 5-4 Forest-Level Recommendations

ID#	ROAD NUMBER	MANAGEMENT UNIT 1/	RANGER DISTRICT 2/	MILES	ROAD NAME	RISK RATING	PRIORITY	RECOMMENDATIONS					EFFECT OF OPPORTUNITIES ON RESOURCES										REMARKS
								Repair or Upgrade	Decommission	Change Mtc. Level	Relocate	No Action	Aquatic Riparian	Hydrologic Process	Water Quality	Terrestrial Species	Fire Protection	Fuels Management	Commodity Prod	Public Use	Social Issues	Change in Mtc. Costs	
223	35N15	NRA	SL	2.2	Gregory Creek	1.3	L					X											
226	35N16	NRA	SL	0.9	Halfway Cove	1.3	L					X											
227	35N17	NRA	SL	0.9	Conflict Point	1.6	L					X											Terrestrial rating needs to be validated in comments, rd. density = high
232	35N23Y	TRMU	WV	5.1	Mule Creek Campground	1.6	L					X											
233	35N24	NRA	WV	2.8	Bowerman	1.7	L					X											
234	35N26Y	NRA	WV	2.2	Hayward Flat Campground	1.2	L					X											
237	35N28Y	TRMU	WV	2.9	Granite Peak	1.5	L					X											
252	35N47Y	TRMU	BB	0.9	Big East Fork, Mining Trailhead	0.8	L					X											
253	35N48	NRA	SL	1.5	Hirz Bay Recreation Campground	2.7	L					X											Hirz Bay hydrological/water quality concerns are mitigated
286	36N25	TRMU	WV	3.9	Swift Creek	1.2	L																
287	36N35	NRA	WV	8.5	Bowerman Ridge	2.3	L					X											LSR, old-growth habitat
295	37N19Y	TRMU	WV	0.1	Boulder Lake, off Co. Rd. 104	2.4	L					X											
303	37N52	TRMU	WV	0.7	Buckeye Creek	1.3	L					X											
304	37N52	TRMU	WV	3.1	Buckeye Creek	2.4	L					X											
305	37N53	TRMU	WV	7.0	Up Little Boulder	2.6	L					X											Critical annual maintenance need
310	37N63Y	TRMU	WV	0.5	Coffee Cr Ranger Station	1.0	L					X											
325	38N22	TRMU	WV	4.4	Ripple Creek	1.2	L					X											
326	38N23	SMMU	MS	0.4	Fall Creek Road (ML2)	2.1	L																
327	38N27	TRMU	WV	7.6	Eagle Creek	2.0	L					X											
328	38N34	TRMU	WV	4.5	Chinquapin	1.4	L					X											
336	39N06	SMMU	MC	0.9	Stouts Meadow	2.6	L					X											
339	39N20	TRMU	WV	3.7	Tangle Blue	1.8	L					X											
362	40N24Y	SMMU	MC	10.7	Tom Young	2.4	L					X											TES
372	40N44	SMMU	MC	6.6	Middle Falls	1.7	L					X											
380	40N88	SMMU	MS	4.3	Everitt Hill AKA Ski Park Hwy	1.9	L					X											
383	41N03	SMMU	MC	8.9	Mayfield	1.9	L					X											
392	41N36	SMMU	MC	8.2	Lava Spur AKA Porcupine Butte	1.4	L					X											
402	42N10	SMMU	MC	3.1	Brewer Creek	1.2	L					X											
403	42N13	SMMU	MC	22.7	Pilgrim Creek	1.9	L					X											TES
406	42N17Y	SMMU	MC	1.1	Old Pilgrim Creek	0.7	L					X											
408	42N32	SMMU	MC	5.3	Harris Mtn	1.1	L					X											TES
412	43N15	SMMU	MC	27.9	Harris Spring	2.5	L					X											TES

Table 5-4 Forest-Level Recommendations

ID#	ROAD NUMBER	MANAGEMENT UNIT 1/	RANGER DISTRICT 2/	MILES	ROAD NAME	RISK RATING	PRIORITY	RECOMMENDATIONS					EFFECT OF OPPORTUNITIES ON RESOURCES										REMARKS
								Repair or Upgrade	Decommission	Change Mtc. Level	Relocate	No Action	Aquatic Riparian	Hydrologic Process	Water Quality	Terrestrial Species	Fire Protection	Fuels Management	Commodity Prod	Public Use	Social Issues	Change in Mtc. Costs	
417	43N49	SMMU	MC	19.3	Powder Hill	2.3	L					X											TES

1/ **NRA** = National Recreation Area **SFMU** = South Fork Management Unit **SMMU** = Shasta McCloud Management Unit **TRMU** = Trinity River Management Unit
2/ **BB** = Big Bar Ranger District **HF** = Hay Fork Ranger District **MC** = McCloud Ranger District **MS** = Mt. Shasta Ranger District **SL** = Shasta Lake Ranger District
WV = Weaverville Ranger District **YB** = Yolla Bolla Ranger District

KEY TO TABLE 5-4 ENTRIES FOR MANAGEMENT OPPORTUNITY

Repair or Upgrade:
X = Repair or upgrade is recommended.
Blank = Repair or upgrade is not recommended.

Decommission:
X = Permanent road decommission is recommended.
Blank = Permanent road decommission is not recommended.

Change Mtc. Level:
X = Change in the maintenance level is recommended.
Blank = Change in the maintenance level is not recommended.

Relocate:
X = Relocating the road is recommended.
Blank = Relocating the road is not recommended.

No Action:
X = No action is recommended.

KEY TO TABLE 5-4 ENTRIES FOR EFFECTS OF OPPORTUNITIES ON RESOURCES

0 = Management opportunity is predicted to have no effect on the resource rating.

+ = Management opportunity is predicted to have a "positive" effect on the resource rating.

- = Management opportunity is predicted to have a "negative" effect on the resource rating.

KEY TO TABLE 5-4 ABBREVIATIONS

TES = Threatened, endangered, or sensitive species
LSR = Late-successional reserve
PCT = Pacific Crest Trail
ROW = Right-of-way
CIP = Capital improvement project
CG = Campground
POC = Port-Orford cedar
ML2 = Road Maintenance Level 2
ML3 = Road Maintenance Level 3

Shasta-Trinity National Forest Roads Analysis Report

CHAPTER 6

DOCUMENTATION

This report represents the documentation for the Forest-Level Roads Analysis for Maintenance Level 3 and 4 roads on the Shasta-Trinity National Forest. There are no Maintenance Level 5 roads on the Forest. Documentation of the analysis can be found in Chapters 1 through 5, Appendices A through G, and the Map Packet that displays recommendations geographically.

This analysis is prepared for line officers of the Shasta-Trinity National Forest and Region 5, members of the general public, and Forest specialists preparing project and watershed-level roads analyses.

Line officers of the Shasta-Trinity National Forest were involved with the analysis process and participated in the development of management opportunities and recommendations.

Tabular reports and maps displaying results of interdisciplinary analysis are included. A summary of recommendations, management opportunities, and effects of management opportunities on resources can be found in Chapter 5.

The analysis record for this Forest-Level Roads Analysis and the *Forest Roads Atlas* is located at the Headquarters Office of the Shasta-Trinity National Forest in Redding, California. The final document will be placed on the Forest website at www.fs.fed.us/r5/shastatrinity.

A roads analysis information package that included maps, described the analysis, and requested public comment, was sent to 750+ stakeholders. A total of 28 comments were returned and the Forest ID Team reviewed these comments and incorporated them into the analysis. A copy of the public involvement plan and all public, agency, and landowner review comments are included in **Appendix C**.

Shasta-Trinity National Forest Roads Analysis Report

CHAPTER 6

DOCUMENTATION

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APPENDIX A

FOREST-LEVEL ROADS ANALYSIS GLOSSARY

Forest Road Atlas. The *Forest Road Atlas* is a key component of the Forest Transportation Atlas and, consistent with the road inventory, includes all classified and unclassified roads on Shasta-Trinity National Forest System lands. The road atlas includes, at a minimum, the location, jurisdiction, and road management objectives for classified roads and bridges, the location of unclassified roads, and management actions taken to change the status of unclassified roads.

Forest Roads. As defined in Title 23, Section 101 of the United States Code (23 U.S.C. 101), any road wholly or partly within, or adjacent to, and serving the National Forest System and which is necessary for the protection, administration, and utilization of the National Forest System and the use and development of its resources.

Forest Transportation Atlas. The *Transportation Atlas* is the official repository of transportation facility decisions for the Shasta-Trinity National Forest. It contains a current record of Forest transportation facilities. The Forest Service Infrastructure database (INFRA) is used for the storage and analysis of information in the *Transportation Atlas*.

Forest Transportation Facility. A classified road, designated trail, designated airfield, including bridges, culverts, parking lots, log transfer facilities, safety devices and other transportation network appurtenances, under Forest Service jurisdiction that is wholly or partially within or adjacent to National Forest System lands.

Forest Transportation System Management. The planning, inventory, analysis, classification, record keeping, scheduling, construction, reconstruction, maintenance, decommissioning, and other operations undertaken to achieve environmentally sound, safe, cost-effective, access for use, protection, administration, and management of National Forest System lands.

INFRA. (Infrastructure database) is a Forest Service corporate database application that provides for a consistent and accurate inventory, and financial data, of Forest Service physical assets on Forest Service lands. Each National Forest enters, manages, and reports information on the inventory of their constructed features. Roads, trails, and bridges, among other constructed features associated with the transportation system, are managed within the Travel Routes application of INFRA.

Maintenance. The act of keeping fixed assets in acceptable condition. It includes preventive maintenance normal repairs; replacement of parts and structural components, and other activities needed to preserve a fixed asset so that it continues to provide acceptable service and achieves its expected life. Maintenance excludes activities aimed at expanding the capacity of an asset or otherwise upgrading it to serve needs different from, or significantly greater than those originally intended. Maintenance includes work needed to meet laws, regulations, codes, and other legal direction as long as the original intent or purpose of the fixed asset is not changed (*Financial Health - Common Definitions for Maintenance and Construction Terms*, July 22, 1998).

National Forest System Road. A classified forest road under the jurisdiction of the Forest Service. The term “National Forest System roads” is synonymous with the term “forest development roads” as used in 23 U.S.C. 205.

New Road Construction. Activity that results in the addition of forest classified or temporary road miles (36 CFR 212.1).

Public Roads. Any road or street under the jurisdiction of and maintained by a public authority and open to public travel (23 U.S.C. 101(a)).

Road. A motor vehicle travelway over 50 inches wide, unless designated and managed as a trail. A road may be classified, unclassified, or temporary (36 CFR 212.1).

a. *Classified Roads.* Roads wholly or partially within or adjacent to National Forest System lands that are determined to be needed for long-term motor vehicle access, including State roads, County roads, privately owned roads, National Forest System roads, and other roads authorized by the Forest Service (36 CFR 212.1).

***b**. Temporary Roads.* Roads authorized by contract, permit, lease, other written authorization, or emergency operation, not intended to be a part of the Forest transportation system and not necessary for long-term resource management (36 CFR 212.1).

***c.** Unclassified Roads.* Roads on National Forest System lands that are not managed as part of the Forest transportation system, such as unplanned roads, abandoned travelways, and off-road vehicle tracks that have not been designated and managed as a trail; and those roads that were once under permit or other authorization and were not decommissioned upon the termination of the authorization (36 CFR 212.1).

Road Decommissioning. Activities that result in the stabilization and restoration of unneeded roads to a more natural state (36 CFR 212.1), (FSM 7703).

Road Maintenance. The ongoing upkeep of a road necessary to retain or restore the road to the approved road management objective (FSM 7712.3).

The Regional Office accepts this expanded definition from the WO transportation terminology website:

Road Reconstruction. Activity that results in improvement or realignment of an existing classified road as defined below:

***a.** Road Improvement.* Activity that results in an increase of an existing road's traffic service level, expansion of its capacity, or a change in its original design function.

***b.** Road Realignment.* Activity that results in a new location of an existing road or portions of an existing road and treatment of the old roadway (36 CFR 212.1).

Roads Subject to the Highway Safety Act. National Forest System roads that are open to use by the public for standard passenger cars. This includes roads with access restricted on a seasonal basis and roads closed during extreme weather conditions or for emergencies, but which are otherwise open for general public use.

Transportation Facility Jurisdiction. The legal right to control or regulate use of a transportation facility derived from fee title, an easement, an agreement, or other similar method. While jurisdiction requires authority, it does not necessarily reflect ownership

APPENDIX B

FOREST-LEVEL ROADS ANALYSIS QUESTIONS AND CRITERIA

Contents

RAP QUESTIONS USED FOR FOREST-LEVEL ROADS ANALYSIS	
Questions	**Reference Code**
Aquatic, Riparian Zone, & Water Quality (AQ) Page 45 of the August 1999 Road Analysis Guide	
AQ (1): How and where does the road system modify the surface and subsurface hydrology of the area?	AQ
AQ (2): How and where does the road system generate surface erosion?	AQ
AQ (3): How and where does the road system affect mass wasting?	AQ
AQ (4): How and where do road-stream crossings influence local stream channels and water quality?	AQ
AQ (5): How and where does the road system create potential for pollutants, such as chemical spills, oils, de-icing salts, or herbicides, to enter surface waters?	AQ
AQ (7): What downstream beneficial uses of water exist in the area? What changes in uses and demand are expected over time? How are they affected or put at risk by road-derived pollutants?	AQ
AQ (10): How and where does the road system restrict the migration and movement of aquatic organisms? What aquatic species are affected and to what extent?	AQ
AQ (12): How and where does the road system contribute to fishing, poaching, or direct habitat loss for at-risk aquatic species?	AQ
AQ (14): To what extent does the road system overlap with areas of exceptionally high aquatic diversity or productivity, or areas containing rare or unique aquatic species or species of interest?	AQ
Economics (EC) Page 80 of the August 1999 Road Analysis Guide	
EC (1): How does the road system affect the agency's direct costs and revenues? What, if any, changes in the road system will increase net revenue to the agency by reducing cost, increasing revenue, or both?	EC
EC (2): How does the road system affect the priced and non-priced consequences included in economic efficiency analysis used to assess net benefits to society?	EC
EC (3): How does the road system affect the distribution of benefits and costs among affected people?	EC
General Public Transportation (GT) Page 97 of the August 1999 Road Analysis Guide	
GT (1): How does the road system connect to public roads and provide primary access to communities?	GT
GT (2): How does the road system connect large blocks of land in other ownership to public roads (ad hoc communities, subdivisions, inholdings, and so on)?	GT
GT (3): How does the road system affect managing roads with shared ownership or with limited jurisdiction? (RS 2477, cost-share, prescriptive rights, FLPMA easements, FRTA easements, DOT easements)?	GT
GT (4): How does the road system address the safety of road users?	GT
Minerals Management (MM) Page 92 of the August 1999 Road Analysis Guide	
MM (1): How does the road system affect access to locatable, leaseable, and salable minerals?	MM
Protection (PT) Page 101 of the August 1999 Road Analysis Guide	
PT (1): How does the road system affect fuels management?	PT
PT (2): How does the road system affect the capacity of the Forest Service and cooperators to suppress wildfires?	PT
PT (3): How does the road system affect risk to firefighters and to public safety?	PT
Range Management (RM) Page 93 of the August 1999 Road Analysis Guide	
RM (1): How does the road system affect access to range allotments?	RM
Road-Related Recreation (RR) Page 107 of the August 1999 Road Analysis Guide	
RR (6): How does the road system affect access to recreational opportunities, including: Roaded/Developed recreational opportunities; Unroaded/General Forested Area recreational opportunities; and Primitive/Wilderness recreational opportunities?	RR
Social Issues (SI) Page 110 of the August 1999 Road Analysis Guide	
SI (1): What are people's perceived needs and values for scenic roads? How does road management affect people's dependence on, need for, and desire for scenic roads?	SI
SI (3): How does the road system affect access to paleontological, archaeological, and historical sites?	SI
SI (4): How does the road system affect cultural & traditional uses (such as plant gathering, & access to traditional & cultural sites) and Am. Indian treaty rights?	SI
SI (11): How does the existing road system adversely affect archeological, historic, prehistoric, cultural and traditional sites (sites)?	SI

RAP QUESTIONS USED FOR FOREST-LEVEL ROADS ANALYSIS	
Questions	**Reference Code**
Special-Use Permits (SU) Page 96 of the August 1999 Road Analysis Guide	
SU (1): How does the road system affect managing special-use permit sites (concessionaires, communications sites, utility corridors, and so on)?	SU
Commodity Production/Timber Management (TM) Page 89 of the August 1999 Road Analysis Guide	
TM (2): How does the road system affect managing the suitable timber base and other lands?	TM
TM (3): How does the road system affect access to timber stands needing silvicultural treatment?	TM
Terrestrial Species (TW) Page 75 of the August 1999 Road Analysis Guide	
TW (1) (4): What are the direct effects of the road system on terrestrial species habitat? How does the road system directly affect unique communities (plant and animal) or special features (talus slopes, cliffs, caves, abandoned mines, wetlands) in the area?	TW
Water Production (WP) Page 94 of the August 1999 Road Analysis Guide	
WP (1): How does the road system affect access, constructing, maintaining, monitoring, and operating water diversions, impoundments, and distribution canals or pipes?	WP
WP (2): How does road development and use affect water quality in municipal watersheds?	WP
WP (3): How does the road system affect access to hydroelectric power generation?	WP

RAP QUESTIONS NOT APPLIED AT THE FOREST-LEVEL	
Questions	**Application**
Aquatic, Riparian Zone, & Water Quality (AQ)	
AQ (6): How and where is the road system "hydrologically connected" to the stream system? How do the connections affect water quality and quantity (such as, the delivery of sediments and chemicals, thermal increases, elevated peak flows)?	This questions was not used because it is more appropriately applied to watershed or project level analysis. The question requires inventory data not available for the Forest-level analysis.
AQ (8): How and where does the road system affect wetlands?	The *Roads Analysis Handbook* recommends these questions be applied at the watershed scale of analysis.
AQ (9): How does the road system alter physical channel dynamics, including isolation of floodplains; constraints on channel migration; and the movement of large wood, fine organic matter, and sediment?	
AQ (11): How does the road system affect shading, litterfall, and riparian plant communities?	This question requires survey information on plant communities within riparian areas not available for the Forest-level analysis. It will be addressed in watershed or project level analyses.
AQ (13): How and where does the road system facilitate the introduction of non-native aquatic species?	The *Roads Analysis Handbook* recommends this question be applied at the watershed scale of analysis.
Administrative Use (AU)	
AU (1): How does the road system affect access needed for research, inventory, and monitoring?	Research commented that ML3 and ML4 access is adequate.
AU (2): How does the road system affect investigative or enforcement activities?	This question is covered by the General Public Transportation questions GT(1) and GT(2).
Civil Rights and Environmental Justice (CR)	
CR (1): How does the road system, or its management, affect certain groups of people (minority, ethnic, cultural, racial, disabled, and low-income groups)?	The Team determined that this question did not apply at the Forest scale for ML3 and ML4 roads.
Ecosystem Functions and Processes (EF)	
EF (1): What ecological attributes, particularly those unique to the region, would be affected by roading of currently unroaded areas.	This question pertains to unroaded areas, not addressed in the Forest-level analysis.
EF (2): To what degree do the presence, type, and location of roads increase the introduction and spread of exotic plant and animal species, insects, diseases, and parasites? What are the potential effects of such introductions to plant and animal species and ecosystem function in the area?	EF (2) and EF (3) Discussion with extended team members resulted in the decision to address this question at the watershed level. The Port-Orford cedar root disease was considered as part of the criteria addressing AQ (14).
EF (3): To what degree do the presence, type, and location of roads contribute to the control of insects, diseases, and parasites?	

RAP QUESTIONS NOT APPLIED AT THE FOREST-LEVEL	
Questions	**Application**
Ecosystem Functions and Processes (EF) (Continued)	
EF (4): How does the road system affect ecological disturbance regimes in the area?	Preliminary evaluation of this question determined that results of the analysis would be either too broad (conditions are generally the same everywhere), or two narrow (disturbances more properly mapped at the watershed level) for Forest-level analysis.
EF (5): What are the adverse effects of noise caused by developing, using, and maintaining roads?	This question did not pertain to any issue identified for the Forest-level analysis.
Protection (PT)	
PT (4): How does the road system contribute to airborne dust emissions resulting in reduced visibility and human health concerns?	This was not an issue at the Forest scale. Could be addressed at the watershed or project level scale.
Passive-Use Value (PV)	
PV (1): Do areas planned for road constructing, closure, or decommissioning have unique physical or biological characteristics, such as unique natural features and threatened or endangered species?	These questions do not apply because there are no roads recommended for construction or closure.
PV (2): Do areas planned for road construction, closure, or decommissioning have unique cultural, traditional, symbolic, sacred, spiritual, or religious significance?	
PV (3): What, if any, groups of people (ethnic groups, subcultures, and so on) hold cultural, symbolic, spiritual, sacred, traditional, or religious values for areas planned for road entry or road closure?	
PV (4): Will constructing, closing, or decommissioning roads substantially affect passive-use value?	
Road-Related Recreation (RR)	
RR (1): Is there now or will there be in the future excess supply or excess demand for roaded recreation opportunities?	The Team determined that these questions did not apply at the Forest scale for ML3 and ML4 roads.
RR (2): Is developing new roads into unroaded areas, decommissioning of existing roads, or changing maintenance of existing roads causing substantial changes in the quantity, quality, or type of roaded recreation opportunities?	
RR (3): What are the adverse effects of noise and other disturbances caused by constructing, using, and maintaining roads on the quantity, quality, or type of roaded recreation opportunities?	
RR (4): Who participates in roaded recreation in the areas affected by road constructing, changes in road maintenance, or road decommissioning?	
RR (5): What are these participants' attachments to the area, how strong are their feelings, and are alternative opportunities and locations available?	
Social Issues (SI)	
SI (5): How are roads that constitute historic sites affected by road management?	The Team determined that these questions did not apply at the Forest scale for ML3 and ML4 roads.
SI (8): How does road management affect wilderness attributes, including natural integrity, natural appearance, opportunities for solitude, and opportunities for primitive recreation?	
SI (9): What are traditional uses of animal and plant species in the area of analysis?	
SI (10): How does road management affect people's sense of place?	
SI (2): What are people's perceived needs and values for access? How does road management affect people's dependence on, need for, and desire for access?	This question is covered by Social Issues SI (1).
SI (6): How is community social and economic health affected by road management (for example, lifestyles, businesses, tourism industry, infrastructure maintenance)?	The *Roads Analysis Handbook* recommends this question be applied at Community, County, or Tribal Government scale.
SI (7): What is the perceived social and economic dependency of a community on an unroaded area versus the value of that unroaded area for its intrinsic existence and symbolic values?	This question pertains to unroaded areas, not addressed in the Forest-level analysis.

RAP QUESTIONS NOT APPLIED AT THE FOREST-LEVEL	
Questions	**Application**
Special Forest Products (SP)	
SP (1): How does the road system affect access for collecting special forest products?	This question does not apply to Forest-level roads. Issues related to access for collecting special forest products can be reviewed at the watershed/project scale.
Commodity Production/Timber Management (TM)	
TM (1): How does road spacing and location affect logging system feasibility?	The *Roads Analysis Handbook* recommends this question be applied at the watershed scale of analysis
Terrestrial Wildlife (TW)	
TW (2): How does the road system facilitate human activities that affect habitat?	The *Roads Analysis Handbook* recommends these questions be applied at the watershed scale of analysis.
TW (3): How does the road system affect legal and illegal human activities (including trapping, hunting, poaching, harassment, road kill, or illegal kill levels)? What are the effects on wildlife species?	
Unroaded Recreation (UR)	
UR(1): Is there now or will there be in the future excess supply or excess demand for unroaded recreation opportunities?	These questions pertain to unroaded areas, not addressed in the Forest-level analysis.
UR(2): Is developing new roads into unroaded areas, decommissioning of existing roads, or changing the maintenance of existing roads causing substantial changes in the quantity, quality, or type of unroaded recreation opportunities?	
UR(3): What are the adverse effects of noise and other disturbances caused by developing, using and maintaining roads, on the quantity, quality and type of unroaded recreation opportunities?	
UR(4): Who participates in unroaded recreation in the areas affected by constructing, maintaining, and decommissioning roads?	
UR(5): What are these participants' attachments to the area, how strong are their feelings, and are alternative opportunities and locations available?	

Criteria for Forest-Level Roads Analysis

The following are criteria used to answer key questions. They are grouped by those that pose **resource risks** (Impacts) and those that provide **resource benefits** (Access) as displayed in Chapter 4, **Table 4-3**.

The criteria provided have been developed with a set of basic assumptions on their applicability to a general forest area. They may be modified or dropped as necessary to reflect local conditions. Any deviations from the criteria provided in this handbook should be documented, indicating what was modified and the rationale for changes.

RESOURCE RISKS

AQUATIC, RIPARIAN ZONE, AND WATER QUALITY

QUESTION AQ (1)

How and where does the road system modify the surface and subsurface hydrology of the area? (This question seeks to identify the potential hazard of increasing peak flows in the stream system resulting in destabilization, decreased water quality and loss of aquatic habitat. Roads affect surface and subsurface water flow where they are connected to the stream channels (Wemple, Jones, Grant 1966). Criteria are chosen that define the potential hazard where existing inventory data is not available, or the actual hazard where the data is available.)

Discussion

Total Risk Rating for AQ (1) is the sum of the ratings for the four criteria given below divided by 4, and as modified by the Over-riding Considerations. If any of the criteria below are not used to evaluate this question or rate out as zero for all roads they should be excluded from the average scoring.

Over-riding Considerations:

- *If the road is less than 0.5 miles long rate its risk as 0.*
- *If the road is greater than 0.5 miles long and has a rating of 5 for Stream Channel Proximity, the overall risk rating should be 5.*

The Total Risk Rating is inserted into the Resource Risks and Benefits Table under the heading Hydrologic Processes.

1) Slope Position Road segments are measured with three slope position classes. Road lengths in each class are proportioned to calculate a total rating for the road. The assumption used to rate this criterion was that roads on lower slopes are closest to streams and, therefore, pose the greatest risk for this question (USDA Forest Service 1999). Modify or drop this criterion if this assumption is not operative in the analysis area.

Risk Rating	Slope Position
1	Upper 20% of the slope
3	Middle 60% of the slope
5	Lower 20% of the slope

Tools to consider for determining risks – GIS coverage of **slope position** and maintenance level 3 and 4 road segments created for Forest-Level RAP.

2) Stream Channel Proximity Road segments are measured within the boundaries of GIS generated Riparian Reserves. The total length of all the road segments within the Riparian Reserve is calculated as a percentage of the total road.

Risk Rating	Percent of Road In Riparian Reserve
0	Less than 1%
1	1 – 4.9%
2	5 – 9.9%
3	10 – 19.9%
4	20 – 29.9%
5	Greater than 29.9%

Tools to consider for determining risks – GIS coverage of **riparian reserve** and maintenance level 3 and 4 road segments created for Forest-Level RAP.

3) Road Density Road densities are calculated for 7th field watersheds. Road segments are given risk ratings calculated on a weighted average based on the length of road passing through each 7th field watershed. The risk rating is equivalent to the actual density calculated.

Risk Rating	Mi. Road/Square Mile
0 – 0.9	Less than 1
1 – 1.9	1 – 1.9
2 – 2.9	2 – 2.9
3 – 3.9	3 – 3.9
4 – 4.9	4 – 4.9
5	Greater than 4.9

Tools to consider for determining risks – GIS coverage of **road density** and maintenance level 3 and 4 road segments created for Forest-Level RAP.

4) Road Stream Intersects The road layer and the stream layer are overlaid in GIS and the number of intersections are totaled for each road and expressed as number of intersects per mile of road length.

Risk Rating	Number of Road Stream Intersects/Mile
0	Less than 1
1	1 – 1.9
2	2 – 2.9
3	3 – 3.9
4	4 – 4.9
5	Greater than 4.9

Tools to consider for determining risks – GIS coverage of **road stream intersects** and maintenance level 3 and 4 road segments created for Forest-Level RAP.

QUESTION AQ (2)

How and where does the road system generate surface erosion? (Surface erosion from roads varies by the factors affecting erosion rates and factors affecting delivery of eroded material to the stream system. Eroded material from roads delivered to stream channels reduces water quality and the quality of the aquatic habitat (Bilby, Sullivan and Duncan, 1989). Criteria are chosen that define the potential hazard where existing inventory data is not available, or the actual hazard where the data is available.)

Discussion

Total Risk Rating for AQ (2) is the sum of the ratings for the six criteria given below divided by 6, and as modified by the Over-riding Considerations. If any of the criteria below are not used to evaluate this question or rate out as zero for all roads they should be excluded from the average scoring. If questions AQ (3) through AQ (5), AQ (7), and WP (2) are used in the analysis, risk ratings from these five questions should be averaged with AQ (2) and inserted into the Resource Risks and Benefits Table under Water Quality.

Over-riding Considerations:

- *If any road is rated greater than 3 for Soil Type and has a Native surface rating its risk is 5.*
- *If the road is less than 0.1 miles long and does not meet number 1, rate its risk as 0.*
- *If the road is more than 0.1 miles and less than 0.5 miles long and the surface is Asphalt/Concrete, Chip Seal, or all Aggregate, rate its risk as 0.*
- *If the road is greater than 0.5 miles long and its surface is Asphalt/Concrete or Chip Seal subtract 1 from the average rating of the two criteria below.*
- *If the road is greater than 0.5 miles long and its surface is at least partially Native increase the average rating of the criteria below by 1.*
- *If the road is greater than 0.5 miles long, has a Native or Aggregate surface and has a rating of 5 for Stream Channel Proximity, the final rating will be 5.*

1) Slope Position Road segments are measured with three slope position classes. Road lengths in each class are proportioned to calculate a total rating for the road. The assumption used to rate this criterion was that roads on lower slopes are closest to streams and therefore pose the greatest risk for this question. Modify or drop this criterion if this assumption is not operative in the analysis area.

Risk Rating	Slope Position
1	Upper 20% of the slope
3	Middle 60% of the slope
5	Lower 20% of the slope

Tools to consider for determining risks – GIS coverage of **slope position** and maintenance level 3 & 4 road segments created for Forest-Level RAP.

2) Stream Channel Proximity Road segments are measured within the boundaries of GIS generated Riparian Reserves. The total of all the road segments within the Riparian Reserve is calculated as a percentage of the total road length.

Risk Rating	Percent of Road In Riparian Reserve
0	Less than 1%
1	1 – 4.9%
2	5 – 9.9%
3	10 – 19.9%
4	20 – 29.9%
5	Greater than 29.9%

Tools to consider for determining risks – GIS coverage of **riparian reserve** and maintenance level 3 & 4 road segments created for Forest-Level RAP.

3) Road Density Road densities are calculated for 7th field watersheds. Road segments are given risk ratings calculated on a weighted average based on the length of road passing through each 7th field watershed. The risk rating is equivalent to the actual density calculated.

Risk Rating	Mi. Road/Square Mile
0 – 0.9	Less than 1
1 – 1.9	1 – 1.9
2 – 2.9	2 – 2.9
3 – 3.9	3 – 3.9
4 – 4.9	4 – 4.9
5t	Greater than 4.9

Tools to consider for determining risks – GIS coverage of **road density** and Maintenance Level 3 & 4 road segments created for Forest-Level RAP.

4) Road Stream Intersects The road layer and the stream layer are overlaid in GIS and the number of intersections are totaled for each road and expressed as number of intersects per mile of road length.

Risk Rating	Number of Road Stream Intersects/Mile
0	Less than 1
1	1 – 1.9
2	2 – 2.9
3	3 – 3.9
4	4 – 4-9
5	Greater than 4.9

Tools to consider for determining risks – GIS coverage of **stream road intersects** and maintenance level 3 & 4 road segments created for Forest-Level RAP.

5) Slope Class The watershed being analyzed is mapped with classes of slope percents. With the road layer placed on top, the miles of road within each slope class can be determined. Using the table below determine the rating for the road based on the percentages of the total road length within the range of slope classes.

Risk Rating	Percent of Road in Slope Classes
0	100% of road on slopes less than 20%, or road is less than 0.5 miles long
1	Less than 10% of road on slopes greater than 40%.
2	10% to 29% of road on slopes greater than 40%
3	30% to 49% of road on slopes greater than 40%
4	50% to 69% of road on slopes greater than 40%
5	70% or more of road on slopes greater than 40%

Tools to consider for determining risks – GIS coverage of **slope class** and Maintenance Level 3 & 4 road segments created for Forest-Level RAP.

23) Soil Type Using GIS identify the road area within soil types with high erodibility rates and use the table below to determine the rating based on this percentage.

Risk Rating	Percent of Road Within High Erodibility Soil Types
0	Less than 10%
1	10 – 19%
2	20 – 29%
3	30 – 39%
4	40 – 49%
5	Greater than 50%

Tools to consider for determining risks – GIS coverages of **st_soils** and Maintenance Level 3 & 4 road segments created for Forest-Level RAP.

QUESTION AQ (3)

How and where does the road system affect mass wasting? (Mass wasting events contribute to decreased water quality and impacts to aquatic habitat. Roads can have an influence in the number, size and frequency of mass movements (Swanson, Benda, and Duncan 1987). Evaluation of hazards associated with roads needs to consider the site susceptibility to mass wasting and the proximity of the roads within the area.)

Discussion

Total Risk Rating for AQ (3) is the average of the ratings for the criteria given as modified by the Over-riding Considerations listed below. If any of the criteria below are not used to evaluate this question or rate out as zero for all roads they should be excluded from the average scoring. If questions AQ (2) through AQ (5), AQ (7), and WP (2) are used in the analysis, risk ratings from these six questions should be averaged with AQ (3) and inserted into the table under Water Quality.

Over-riding Considerations:

- *If the rating for Slope Class is 5 and the rating for Mass Movement Hazard is greater than 3, then the final rating should be 5.*

1) Slope Position Road segments are measured with three slope position classes. Road lengths in each class are proportioned to calculate a total rating for the road. The assumption used to rate this criterion was that the roads on the lower slopes are closest to streams and therefore pose the greatest risk for this question. Modify or drop this criterion if this assumption is not operative in the analysis area.

Risk Rating	Slope Position
1	Upper 20% of the slope
3	Middle 60% of the slope
5	Lower 20% of the slope

Tools to consider for determining risks – GIS coverage of **slope position** and maintenance level 3 & 4 road segments created for Forest-Level RAP.

5) Slope Class The watershed being analyzed is mapped with classes of slope percents. With the road layer placed on top, the miles of road within each slope class can be determined. Using the table below determine the rating for the road based on the percentages of the total road length within the range of slope classes

Risk Rating	Percent of Road in Slope Classes
0	100% of road on slopes less than 20%, or road is less than 0.5 miles long
1	Less than 10% of road on slopes greater than 40%.
2	10% to 29% of road on slopes greater than 40%
3	30% to 49% of road on slopes greater than 40%
4	50% to 69% of road on slopes greater than 40%
5	70% or more of road on slopes greater than 40%

Tools to consider for determining risks – GIS coverage of **slope class** and maintenance level 3 & 4 road segments created for Forest-Level RAP.

6) Mass Movement Hazard Overlay the roads layer with 5th field watersheds that have mass movement hazard ratings of Low, Moderate and High. Mass movement hazard information comes from the R5 Watershed Condition Assessment Project, April 2000.

Risk Rating	Mass Movement Considerations
0	When the road is in McCloud Flats watersheds.
1	Road greater than 50% in Low, of remainder no more than 20% in High.
2	Road greater than 50% in Moderate, of remainder greater than 50% in Low.
3	Road greater than 50% in Moderate, of remainder greater than 50% in High.
4	Road greater than 50% in High and Moderate, of remainder no more than 20% in Low.
5	Road greater than 50% in High, of remainder no more than 20% inLow.

Tools to consider for determining risks – Map of 5th field watersheds rated for Mass Movement Hazard and Maintenance Level 3 & 4 road segments created for Forest-Level RAP.

QUESTION AQ (4)

How and where do road-stream crossings influence local stream channels and water quality? (Road-stream crossings are the locations of the greatest hazard of stream channel destabilization and impacts to water quality and aquatic habitat. Impacts are from surface runoff, delivery of increased flow volumes and the potential for crossing failure and stream diversion (Wemple 1994). Hazard evaluation is enhanced with site-specific information from road log inventories.)

Discussion

Total Risk Rating for AQ (4) is the average of the ratings for the two criteria given below as modified by the Over-riding Considerations. If any of the criteria below are not used to evaluate this question or rate out as zero for all roads they should be excluded from the average scoring.

Over-riding Considerations:

- If the road is less than 0.1 mile long rate its risk as 0.
- If the road is more than 0.1 mile and less than 0.5 miles long and surface is Asphalt/Concrete, Chip Seal, or all Aggregate, rate its risk as 0.
- If the road is greater than 0.5 miles long and its surface is Asphalt/Concrete or Chip Seal subtract 1 from the average rating of the two criteria.
- If the road is greater than 0.5 miles long and its surface is at least partially Native increase the average rating of the two criteria by 1.
- If the road is greater than 0.5 miles long and has a Native or Aggregate surface and has a rating of 5 for Stream Channel Proximity, the final rating will be 5.

If questions AQ (2) through AQ (5), AQ (7), and WP (2) are used in the analysis, risk ratings from these six questions should be averaged with AQ (4) and inserted into the table under Water Quality.

2) Stream Channel Proximity Road segments are measured within the boundaries of GIS generated Riparian Reserves. The total length of all the road segments within the Riparian Reserve is calculated as a percentage of the total road length.

Risk Rating	Percent of Road In Riparian Reserve
0	Less than 1%
1	1 – 4.9%
2	5 – 9.9%
3	10 – 19.9%
4	20 – 29.9%
5	Greater than 29.9%

Tools to consider for determining risks – GIS coverage of **riparian reserve** and maintenance level 3 and 4 road segments created for Forest-Level RAP.

4) Road Stream Intersects The road layer and the stream layers are overlaid in GIS and the number of intersections are totaled for each road and expressed as number of intersects per mile of road length.

Risk Rating	Number of Road Stream Intersects/Mile
0	Less than 1
1	1 – 1.9
2	2 – 2.9
3	3 – 3.9
4	4 – 4-9
5	Greater than 4.9

Tools to consider for determining risks – GIS coverage of **stream road intersects** and Maintenance Level 3 and 4 road segments created for Forest-Level RAP.

QUESTION AQ (5)

How and where does the road system create potential for pollutants, such as chemical spills, oils, de-icing salts, or herbicides, to enter surface waters? (Pollutants enter streams where there is a potential for a spill or from surface runoff from road surfaces. The hazard is rated on the opportunity where the potential pollutants are used and the hazard where the roads would deliver the pollutant to the stream (Norris, Lorz, and Gregory 1991). The evaluation of the potential for this hazard is best done at the Forest-level and the identification of site-specific hazards is conducted at the watershed/project level where all roads are evaluated.)

Discussion

Total Risk Rating for AQ (5) is determined by the potential for chemical spills and the potential for the spill to affect water quality. Unlike the other criteria used to evaluate the risk potential for water quality the rating for AQ (5) will not be averaged with the other ratings. Using the following Over-riding Considerations the rating from AQ (5) will be added on to the average ratings for AQ (2) through AQ (4), AQ (7) and WP (2).

Over-riding Considerations:

- *Any road with a surface of Chip Seal will add 0.5 to the total risk rating.*
- *Any road with a surface of Chip Seal having a Road-Stream Intersects rating of greater than 3.9 will add 1.0 to the total risk rating.*
- *Any road identified as a potential haul route for contaminants that has a Road-Stream Intersects rating of less than 4.0 will add 0.5 to the total risk rating.*
- *Any road identified as a potential haul route for contaminants that has a Road-Stream Intersects rating of greater than 3.9 will add 1 to the total risk rating.*

22) Opportunity Identification Identify, on a road-by-road basis the potential for chemical spills or the use of the road as a haul route for potential pollutants such as herbicides, oils, or de-icing salts. If no part of the road is used for such a haul route the rating for this question is zero. If all or a portion of the road is used as a haul route for potential pollutants,

continue evaluation with the other criteria for this question.

Tools to consider for determining risks – Maps, inventories, or local knowledge of use of road as a haul route for potential pollutants such as herbicides, oils, or de-icing salts, and the potential for chemical spills.

4) Road Stream Intersects The road layer and the stream layer are overlaid in GIS and the number of intersections are totaled for each road and expressed as number of intersects per mile of road length.

Risk Rating	# of Road Stream Intersects/Mile
0	Less than 1
1	1 – 1.9
2	2 – 2.9
3	3 – 3.9
4	4 – 4-9
5	Greater than 4.9

Tools to consider for determining risks – GIS coverage of **stream road intersects** and maintenance level 3 and 4 road segments created for Forest-Level RAP.

QUESTION AQ (7)

What downstream beneficial uses of water exist in the area? What changes in uses and demand are expected over time? How are they affected or put at risk by road-derived pollutants? (Beneficial uses can be identified for larger scale watersheds and tiered down to the smaller size watersheds contained within them. Roads will be evaluated for their potential effects to these beneficial uses based on the density of roads in a watershed and their potential for affecting water quality.)

Discussion

Total Risk Rating for AQ (7) is the average of the ratings for the five criteria given below. If any of the criteria below are not used to evaluate this question or rate out as zero for all roads they should be excluded from the average scoring.

Over-riding Consideration:

- *Any road segment that has a Risk Rating of 5 for Stream Channel Proximity will have an overall rating of 5 in the tables*.

If questions AQ (2) through AQ (5) are used in the analysis, risk ratings from these questions should be averaged with AQ (7) and inserted into the tables under Water Quality. (WP (2) is not included here as it is used only for municipal watersheds)

1) Slope Position Road segments are measured with three slope position classes. Road lengths in each class are proportioned to calculate a total rating for the road.

Risk Rating	Slope Position
1	Upper 20% of the slope
3	Middle 60% of the slope
5	Lower 20% of the slope

Tools to consider for determining risks – GIS coverage of **slope position** and maintenance level 3 and 4 road segments created for Forest-Level RAP.

2) Stream Channel Proximity Road segments are measured within the boundaries of GIS generated Riparian Reserves. The total length of all the road segments within the Riparian Reserve is calculated as a percentage of the total road length.

Risk Rating	Percent of Road In Riparian Reserve
0	<Less than 1%
1	1 – 4.9%
2	5 – 9.9%
3	10 – 19.9%
4	20 – 29.9%
5	Greater than 29.9%

Tools to consider for determining risks – GIS coverage of **riparian reserve** and Maintenance Level 3 and 4 road segments created for Forest-Level RAP.

3) Road Density Road densities are calculated for 7th field watersheds. Road segments are given risk ratings calculated on a weighted average based on the length of road passing through each 7th field watershed. The risk rating is equivalent to the actual density calculated.

Risk Rating	Miles of Road/Square Mile
0 – 0.9	Less than 1
1 – 1.9	1 – 1.9
2 – 2.9	2 – 2.9
3 – 3.9	3 – 3.9
4 – 4.9	4 – 4.9
5t	Greater than 4.9

Tools to consider for determining risks – GIS coverage of **road density** and maintenance level 3 and 4 road segments created for Forest-Level RAP.

4) Road Stream Intersects The road layer and the stream layer are overlaid in GIS and the number of intersections are totaled for each road and expressed as number of intersects per mile of road length.

Risk Rating	Number of Road Stream Intersects/Mile
0	Less than 1
1	1 – 1.9
2	2 – 2.9
3	3 – 3.9
4	4 – 4-9
5	Greater than 4.9

Tools to consider for determining risks – GIS coverage of **stream road intersects** and Maintenance Level 3 and 4 road segments created for Forest-Level RAP.

12) Inventory of Beneficial Uses Beneficial uses are identified at the 6th field watershed level and the watershed is rated as having low, moderate, or high beneficial uses within them. Risk ratings are assigned to each road based on both qualitative and quantitative evaluation as follows:

Risk Rating	Beneficial Use Value
1	Watershed contributes to but does not contain beneficial uses, or road is more than 70% within a low beneficial use watershed
3	Road is more than 70% within a moderate beneficial use rated watershed, or is equally distributed between low and high rated watersheds.
5	Road is more than 70% within a high beneficial use rated watershed, or is more than 50% in a high rated watershed with the remainder all in a moderate rated watershed.

Tools to consider for determining risks – Inventories of Beneficial Uses and road maps.

QUESTION AQ (10)

How and where does the road system restrict the migration and movement of aquatic organisms? What aquatic species are affected and to what extent? (This question is best answered at the Watershed/Project Level combining indicators of potential movement restriction with inventoried data of known restrictions and the aquatic species affected.)

Discussion

Total Risk Rating for AQ (10) is the rating for the single criterion given below. If questions AQ (10), AQ (12), and AQ (14) are used in the analysis, risk ratings from these questions should be averaged and inserted into the table under Aquatic, Riparian.

15) Local Inventories of Migration or Movement Hazards Using existing inventories addressing this question identify the number of migration or movement hazards associated with each road. Use the table below to develop a rating for the road. The scope of this criterion is limited by the lack of current inventory information on migrating aquatic species. Local knowledge of existing migration hazards for fish species defines the extent of this evaluation until additional data becomes available.

Risk Rating	Number of Migration or Movement Hazards
0	No existing migration hazard identified
1	Migration hazards are suspected but not verified
2	Migration hazards exist but affect few organisms
3	Migration hazards exist for movement but not spawning
4	Migration hazards affect reproductive potential for few organisms
5	Migration hazards affect reproductive potential for many organisms

Tools to consider for determining risks – Inventories of Migration or Movement Hazards and Maintenance Level 3 and 4 road segments created for Forest-Level RAP.

QUESTION AQ (12)

How and where does the road system contribute to fishing, poaching, or direct habitat loss for at-risk aquatic species? (The criteria used for this question should be modified to assess only those roads associated with fishable streams. The Forest-Level will only approximate the broadest level of potential impacts, while the Watershed/Project Level will utilize local knowledge to more closely define the extent of the hazard.)

Discussion

For this criteria rate any road less than one mile in length as 0 unless it is specifically identified as being a fishing/poaching problem for at risk aquatic species.

Total Risk Rating for AQ (12) is the average of criteria numbers 17) and 18) below and as modified by the Over-riding Considerations. If questions AQ (10), AQ (12), and AQ (14) are used in the analysis, risk ratings from these questions should be averaged and inserted into the table under Aquatic, Riparian.

Over-riding Considerations:

- *Any road segment less than 1.0 miles in length will be given a rating of 0.*
- *Any road segment that has a Risk Rating for Stream Channel Proximity of 5 will have an overall rating of 5 in the tables.*
- *Streams that have been identified as having potential fishing/poaching problems will be rated as having either a moderate (3) or high (5) risk. These ratings will be added on to the average of the criteria listed below and as modified by other considerations.*

17) Stream Channel Proximity for Fishable Streams Fish bearing streams are used here as a proxy for fishable streams. GIS query to determine length of road within 100 meters of fish bearing stream channels, expressed in percentage of total road length. Use the table below to determine a rating for this query. Risk ratings are modified by local knowledge of potential poaching areas or high fishing pressure of at-risk species.

Risk Rating	Percent of Road Within 100 M of Fishable Streams
0	Less than 1%
1	1-2.9%
2	3-5.9%
3	6-8.9%
4	9-11.9%
5	Greater than 11.9%

Tools to consider for determining risks – GIS query to determine percent of road within 100 m of fish bearing streams and Maintenance Level 3 and 4 road segments created for Forest-Level RAP.

18) Road – Fishable Stream Intersects GIS query to determine the number of intersects of roads and fishable streams per mile road. Use the table below to determine a rating for this query.

Risk Rating	Number of Road/Fishable Stream Crossings per Mile of Road/
0	No crossings
1	Less than 0.2
3	0.20 to 0.45
5	Greater than 0.45

Tools to consider for determining risks – GIS query to determine number of Road/Fishable stream crossings per mile of road.

QUESTION AQ (14)

To what extent does the road system overlap with areas of exceptionally high aquatic diversity or productivity, or areas containing rare or unique aquatic species or species of interest? (This question seeks to identify those areas where aquatic values are highest and are most likely to be adversely impacted by roads. The question is best identified at a larger scale, similar to AQ (7) which addresses downstream beneficial uses.)

Discussion

Total Risk Rating for AQ (14) is the rating for the criterion given below as modified by the road's location in a Focal or Adjunct watershed. If questions AQ (10), AQ (12), and AQ (14) are used in the analysis, risk ratings from these questions should be averaged and inserted into the table under Aquatic, Riparian.

Over-riding Consideration:

- *Any road more than 50% within a Focal or Adjunct watershed as described in the Forest Fish Management Plan will be given a rating of 5.*

Other aquatic values considered were road proximity to wetlands, wet meadows, seasonal lakes and ponds, springs and populations of Port-Orford cedar (POC). Ratings were assigned to each road segment based on the following criteria.

Risk Rating	Considerations for Aquatic Values
0	No connectivity to any special values
1	Road is adjacent to one of the water bodies but is not rated as a risk
2	Road is adjacent to more than one water body, but is not rated as a risk
3	Road is a moderate risk to water bodies, but not POC
4	Road length less than 10% in POC drainage, and/or mod. Risk to other values
5	Road in POC drainage and/or poses a high risk to other water bodies

Tools to consider for determining risks – GIS layer for Port-Orford cedar locations, GIS layer for streams, wetlands, springs, seasonal lakes, etc., and roads layer.

QUESTION TW (1) (4)

TW (1) and (4) have been combined for the purposes of Forest-Level RAP.

What are the direct effects of the road system on terrestrial species habitat? How does the road system directly affect unique communities (plant and animal) or special habitat features (talus slopes, cliffs, caves, abandoned mines, wetlands) in the area?

Discussion

The presence of roads directly affects habitat for many animal and plant species. Direct effects include habitat loss, fragmentation, and edge effects from establishing and maintaining road and road right-of-way. In addition to effects on species, roads may have both direct and indirect effects on rare plant and animal communities and special habitat features such as talus slopes, cliffs, rock outcrops, limestone formations, caves, and wet meadows.

The following five criteria for this question are rated separately on scales of 0 to 5, with a 0 being no risk and a 5 being high risk. The ratings are then averaged and the resulting total risk rating is inserted into **Table 4-3** under Terrestrial Species.

***Note:** *TW (4) has been folded into the TES ANIMALS and SENSITIVE PLANTS elements below. Hence "known occupied sites" includes TES species habitat, unique community and special habitat features. These include talus slopes, wet meadows, rock outcrops, limestone, caves, cliffs, etc. Animals and plants are included in this element.*

Open Road Density

Use **AQ (1), 3), Road Density** ranking system for this element. Road densities are calculated for 7th field watershed areas. The risk rating is the actual calculated road density. A weighted average is used for each road segment to determine the overall risk for a given road.

Risk Rating	Miles of Road/Square Mile
0 – 0.9	Less than 1
1 – 1.9	1 – 1.9
2 – 2.9	2 – 2.9
3 – 3.9	3 – 3.9
4 – 4.9	4 – 4.9
5	Greater than 4.9

Road Width, Condition, and Access

Road condition, width and access are simplified for the Forest-Level RAP. Road Maintenance Levels are used as the numerical rating for each road.

Risk Rating	Road Maintenance Level
1	Not Applicable For Forest RAP
2	Not Applicable For Forest RAP
3	Maintenance Level 3 road
4	Maintenance Level 4 road
5	Not Applicable For Forest RAP

Habitat

Apply the following Habitat Criteria to each road segment. Select the highest risk rating for the entire road.

Risk Rating	Habitat Criteria
1	Roads within non-commercial conifer types that do not have the potential to produce LSOG (e.g., grass, chaparral, gray pine, live oak, etc.); or roads **outside** an LSR/CHU/RX VII **passing through** commercial conifer stands with 1S/P/N/G, 2S/P/N/G, 3S, or 4S size class/canopy closure.
2	All roads outside an LSR/CHU/RX VII passing through 3P or 4P stands; or roads within an LS passing through 1S/P/N/G, 3S, or 4S stands.
3	Roads outside an LSR/CHU/RX VII passing through 3N stands
4	Roads outside an LSR/CHU/RX VII passing through 4N stands.
5	All roads passing through 4N or 4G stands; or roads within an LSR/CHU/RX VII passing through 3N or 3G stands.

TES Animals, Unique Communities, and Special Habitat Features

Apply the following Habitat Criteria to each road segment. If this criterion is rated higher than the Sensitive Plant criterion use this rating. If the Sensitive Plant criterion is higher use the Sensitive Plant rating.

Risk Rating	Habitat Criteria
1	Roads that do not pass within 0.25 miles of 3P, 3N, 3G, 4P, 4N, 4G stands; or do not pass within 0.25 miles (or the established disturbance zone) of known occupied sites.
2	Roads that pass within 0.25 miles of 3P or 4P stands and do not pass within 0.25 miles (or the established disturbance zone) of known occupied sites.
3	Roads that pass within 0.25 miles of 3N stands and do not pass within 0.25 miles (or the established disturbance zone) of known occupied sites.
4	Roads that pass within 0.25 miles of 3G stands and do not pass within 0.25 miles (or the established disturbance zone) of known occupied sites.
5	Roads that pass within 0.25 miles of 4N or 4G stands or within 0.25 miles (or the established disturbance zone) of known occupied sites.

Sensitive Plants

Apply the following Habitat Criteria to each road segment. If this criterion is rated higher than the TES Animals criterion use this rating. If the TES Animals criterion is higher use the TES Animals rating.

Risk Rating	Habitat Criteria
0	No sensitive plant species within 150 feet of road.
1	1 site occupied by sensitive plant(s) within 150 feet of road.
2	2-4 sites occupies by sensitive plant(s) within 150 feet of road.
3	5 or more sites within 150 feet of road or 2 sensitive plant species occur within 150 feet of road.
4	5 to 10 percent of total acres of site occupied by sensitive plants are within 150 feet of road.
5	More than 10 percent of total acres of site occupied by plants are within 150 feet of road or 3 or more species occur within 150 feet of road or species are only know from less than 10 sites across range.

These five elements were rated separately. We used Arc/Info and Arcview to query and calculate values for different segments of each road. These segment values were blended to arrive at a single numerical rating for each element. A "weighted average" for Open Road Density was used. The highest risk rating for Habitat, TES Animals, and Sensitive Plants for road segments were applied. Road condition, width, and access were simplified for Forest-Level RAP. The road Maintenance Level was the numerical rating for each road; a Maintenance Level 3 road received a "3" and a Level 4 road received a "4". If the TES Animals rating was higher than that for Plants, the TES Animals rating was used. If the Sensitive Plants rating was higher than that for TES Animals, the Sensitive Plants rating was used. All ratings for each element were averaged to arrive at one final numerical rating for each road analyzed in this process. This numerical rating appears in the Terrestrial Species column of **Table 4-3**.

Tools to consider for determining risks: Map of forest vegetation types including size and age class. Map of forest road system identifying open and closed roads, system and non-system roads, and maintenance levels. Maps of known TES species locations and maps of land allocations including LSR, MLSA and Critical Habitat. Map of sensitive and rare plant species and other sensitive botanical areas. Map of unique habitat areas such as caves, talus slopes, limestone, and meadows.

SOCIAL ISSUES (SI)

QUESTION SI (11)

How does the existing road system adversely affect archeological, historic, prehistoric, cultural and traditional sites?

Discussion

This criteria is an attempt to rate the adverse affects on archeological, historic, prehistoric, cultural and traditional sites from the existing road system.

Risk Rating Criteria

Risk Rating	Risk Criteria
0 = No Affect	Road does not impact sites.
1 = Low	Road impacts few sites, protection measures mitigate the impacts.
2 = Low to Moderate	Road impacts many sites, protection measures mitigate the impacts.
3 = Moderate	Road impacts few sites, protection measures partially mitigate the impacts.
4 = Moderate to High	Road impacts many sites, protection measures partially mitigate the impacts.
5 = High	Road impacts sites, protection measures do not mitigate the impacts.

Note: *Place Rating in the "Public Uses RAP Risk/Benefit Rating Worksheets"*.

RESOURCE BENEFITS

SOCIAL ISSUES (SI)

QUESTION SI (3)

How does the road system affect access to paleontological, archaeological, and historical sites?

Discussion

This criteria is designed to quantify the number of paleontological, archaeological, and historical sites accessed by an existing road.

Benefit Rating	Benefit Criteria
0 = No Affect	The existing road or proposed management opportunity **does not** affect access to paleontological, archaeological, and historical sites.
1 = Low	The existing road provides access to an **insignificant** number of paleontological, archaeological, and historical sites.
2 = Low to Moderate	The existing road provides access to a **relatively moderate** number of paleontological, archaeological, and historical sites.
3 = Moderate	The existing road provides access to a **moderate** number of paleontological, archaeological, and historical sites.
4 = Moderate to High	The existing road provides access to a **relatively significant** number of paleontological, archaeological, and historical sites.
5 = High	The existing road provides access to a **significant** number of paleontological, archaeological, and historical sites.

Note: *Place Rating in the "Public Uses RAP Risk/ Benefit Rating Worksheets".*

QUESTION SI (4)

How does the road system affect cultural and traditional uses (such as plant gathering, and access to traditional and cultural sites) and American Indian treaty rights?

Discussion

This criterion is an attempt to establish a baseline regarding the cultural and traditional uses/sites accessed by the existing road system. We want to establish the relative frequency of occurrence of these cultural and traditional uses/sites in comparison to like uses/sites on National Forest lands and the number of individuals that access the uses/sites via this road.

Benefit Rating	Benefit Criteria
0 = No Affect	Road does not access cultural and traditional uses/sites.
1 = Low	Road accesses an area with an **insignificant** number of cultural and traditional uses/sites.
2 = Low to Moderate	Road accesses an area with a **minimal** number of cultural and traditional uses/sites.
3 = Moderate	Road accesses an area with a **moderate** number of cultural and traditional uses/sites.
4 = Moderate to High	Road accesses an area with a **moderately significant** number of cultural and traditional uses/sites.
5 = High	Road accesses an area with a **significant** number of cultural and traditional uses/sites, and/or areas with a **rare** type of cultural and traditional uses/sites.

Note: *Place Rating in the "Public Uses RAP Risk/ Benefit Rating Worksheets".*

RANGE MANAGEMENT (RM)

QUESTION RM (1)

How does the road system affect access to range allotments?

Benefit Rating	Benefit Criteria
0= No Affect	There are no range allotments in the area.
1 = Low	Road system provides multiple access to the allotment(s) and related allotment improvements.
3 = Moderate	Road system provides adequate access to the range allotment(s) and its improvements.
5 = High	Road system provides the only access to the allotment(s) and its improvements.

Note: The evaluator may use a 2= Low to Moderate or a 4= Moderate to High, if the evaluation shows that the benefit rating falls between those listed.

PROTECTION (PT) (FIRE AND FUELS)

QUESTION PT (1)

How does the road system affect fuels management? (In relation to the Cohesive Fuels Management Strategy priorities of Protection of communities at risk, protection of T&E species, protection of municipal watersheds, and maintenance of Condition Class 1 areas – those areas that are closest to their natural fire regime).

Benefit Rating	Benefit Criteria
0= No Affect	Road has no effect on fuels management.
1 = Low	Road is located within or provides access to only Condition Class I areas.
3 = Moderate	Road is located within or provides access to only one of the following: Communities at Risk OR T&E species habitat OR municipal watersheds.
5 = High	Road is located within or provides access to two or more of the following: Communities at Risk, T&E species habitat, municipal watersheds.

Tools to consider for determining benefits – Maps: roads to be analyzed; T&E species habitat areas; communities at risk; conditions class areas; Municipal watersheds.

Note: The reviewer may use a 2 = Low to Moderate, or a 4 = Moderate to High, if their analysis shows a road falls between the ratings shown above. An explanation documenting this decision is required.

QUESTION PT (2)

How does the road system affect the capacity of the Forest Service and cooperators to suppress wildfires?

Benefit Rating	Benefit Criteria
0= No Effect	Road has no effect on suppressing wildfires.
1 = Low	Fire history occurrence for the area is low. The road is located on lower slopes on north or east aspects. Fire intensity for the area is expected to be low intensity fires. The road is in a poor location for establishing fire lines. The road does not provide access to large areas.
3 = Moderate	Fire history for the area shows a higher fire occurrence or expected higher fire intensity than for Low Benefit areas. The road is located on lower slopes on south or west aspects or is mid-slope on north or east aspects. Road has potential for use in establishing fire lines. The road provides access to large areas.
5 = High	Fire history for the area shows a high fire occurrence, or large intensity fires. The road is located mid-slope on south or west aspects or is on a ridgetop. The road is in a good location to use for establishing firelines. The road is used to access structures or there are structures within the area. The road provides access to large areas

Tools to consider for determining benefits – Maps: roads to be analyzed; fire history occurrence; topography; community locations.

Note: *The reviewer may use a 2 = Low to Moderate, or a 4 = Moderate to High, if their analysis shows a road falls between the ratings shown above. An explanation documenting this decision is required.*

QUESTION PT (3)

How does the road system affect risk to firefighters and to public safety?

Benefit Rating	Benefit Criteria
0= No Affect	Road has no effect on firefighter or public safety.
1 = Low	The road does not access structures or provide access to large areas. The road is one lane and is difficult for large fire equipment to traverse.
3 = Moderate	The road provides access to large areas. The road is easily useable for large fire equipment. The road provides access to scattered structures.
5 = High	The road provides access to large areas. The road is easily useable for all fire equipment. The road provides access to areas of concentrations of structures.

Tools to consider for determining benefits – Maps: roads to be analyzed; road Maintenance Levels; communities/structures.

Note: *The reviewer may use a 2 = Low to Moderate, or a 4 = Moderate to High, if their analysis shows a road falls between the ratings shown above. An explanation documenting this decision is required.*

SPECIAL-USE PERMITS (SU)

QUESTION SU (1)

How does the road system affect managing special-use permit sites (concessionaires, communications sites, utility corridors, and so on)?

Discussion

This criteria is attempting to establish a baseline of use, or benefit, for each road by determining the number of special-use permit sites accessed by the existing road system and the visitation frequency of these sites.

Benefit Rating	Benefit Criteria
0 = No Affect	Road does not access special-use permit sites.
1 = Low	Road accesses a **minimal** number of special-use permit sites with **low** visitation.
2 = Low to Moderate	Road accesses a **minimal** number of special-use permit sites with **high** visitation.
3 = Moderate	Road accesses a **moderate** number of special-use permit sites with **moderate** visitation.
4 = Moderate to High	Road accesses a **significant** number of special-use permit sites with **moderate** visitation.
5 = High	Road accesses a **significant** number of special-use permit sites with **high** visitation. **OR** Road accesses a single special-use permit site that receives high use, e.g., marina. **OR** The authorization for issuance of the special-use permit is legally mandated, e.g., ANILCA.

Note: *Place Rating in the "Public Uses RAP Risk/ Benefit Rating Worksheets".*

COMMODITY PRODUCTION/ TIMBER MANAGEMENT (TM)

QUESTION TM (2)

How does the road system provide for vegetation management objectives?

Discussion

Road systems provide for fast and economic access to national forest lands for resource inventory, data collection, and many other forest management activities. The more acres that can be accessed by a single road the greater its benefit. Access is directly related to slope. Chose the table below that fits the slope condition for the project area to rate the roads.

Access

Benefit Rating	Criteria: 0-35% Slope
0 = No Affect	No access is needed at this time.
1 = Low	Less than 50 acres are accessed with existing road system.
2 = Low to Moderate	50-100 acres are accessed with existing road system.

Benefit Rating	Criteria: 0-35% Slope (Continued)
3 = Moderate	100-500 acres are accessed with existing road system.
4 = Moderate to High	500–1000 acres are accessed with existing road system.
5 = High	Greater that 1000 acres are accessed with existing roads.

Benefit Rating	Criteria: > 35% slope
0 = No Affect	No access is needed at this time.
1 = Low	Less than 25acres are accessed with existing road system.
2 = Low to Moderate	25-50 acres are accessed with existing road system.
3 = Moderate	50-250 acres are accessed with existing road system.
4 = Moderate to High	250-500 acres are accessed with existing road system.
5 = High	Greater than 500 acres are accessed with existing roads.

QUESTION TM (3)

How does the road system affect access to timber stands needing silvicultural treatment?

Discussion

Tree planting, thinning, release, fuels reduction, administrative access and monitoring all require road access in the cycle of timber management. The more often a road is required for management of timber stands the higher the benefit of that road.

Frequency

Benefit Rating	Criteria
0 = No Effect	Timber land access not needed.
1= Low	Timber land roaded but not currently being managed or expected to be managed in the next 20 years.
2= Low to Mod.	Road system needed only every 20 + year intervals.
3= Moderate	Road system needed every 15-20 year intervals.
4= Mod. to High	Road System needed every 5-15 year intervals.
5= High	Road System needed every 0-5 year intervals.

GENERAL PUBLIC TRANSPORTATION (GT)

QUESTION GT (1)

How does the road system connect to public roads and provide primary access to communities? (Maintenance Level 3 and 4 roads are the main transportation system for travel through the forest accessing large areas of the National Forest for multiple use. Almost half of the forests level 3 and 4 roads have been identified as Primary or secondary routes in the Forest Access and Travel Management plan. These roads connect county and state highways to access local communities and recreation areas as well as providing access to private land, see GT(3) below.)

Access and Travel management: This is a design and implementation of objective, strategies, prescriptions, and operation plans for providing access and travel opportunities in the Forest.

Benefit Rating	Criteria
1 = Low	Road is closed.
2 = Low to Moderate	Road is designed and maintained for high clearance vehicles.
3 = Moderate	Road is for a single purpose, and/or maintained for low clearance vehicles.
4 = Moderate to High	Road is identified as a secondary route on the Forest ATM plan.
5 = High	Road is identified as a primary route on the Forest ATM plan.

Tools to consider for determining benefits – Maps with roads by Maintenance Level to analyze, Forest ATM plan.

QUESTION GT (2)

How does the road system connect large blocks of land in other ownership to public roads?

See above for general explanation. Secondary routes, in addition to connecting county highways to local communities, also access large blocks of National Forest land and adjacent private land.

Local routes are generally tributary to single purpose use, i.e., a specific function such as campground access, timber harvest unit access, administration site access, etc.

Access and Travel Management: This is a design and implementation of objective, strategies, prescriptions, and operation plans for providing access and travel opportunities in the Forest.

Benefit Rating	Criteria
1 = Low	Road is closed.
2 = Low to Moderate	Road is designed and maintained for high clearance vehicles.
3 = Moderate	Road is for a single purpose, and/or maintained for low clearance vehicles.
4 = Moderate to High	Road is identified as a secondary route on the Forest ATM plan.
5 = High	Road is identified as a primary route on the Forest ATM plan.

Tools to consider for determining benefits (GT 2) – Maps with roads by Maintenance Level to analyze, Forest ATM plan.

QUESTION GT (3)

How does the road system affect managing roads with shared ownership or with limited jurisdiction?

The Forest has three National Cooperative agreements with large landholders. The cooperators are Sierra Pacific Industries, Roseburg Resources Company, and John Hancock Mutual Life Insurance. Each cooperator shares in the maintenance and repair of the transportation system that they are shared in, which generally are higher standard on primary and secondary routes. There are annual maintenance meetings to identify maintenance and repair needs. In emergency situations, i.e. ERFO, the cooperators are often able to perform the needed road repairs much faster then the Forest Service is able to contract out the work, assuring a safe, open transportation system on cost shared routes.

There are several non-cost shared easements on the forest. The easement holders generally perform their required maintenance work concurrent with their use.

Shared Ownership: These are roads that have Cooperative cost share agreements or easements across National Forest lands.

Benefit Rating	Criteria
1 = Low	Road has no easements.
3 = Moderate	Road has an easement outside the National Cost Share Agreement.
5 = High	Road is included in the National Cost Share Agreement.

Tools to consider for determining benefits – Maps: Roads to be analyzed; land ownership. Road listing for cost share roads.

QUESTION GT (4)

How does the road system address the safety of the user?

As stated above, a large portion of the annual maintenance budget goes into Maintenance Level 3 and 4 roads. Public Health and Safety are the first priority looked at for maintenance needs and the primary and secondary routes are the most heavily used and get priority in maintenance.

Access and Travel Management: This is a design and implementation of objective, strategies, prescriptions, and operation plans for providing access and travel opportunities in the Forest.

Benefit Rating	Criteria
1 = Low	Road is closed.
2 = Low to Moderate	Road is designed and maintained for high clearance vehicles.
3 = Moderate	Road is for a single purpose, and/or maintained for low clearance vehicles.
4 = Moderate to High	Road is identified as a secondary route on the Forest ATM plan.
5 = High	Road is identified as a primary route on the Forest ATM plan.

Tools to consider for determining benefits (GT 4) – Maps with roads by Maintenance Level to analyze, Forest ATM plan.

Overall Rating GT

Access and Travel Management: GT (1), (2), (3), (4).

Benefit Rating	Criteria
1 = Low	Road is closed.
2 = Low to Moderate	Road is designed and maintained for high clearance vehicles.
3 = Moderate	Road is for a single purpose, and/or maintained for low clearance vehicles.
4 = Moderate to High	Road is identified as a secondary route on the Forest ATM plan.
5 = High	Road is identified as a primary route on the Forest ATM plan.

Shared Ownership: GT (3)

Benefit Rating	Criteria
1 = Low	Road has no easements.
3 = Moderate	Road has an easement outside the National Cost Share Agreement.
5 = High	Road is included in the National Cost Share Agreement.

MINERALS MANAGEMENT (MM)

QUESTION MM (1)

How does the road system affect access to locatable, leaseable, and salable minerals?

Discussion

This criteria is attempting to establish a baseline of use, or benefit, for each road by determining the number of mineral sites accessed by the road and the frequency of use at those mineral sites by permit holders.

Benefit Rating	Criteria
0 = No Affect	Road does not access mineral sites.
1 = Low	Road accesses a **minimal** number of mineral sites with **low** use.
2 = Low to Moderate	Road accesses a **minima**l number of mineral sites with **high** use.
3 = Moderate	Road accesses a **moderate** number of mineral sites with **moderate** use
4 = Moderate to High	Road accesses a **significan**t number of mineral sites with **moderate** use.
5 = High	Road accesses a **significant** number of mineral sites with **high** use.

Note: *Place Rating in the "Public Uses RAP Risk/ Benefit Rating Worksheets".*

WATER PRODUCTION (WP)

QUESTION WP (1)

How does the road system affect access, constructing, maintaining, monitoring, and operating water diversions, impoundments, and distribution canals or pipes?

Discussion

This criteria is attempting to establish a baseline of use, or benefit, for each road by determining the number of water system sites authorized by a special-use permit that are accessed by the road and the number of users that benefit from the water system. Water systems include those for irrigation, stock, domestic, municipal, and industrial use.

Benefit Rating	Criteria
0 = No Affect	Road does not access authorized water systems.
1= Low Benefit	Road accesses a **minimal** number of authorized water systems with a **minimal** number of users benefiting from the water systems.
2= Low to Mod. Benefit	Road accesses a **minimal** number of authorized water systems with a **high** number of users benefiting from the water systems.
3= Moderate Benefit	Road accesses a **moderate** number of authorized water systems with a **moderate** number of users benefiting from the water systems.
4= Mod. to High Benefit	Road accesses a **significant** number of authorized water systems with a **moderate** number of users benefiting from the water systems.
5= High Benefit	Road accesses a **significant** number of authorized water system with a **high** number of users benefiting from the water systems.

Note: *Place Rating in the "Public Uses RAP Risk/ Benefit Rating Worksheets".*

QUESTION WP (2)

How does road development and use affect water quality in municipal watersheds?

Discussion

This question addresses a specific beneficial use of water. First determine which roads fall within municipal supply watersheds. For those roads only use the criteria for AQ (7) to evaluate its risk. If questions AQ (2) through AQ (6) are used in the analysis, risk ratings from these questions should be averaged with WP (2) and inserted into the Resource Risks and Benefits Table under Water Quality.

Tools to consider for determining risks – Maps of municipal watersheds and roads. See AQ (7) for other specific tools.

QUESTION WP (3)

How does the road system affect access to hydroelectric power generation?

Discussion

This criteria is attempting to establish a baseline of use, or benefit, for each road by determining the number of authorized hydroelectric sites accessed by the road and the number of users that benefit from the hydroelectric power generation.

Benefit Rating	Criteria
0 = No Affect	Road does not access licensed hydroelectric license sites.
1= Low Benefit	Road accesses a **minimal** number of licensed hydroelectric sites with a minimal number of users benefiting from the hydroelectric power generation.
2= Low to Mod. Benefit	Road accesses a **minimal** number of licensed hydroelectric sites with a **high** number of users benefiting from the hydroelectric power generation.
3= Moderate Benefit	Road accesses a **moderate** number of licensed hydroelectric sites with a **moderate** number of users benefiting from the hydroelectric power generation.
4= Mod. to High Benefit	Road accesses a **significant** number of licensed hydroelectric sites with a **moderate** number of users benefiting from the hydroelectric power generation.
5= High Benefit	Road accesses a **significant** number of licensed hydroelectric sites with a **high** number of users benefiting from the hydroelectric power generation.

Note: *Place Rating in the "Public Uses RAP Risk/ Benefit Rating Worksheets".*

ECONOMICS (EC)

QUESTION EC (1)

How does the road system affect the agency's direct costs and revenues? What, if any, changes in the road system will increase net revenue to the agency by reducing costs, increasing revenue, or both?

Discussion

Most of the agency's revenues are directly related to the transportation system. Commodity production, recreation, grazing, minerals, and other present land use and associated revenues would not be possible without roads.

On the other hand, there is a cost associated with maintaining an adequate transportation system. Most of the forest's road maintenance budget goes toward maintaining the Forest's Maintenance Level 3 and 4 roads for public safety, administration needs, and commodity transport. The road system also allows access to private landowners large and small. Road use fees are collected from private and public commodity haul to help maintain and resurface existing forest roads; even with these collection fees the Forest gets only a portion of the funds necessary to adequately maintain our present transportation system.

Capital Improvement funding, when available, can help in upgrading the Forest's Maintenance Level 3 and 4 roads. For example, replacing a native surface with a rock surface (or a rock surface with a bituminous surface) helps to decrease annual maintenance costs, but still requires surface replacement funds to be collected for future resurfacing as commodity haul and other traffic wear down the existing surface. Also, when existing drainage structures are replaced to the 100-year storm standards, drainage repair/replacement costs are greatly reduced.

Surface Type: This affects the cost of maintenance and surface replacement, recovery, and deferred maintenance collections.

Benefit Rating	Benefit Criteria
1 = Low	Road is native surface in poor soils.
2 = Low to Moderate	Road is native surface in rocky soils.
3 = Moderate	Road has an aggregate surface.
4 = Moderate to High	Road has a bituminous surface.
5 = High	Road has an asphalt concrete surface.

Commercial Use: Government and private landowners use main system roads for commercial haul and commercial access for small businesses, i.e., packers, guide services, etc. (EC 1)

Benefit Rating	Benefit Criteria
1 = Low	Road is a non-surfaced, dead end local road for single purpose.
3 = Moderate	Road does not access private land and is for government commodities on an intermittent use or access non-fee recreation sites, including trailheads.
5 = High	Road is a main haul route for private access and commercial use, including recreation sites where fees are collected and administration sites.

Tools to consider for determining benefits (EC 1) – Maps with roads by Maintenance Level and land ownerships, forest road infra data.

QUESTION EC (2)

How does the road system affect the priced and non-priced consequences included in economic efficiency analysis used to assess net benefits to society?

Discussion

A well-planned transportation system provides access into the National Forest for multiple uses with the least impact to the resources possible. Some consequences are known, documented, and easy to track. Others are harder to quantify and assess.

A well-maintained system keeps annual maintenance costs down. A high maintenance surfaced road, Maintenance Level 3 and above, provides visitor comfort and access for public enjoyment of the National Forests; *it also poses more of a threat to the wildlife crossing it*. Surfaced roads decrease sediment discharge into the streams and dust into the air, which adds to a more serene and safe visit; *they also attract more volume of traffic and associated human impacts*. The Maintenance Level 3+ roads also provide quick access for fire protection and administration needs. These roads are, by their very nature, the most heavily used.

Surface Type: This affects visitor comfort, sediment discharge into streams and dust into the air.

Benefit Rating	Benefit Criteria
1 = Low	Road is native surface in poor soils.
2 = Low to Moderate	Road is native surface in rocky soils.
3 = Moderate	Road has an aggregate surface.
4 = Moderate to High	Road has a bituminous surface.
5 = High	Road has an asphalt concrete surface.

Tools to consider for determining benefits (EC 2): Maps with roads by Maintenance Level to analyze, Forest road infra data.

QUESTION EC (3)

How does the road system affect the distribution of benefits and costs among affected people?

Discussion

This is a social question. Use of the forest road system is diverse and by people with different values. There are also benefits and costs to society as a whole, even to those who do not necessarily live near the forest or use the forest road system. There is a wide range of distribution of benefits and costs, from the local resident who uses the forest and its road system to bring home fuel wood to the commodities trader in a distant city who makes a living off lumber futures. Likewise, from a storm-damaged road preventing access to a favorite hunting camp to the cumulative impacts of a road system on a forest watershed providing a municipal water supply.

Surface Type: This affects the cost of maintenance and surface replacement, cost recovery, and deferred maintenance collections. It also affects visitor comfort and ability to access the National Forest, i.e., high clearance vehicles/ low clearance vehicles.

Benefit Rating	Benefit Criteria
1 = Low	Road is native surface in poor soils
2 = Low to Moderate	Road is native surface in rocky soils
3 = Moderate	Road has an aggregate surface
4 = Moderate to High	Road has a bituminous surface
5 = High	Road has an asphalt concrete surface

Commercial Use: Government and private landowners use main system roads for commercial haul.

Benefit Rating	Benefit Criteria
1 = Low	Road is a non-surfaced, dead end local road for single purpose.
3 = Moderate	Road does not access private land and is for government commodities on an intermittent use or access non-fee recreation sites, including trailheads.
5 = High	Road is a main haul route for private access and commercial use, including recreation sites where fees are collected and administration sites.

Tools to consider for determining benefits (EC 3): Maps with roads by maintenance level and land ownerships, forest road infra data.

Overall Ratings EC:

Surface Type: This consolidates EC (1), (2), and (3).

Benefit Rating	Benefit Criteria
1 = Low	Road is native surface in poor soils
2 = Low to Moderate	Road is native surface in rocky soils
3 = Moderate	Road has an aggregate surface
4 = Moderate to High	Road has a bituminous surface
5 = High	Road has an asphalt concrete surface

Commercial Use: This consolidates EC (1) and (3).

Benefit Rating	Benefit Criteria
1 = Low	Road is a non-surfaced, dead end local road for single purpose.
3 = Moderate	Road does not access private land and is for government commodities on an intermittent use or access non-fee recreation sites, including trailheads.
5 = High	Road is a main haul route for private access and commercial use, including recreation sites where fees are collected and administration sites.

SOCIAL ISSUES (SI)

QUESTION SI (1)

What are people's perceived needs and values for scenic roads? How does road management affect people's dependence on, need for, and desire for scenic roads?

USER GROUPS (For SI (1))

Group A……Local Residents

Group B……Commercial Users

Group C……Recreation Users

Group D……Emergency Users

Group E……Resource Managers

Group F……Other

Benefit Rating	Benefit Criteria
0 = No Affect	NA
1 = Low	Meets Unacceptable Modification of Inventoried VQO
2 = Low to Moderate	Meets Maximum Modification Inventoried VQO
3 = Moderate	Meets Modification Inventoried VQO
4 = Moderate to High	Meets Partial Retention Inventoried VQO
5 = High	Meets Retention Inventoried VQO

Tools to consider for determining benefits – Maps: road to be analyzed; nearby communities; recreation opportunities; conditions class areas; Municipal watersheds; topography; resource value information; fire history.

ROAD-RELATED RECREATION (RR)

QUESTION RR (6)

How does the road system affect access to recreational opportunities, including: Roaded/Developed recreational opportunities; Unroaded/General Forested Area recreational opportunities; and Primitive/Wilderness recreational opportunities?

Discussion

This criteria is attempting to establish a baseline of use, or benefit, for each road by determining the number of recreational opportunities accessed by the road and the number of users that benefit from accessing those recreational opportunities.

Benefit Rating	Criteria
0 = No Affect	Road does not access recreational opportunities.
1 = Low	Road accesses a **minimal** number of recreational opportunities with a **low** number of users that benefit from accessing those recreational opportunities.
2 = Low to Moderate	Road accesses a **minimal** number of recreational opportunities with a **high** number of users that benefit from accessing those recreational opportunities.
3 = Moderate	Road accesses a **moderate** number of recreational opportunities with a **moderate** number of users that benefit from accessing those recreational opportunities.
4 = Moderate to High	Road accesses a **significant** number of recreational opportunities with a **moderate** number of users that benefit from accessing those recreational opportunities.
5 = High	Road accesses a **significant** number of recreational opportunities with a **high** number of users that benefit from accessing those recreational opportunities.

Note: *Place Rating in the "Public Uses RAP Risk/ Benefit Rating Worksheets".*

APPENDIX C

PUBLIC INVOLVEMENT ACTION PLAN and CONTENT ANALYSIS FOR FOREST-WIDE ROADS ANALYSIS PROCEDURE

PUBLIC INVOLVEMENT ACTION PLAN

Based on a jointly developed communication plan for the Northern Province the following public involvement action plan for the Shasta-Trinity National Forest was prepared.

Objective: Identify actions that will be taken to involve the public in the Shasta-Trinity NF Forest Scale Roads Analysis Process (RAP), who will be responsible to carry out the actions, and when the action will be accomplished. The "Roads Analysis" Guidebook (FS-643, August 1999) lists six steps that will be involved in developing and reporting information gathered through analysis and public input (see *Roads Analysis Procedure* Pages 15-35). Actions listed in this plan refer to opportunities to involve the public as the Forest conducts each step. The Action Plan is divided into actions by target audience.

TARGET AUDIENCE AND ACTION
I. PUBLIC (road users, persons interested in management of the Shasta-Trinity NF)
ACTION:
1. Complete summary of key issues identified in ATM process.
2. Write and distribute news release (Inform about RAP, opportunity to provide comments, and invite to be on mailing list).
3. Complete camera copy for Forest maps displaying Level 3 & 4 road system.
4. Complete printing of Forest Maps.
5. Complete and issue mail out with Executive Summary on RAP, issues description, and maps of proposed Level 3 and 4 road system to:
a. Solicit input on draft issues and proposed Level 3 & 4 roads (invite public to color code desired maintenance level changes.
b. Inform recipients about availability of information on web site.
c. Ask recipients if they want the FS to host public information meetings on RAP.
6. Due date for public input—3/15/02.
7. Decide whether to schedule public meetings based on public input from mail out. Meetings would provide an overview on RAP, draft issues, and proposed Maintenance Level 3 & 4 road system.
8. If decision is to hold public meetings, issue release and letter to announce meetings for Redding, Mt. Shasta, and Weaverville, CA.
9. Set up RAP Internet web page; posting our written materials, maps; solicit input on proposed Maintenance Level 3 & 4 road system.
10. Update web page.
11. Release final report 1/03/03.
a. News release (summary, where to get the report).
b. Post on Web page.
c. Send to mailing list.
d. Place copies at S-T Management Unit offices.
II. AGENCIES (Cooperating road management agencies and interested agencies—including Boards of Supervisors)
ACTION:
1. Develop list of agencies (including Boards of Supervisors).
2. Write initial letter (what we are doing, ask counties to designate their point of contact for other issues, such as energy corridors; invite them to public meetings).
3. Send letter by 1/28/02. (reply due Feb. 15)
4. Send summary of final report 1/03/03 to agencies and inform about availability of final report on web site.

TARGET AUDIENCE AND ACTION (Continued)
III. ROAD MANAGERS (Public and private road managers, such as industrial cooperators, County and State road managers), and **IV. PRIVATE LANDOWNERS** (Inholders, adjacent or connecting to NF lands and/or roads)
ACTION: 1. Develop mailing list. 2. Send initial letter (see #1 above), asking them to designate a point of contact for their road management. 3. Complete direct, one-on-one discussions with contacts noted in above item II-4 (i.e., with County road managers to see what their plans are for utility corridors, road management, etc.). 4. Send summary of final report 1/03/03 and inform them of availability of final report on web site.
V. INTERNAL (Shasta-Trinity NF employees)
ACTION: 1. Contact Forest Supervisor, District Rangers, Forest Staff Officers, Province Operations Manager to schedule time in their February Unit meetings to brief employees on what we're doing; solicit input on what roads need to remain open, why, and appropriate level of maintenance. 2. Complete presentations at S-T units (SO, NRA, SMMU, TRMU, SFMU). 3. Provide summary of final report 1/03/03 and inform of the final report availability on the web site.
VI. TRIBES (Federally recognized Tribes with whom this Forest has government-to-government relations)
ACTION: 1. District Rangers complete their contact with Federally recognized tribes by telephone; give overview of RAP; ask them if they want a face-to-face meeting; follow-up accordingly; document contact. 2. Complete meetings with tribes who request a meeting; brief them about the RAP. Solicit input on what roads need to remain open and why—and at what maintenance level. 3. 1/03/03 Initiate briefing of Federally recognized tribes on the final report; provide summary of final report and ask if they want a copy of the final report.

CONTENT ANALYSIS

The following documentation summarizes comments received in response to the March 12, 2002 letter from Forest Supervisor, Sharon Heywood, to 750+ stakeholders that expressed interest in management of the Shasta-Trinity National Forest. A total of 28 letters and e-mails were received. Stakeholders were asked to comment on two items:

1. Issues related to major transportation routes.
2. Recommendations on major transportation routes.

Comments are summarized in the same two categories. In addition, a third category summarizes comments that were not within the scope of the Forest-wide analysis of major transportation routes.

ISSUES RELATED TO MAJOR TRANSPORTATION ROUTES

ISSUE 1 - ACCESS FOR FIRE MANAGEMENT

Comment: Road 1N24 (Miller Springs Road) is very overgrown and access by large trucks for fire suppression is jeopardized. When well maintained this road (and other roads) provide a firebreak.

Comment: Access for fire suppression should be a second priority.

Comment: Focus fire suppression efforts only on areas close to concentrations of human habitation.

Comment: We question the assumption that roads are needed to suppress wildfires.

ISSUE #2 ACCESS FOR VEGETATION MANAGEMENT

Comment: The era of exploitation of God's forests as a "crop" must come to an end.

Comment: The existing road network is more than sufficient to meet the access needs required.

ISSUE 3 - ROADS AFFECT ON THE QUALITY OF TERRESTRIAL SPECIES HABITATS

Comment: Recommend no new roads, simply improve existing roads, particularly in the Trinity Unit NRA.

Comment: Wildlife would significantly benefit from removal of roads.

ISSUE 4 - ACCESS FOR AUTHORIZED USES AND RECREATION OPPORTUNITIES (INCLUDING ACCESS FOR PERSONS WITH DISABILITIES)

Comment: Recommend no new roads, simply improve quality of existing roads.

Comment: Major through routes and access roads to recreation sites should be maintained to a high standard.

Comment: We support access roads to wilderness trailheads.

Comment: Upgrade the maintenance level for trailhead and recreation site access roads.

Comment: Concerning access for persons with disabilities—focus paving of the forest's most scenic routes using the minimum amount of asphalt necessary for access.

ISSUE 5 - WATER QUALITY

Comment: Water quality, hydraulic functions, and riparian habitat should be used as primary concerns in managing road networks.

Comment: Too many roads are located directly adjacent or otherwise influence stream courses and the aquatic system.

Comment: We have concerns about off-site resource protection (water quality) from the use of cooperative roads during the winter period.

Comment: Sediment inventory and deliverability to streams evaluations should be a part of the initial road analysis process.

Comment: We recommend that wherever possible, roads be re-engineered to a state of low maintenance to provide greater water quality protection.

ISSUE 6 - HYDROLOGIC FUNCTION

Comment: The road system is much too large and poorly maintained. Hydrologic closers and decommissions should be an ongoing process until the road system is a maintainable size.

Comment: The best way to ensure minimizing downstream sediment delivery is to keep streams from becoming hydrologically connected with the road network.

ISSUE 7 - AQUATIC AND RIPARIAN HABITATS

Comment: Prioritizing upgrades and hydrologic closures that threaten fisheries should be first priority.

ISSUE 8 - HERITAGE RESOURCES AND TRADITIONAL CULTURAL AREAS

Comment: Yearly road monitoring is a necessity for effective management of the road system and protection of our natural resources.

Comment: No new roads should be considered to facilitate access to these sites.

ISSUE 9 - ECONOMICS OF THE ROAD SYSTEM

Comment: The FS has about 25-35% of funds needed on the STNF and nationally for road maintenance. As a result the current road system is generating unacceptable environmental impacts and is a danger to road users.

Comment: Need to address problems related to winter use, maintenance, and environmental hazards related to cooperative roads.

Comment: Do not designate major transportation routes if you do not have reasonable expectations of adequate funding.

RECOMMENDATIONS ON MAJOR TRANSPORTATION ROUTES

Comment: The streams in the Upper Trinity River and Upper Sacramento areas are virtually all degraded. High road density creates watershed and wildlife problems.

Comment: Forest Road 1N24 (Miller Springs Road) is very overgrown and access by large trucks for fire suppression is jeopardized.

Comment: Forest Road 4N16, running southwest of the Big Bar Ranger Station has badly cracked pavement and the sack wall approximately two miles uphill from the Ranger Station slides almost every year.

Comment: Forest Road 40 (Pelletreau Ridge Road in Hyampom) continues to deteriorate from lack of maintenance. The brush along the sides has also grown far out into the roadway in places. In addition the rock base is gone in some parts of the road creating an unsafe road surface when wet and sedimentation into the South Fork Trinity River.

Comment: Roads shown in red on maps need to be maintained as part of the major transportation routes for fire suppression.

Comment: Recommend that you continue maintenance of current major transportation routes at least at current standards.

Comment: Do not increase the current maintenance standards. The money needed to do this would be better spent on the non-major road network. This includes Forest Road 34N17.

Comment: Forest Road 40N26 (South Fork Road)—the southern portion of this road is a native surface road that does not meet the criteria of a "moderate travel speed road" and therefore the designation should be changed.

Comment: Why is Forest Road 37N48 (Van Sicklin Road), located in the middle of nowhere, considered a major transportation route?

Comment: Forest Road 39N05 (Bartle Gap Road) crosses SPI land ownership in Sections 35 and 36 (T39N, R1E) and should not be included as part of the National Forest transportation routes. Forest Road 41N14 (Widow Springs Road) is also on SPI land and should not be included as part of the National Forest transportation routes.

Comment: the road up to Mt. Bradley is always locked—denying public access. The road to Mt. Eddy is pretty bad.

Comment: Forest Road 40N24 should be managed as part of the major transportation routes because of the need for fire access, timber management access, and private land access.

Comment: Recommend that the entire road network across the landscape be analyzed on a watershed approach.

Comment: Need to add an additional issue: "Roads that draw people through the urban interface can cause noise, pollution, illegal dumping, vandalism, and safety problem." An example is the Bear Springs road southeast of Mt. Shasta City, CA.

Comment: There are several routes which should be included as part of the major transportation routes. They include the following:

- The Old Red Mountain Motor Way of the Post Mt. Subdivision.
- South Fork Mt. Road for Hwy 36 to Cedar Gap.
- The Pipe Line Rod form forest Glen to top of South Form MT. at Picket Peak.
- The Tombstone Road from Horse Mountain southeast to Penny Ridge.
- The Goldfield Campground to Boulder Lake Road.
- The Bonanza King Road from Cedar Creek to Cooper Creek.

COMMENTS NOT APPLICABLE TO FOREST-WIDE ROADS ANALYSIS OF EXISTING MAJOR TRANSPORTATION ROUTES

Comment: Roadless areas should be kept intact. No new roads should be constructed in existing roadless areas.

Comment: Un-maintained open roads are a safety hazard to humans and to the environment.

Comment: Many Level 1 roads are not gated or barricaded thus result in liability and environmental issues/risks.

Comment: Route 3 remains a major watershed problem.

Comment: Place non-major transportation routes in "hydrologic storage".

Comment: Provide physical barriers to all Level 1 roads and don't open them during hunting season nor for administrative use.

Comment: Roads circled in red (Level 1 or 2) should be kept open.

Comment: the most significant impacts from roads are associated with small and un-maintained roads.

Comment: Forest Road 29 (Bramlet Road near Horse Ridge Lookout) should be kept in its present condition

APPENDIX D

FOREST PLAN DIRECTION RELATING TO ROADS

FOREST GOALS RELATED TO ROADS

Pages 4-4 and 4-5 of the *Forest Plan*

FACILITIES

8. Manage the Forest's transportation system to facilitate resource management activities, protect wildlife, meet water quality objectives, and provide recreational access.

VISUAL QUALITY

37. Develop or expand opportunities for scenic drives and vista points.

FOREST-WIDE STANDARDS AND GUIDELINES FOR ROADS

Page 4-16 of the *Forest Plan*.

7. FACILITIES

a. Perform road maintenance activities to meet a variety of management objectives. Not all roads will be maintained every year due to the maintenance level assigned by management, use, and other factors. Schedule road maintenance activities according to the following priorities: (1) to provide for user safety; (2) to meet contractual and legal obligations; (3) to protect natural resources; and (4) to provide an efficient transportation system.

b. Assign road maintenance levels to each system road or road segment based on traffic management and use objectives (see Appendix K). Maintain all roads to at least Maintenance Level 1.

c. Construct or reconstruct roads so that a stable road prism is established. This includes road cuts and fills and the road surface. Minimize sedimentation by employing construction practices such as (1) placing surfacing on the roadway; (2) establishing a vegetative cover on slopes; and (3) installing proper drainage structures.

d. Use a full range of vegetative management techniques along roads, trails, and transmission corridors with emphasis on nonchemical means.

e. Closures of roads and/or selected areas, to assist in management of the Forest's resources, may be made by regulatory and/or physical devices on the road, for the following purposes:

- to protect the road surface during the wet season so that maintenance and erosion are reduced;
- to protect wildlife and/or help meet wildlife management objectives;
- for safety, fire, and general administrative purposes; and
- for special closures per Code of Federal Regulations (CFR).

Make road closures according to pertinent regulations (i.e., 36 CFR 212.7 through 212.12 and 36 CFR 261.53 and 261.54.) In addition, adhere to 36 CFR 261.50 and 36 CFR 261.51, covering closure orders and the posting of those orders.

f. A public information/education program will accompany any new road closure program. Closure areas will be signed for the seasons and periods of closure. The reason for closure, the regulations providing for closure, and the responsible agencies will also be indicated.

g. Retain roads on the Forest transportation system that will be needed for future activities (beyond one season) such as forest health, timber management, fire protection, recreation management, mining, wildlife, and range. Analyze non-inventoried roads to determine whether they

should be added to the transportation system or obliterated as time and funding allow.

h. Coordinate road improvement and maintenance projects with other Forests, State and local agencies, and cooperators, as needed.

i. Upgrade the surfacing on the Forest's road system as necessary to protect the road and other resource values.

The *Forest Plan* has allocated the 2.1 million acres of the Forest into different management prescriptions. The following chart displays the percentage of acres in each management prescription.

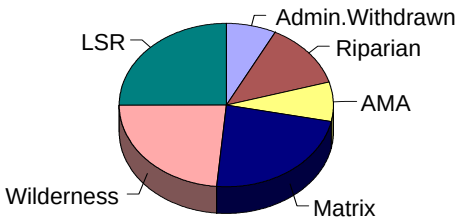
Acreage by Management Prescription within Land Allocations (*Forest Plan*, Page 4-32)

Rx	LAND ALLOCATION	ACREAGE
1. Congressionally Reserved Areas		
V	Wilderness Management	498,776
	TOTAL	**498,776**
2. Late-Successional Reserves, Managed Late-Successional Areas, and Other Threatened, Endangered, or Sensitive Species (Bald Eagle and Peregrine Falcon)		
VII	Late-Successional Reserves and Threatened, Endangered, and Selected Sensitive Species	531,520
	TOTAL	**531,520**
3. Administratively Withdrawn Areas		
I	Unroaded Non-Motorized Recreation	66,984
II	Limited Roaded Motorized Recreation	59,040
IV	Roaded, High Density Recreation	6,247
X	Special Area Management	24,031
XI	Heritage Resource Management	3,570
	TOTAL	**159,872**
4. Riparian Reserves and Key Watersheds		
IX	Riparian Management	274,308
	TOTAL	**274,308**
5. Matrix Lands		
III	Roaded Recreation	144,298
VI	Wildlife Habitat Management	129,190
VIII	Commercial Wood Products Emphasis	218,754
	TOTAL	**492,242**
6. Adaptive Management Areas		
III	Roaded Recreation	55,594
VI	Wildlife Habitat Management	42785
VIII	Commercial Wood Products Emphasis	66,449

Acreage by Management Prescription within Land Allocations (*Forest Plan*, Page 4-32)

Rx	LAND ALLOCATION	ACREAGE
	TOTAL	**164,828**
	Grand Total	**2,121,547**

Shasta-Trinity NF Land Allocations



DIRECTION BY MANAGEMENT PRESCRIPTION

1. CONGRESSIONALLY RESERVED AREAS

Rx V. WILDERNESS MANAGEMENT

No applicable direction pertaining to roads.

2. LATE-SUCCESSIONAL RESERVES, MANAGED LATE SUCCESSIONAL AREAS, AND OTHER THREATENED, ENDANGERED, OR SENSITIVE SPECIES

Rx VII. LATE-SUCCESSIONAL RESERVES AND THREATENED, ENDANGERED, AND SELECTED SENSITIVE

Page 4-37 of the *Forest Plan*

Standards and Guidelines from the ROD

6. Removal of snags and logs may be necessary to reduce hazards to humans along roads and trails, and in or adjacent to campgrounds. Where materials must be removed from the site, as in a campground or on a road, a salvage sale is appropriate. In other areas, such as along roads, leaving material on site should be considered. Also, material will be left where available coarse woody debris is inadequate.

Pages 4-39 and 4-40 of the *Forest Plan*

Standards and Guidelines for Multiple-Use Activities Other Than Silviculture

Road Construction and Maintenance - Road construction in Late-Successional Reserves for silvicultural, salvage, and other activities generally is not recommended unless potential benefits exceed the costs of habitat impairment. If new roads are necessary to implement a practice that is otherwise in accordance with these guidelines, they will be kept to a minimum, be routed through non-late-successional habitat where possible, and be designed to minimize adverse impacts. Alternative access methods, such as aerial logging, should be considered to provide access for activities in reserves.

Road maintenance may include felling hazard trees along rights-of-way. Leaving material on site should be considered if available coarse woody debris is inadequate. Topping trees should be considered as an alternative to felling.

Rights-of-Way, Contracted Rights, Easements, and Special Use Permits - Access to nonfederal lands through Late-Successional Reserves will be considered and existing right-of-way agreements, contracted rights, easements, and special use permits in Late-Successional Reserves will be recognized as valid uses. New access proposals may require mitigation measures to reduce adverse effects on Late-Successional Reserves. In these cases, alternate routes that avoid late-successional habitat should be considered. If roads must be routed through a reserve, they will be designed and located to have the least impact on late-successional habitat. Review all special use permits and when objectives of Late-Successional Reserves are not being met, reduce impacts through either modification of existing permits or education.

3. ADMINISTRATIVELY WITHDRAWN AREAS

Management Prescriptions Developed Through the Forest Planning Process

Rx I. UNROADED NON-MOTORIZED RECREATION

Page 4-45 of the *Forest Plan*

D. Standards and Guidelines

1. No new roads will be constructed for Forest Service generated activities.

Rx II. LIMITED ROADED MOTORIZED RECREATION

Page 4-46 and 4-47 of the *Forest Plan*

D. Standards and Guidelines

1. Road density for existing and new roads will be planned and managed to ensure that user contact does not exceed low to moderate levels.

Rx IV. ROADED, HIGH DENSITY RECREATION

Page 4-48 of the *Forest Plan*

D. Standards and Guidelines

1. New roads and trails will be constructed for the purpose of accessing fishing trails, interpretive trails, or providing links to primary trails. These roads and trails will be located, designed, constructed, and maintained to standards which complement Rural Recreation Opportunity Spectrum (ROS) activities.

Rx. X. SPECIAL AREA MANAGEMENT

Page 4-49 of the *Forest Plan*

D. Standards and Guidelines

3. Allow off-highway vehicle (OHV) use on existing, designated roads only. Where no existing roads occur, prohibit OHV use. Close roads if necessary to maintain RNA and SIA values.

Rx. XI. HERITAGE RESOURCE MANAGEMENT

Pages 4-50 and 4-51 of the *Forest Plan*

D. Standards and Guidelines

6. No new road or trail construction will be allowed unless approved by the Forest Supervisor. Reconstruction will be allowed only if adverse effects are not created.

4. RIPARIAN RESERVES AND KEY WATERSHEDS

Pages 4-53 and 4-54 of the *Forest Plan*

Standards and Guidelines from the ROD

(FOR AQUATIC CONSERVATION STRATEGY OBJECTIVES)

Riparian Reserves:

2. Roads Management

a. Cooperate with Federal, state, and county agencies to achieve consistency in road design, operation, and maintenance necessary to attain Aquatic Conservation Strategy objectives.

b. For each existing or planned road, meet Aquatic Conservation Strategy objectives by:

   (1) minimizing road and landing locations in Riparian Reserves.

   (2) completing watershed analyses (including appropriate geotechnical analyses) prior to construction of new roads or landings in Riparian Reserves.

   (3) preparing road design criteria, elements, and standards that govern construction and reconstruction.

   (4) preparing operation and maintenance criteria that govern road operation, maintenance, and management.

   (7) avoiding wetlands entirely when constructing new roads.

c. Determine the influence of each road on the Aquatic Conservation Strategy objectives through watershed analysis. Meet Aquatic Conservation Strategy objectives by:

   (1) reconstructing roads and associated drainage features that pose a substantial risk.

   (2) prioritizing reconstruction based on current and potential impact to riparian resources and the ecological value of the riparian resources affected.

   (3) closing and stabilizing, or obliterating and stabilizing roads based on the ongoing and potential effects to Aquatic Conservation Strategy objectives and considering short-term and long-term transportation needs.

d. New culverts, bridges and other stream crossings shall be constructed, and existing culverts, bridges and other stream crossings determined to pose a substantial risk to riparian conditions will be improved, to accommodate at least the 100-year flood, including associated bedload and debris. Priority for upgrading will be based on the potential impact and the ecological value of the riparian resources affected. Crossings will be constructed and maintained to prevent diversion of streamflow out of the channel and down the road in the event of crossing failure.

e. Minimize sediment delivery to streams from roads. Outsloping of the roadway surface is preferred, except in cases where outsloping will increase sediment delivery to streams or where outsloping is unfeasible or unsafe. Route road drainage away from potentially unstable channels, fills, and hillslopes.

f. Provide and maintain fish passage at all road crossings of existing and potential fish-bearing streams.

g. Develop and implement a Road Management Plan or a Transportation Management Plan that will meet the Aquatic Conservation Strategy objectives. As a minimum, this plan shall include provisions for the following activities:

   (1) inspections and maintenance during storm events.
   (2) inspections and maintenance after storm events.

   (3) road operation and maintenance, giving high priority to identifying and correcting road drainage problems that contribute to degrading riparian resources.

   (4) traffic regulation during wet periods to prevent damage to riparian resources.

   (5) establish the purpose of each road by developing the Road Management Objective.

5. Minerals Management

Page 4-56 of the *Forest Plan*

b. Locate structures, support facilities, and roads outside Riparian Reserves. Where no alternative to placing facilities in Riparian Reserves exists, locate them in a way compatible with Aquatic Conservation Strategy objectives. Road construction will be kept to the minimum necessary for the approved mineral activity. Such roads will be constructed and maintained to meet roads management standards and to minimize damage to resources in the Riparian Reserve. When a road is no longer required for mineral or land management activities, it will be closed, obliterated, and stabilized.

Key Watersheds:

Pages 4-58 and 4-59 of the *Forest Plan*

The amount of existing system and nonsystem roads within Key Watersheds should be reduced through decommissioning of roads. Road closures with gates or barriers do not qualify as decommissioning or a reduction in road mileage. If funding is insufficient to implement reductions, there will be no net increase in the amount of roads in Key Watersheds. That is, for each mile of new road constructed, at least one mile of road should be decommissioned, and priority given to roads that pose the greatest risks to riparian and aquatic ecosystems.

Standards and Guidelines for Key Watersheds

Inside Roadless Areas - No new roads will be built in remaining unroaded portions of inventoried (RARE II) roadless areas.
Outside Roadless Areas - Reduce existing system and nonsystem road mileage. If funding is insufficient to implement reductions, there will be no net increase in the amount of roads in Key Watersheds.

Management Prescriptions Developed Through the Forest Planning Process

Rx IX. RIPARIAN MANAGEMENT

Pages 4-59 and 4-60 of the *Forest Plan*

B. Management Practices

Permitted: Road Construction and Reconstruction

5. MATRIX LANDS

Rx III. ROADED RECREATION

Pages 4-64 and 4-65 of the *Forest Plan*

Management Prescriptions Developed Through the Forest Planning Process

B. Management Practices

Emphasized: Road Construction and Reconstruction

D. Standards and Guidelines

1. Roads and trails should be located, designed, constructed and maintained so that they are compatible with Roaded Natural Recreation Opportunity Spectrum (ROS) activities. These activities include hiking, auto touring, wildlife viewing, OHV use, cross-country skiing, snowmobiling, and horseback riding.

Rx VI. WILDLIFE HABITAT MANAGEMENT

Page 4-66 of the *Forest Plan*

B. Management Practices

Permitted: Road Construction and Reconstruction

Rx VIII. COMMERCIAL WOOD PRODUCTS EMPHASIS

Page 4-67 of the *Forest Plan*

B. Management Practices

Emphasized: Road Construction and Reconstruction.

D. Standards and Guidelines

1. Transportation system planning will consider total needs of a compartment or large area.

6. ADAPTIVE MANAGEMENT AREAS

Page 4-69 of the *Forest Plan*

Standards and Guidelines from the ROD

Technical topics requiring demonstration or investigation are a priority for Adaptive Management Areas and cover a wide spectrum, from the welfare of organisms to ecosystems to landscapes. Included are development, demonstration, and testing of techniques for development of logging and transportation systems with low impact on soil stability and water quality.

APPENDIX E

MAINTENANCE LEVEL 3 AND 4 ROADS DROPPED FROM ANALYSIS

Table F-1 displays roads that were dropped from the Forest-Level Roads Analysis. They are primarily short campground spurs, less than a mile in length, that were not identified for any change in Maintenance Level or other action. Some short roads stayed in the Forest-level analysis and were carried forward with recommendations. Not all roads in **Table F-1** were ranked by all resource areas, however, information has been compiled in this table as a record of work completed.

Table F-1 Maintenance Level 3 and 4 Roads Dropped From Analysis

ID#	ROAD NUMBER	MANAGEMENT UNIT 1/	RANGER DISTRICT 2/	MILES	ROAD NAME	CURRENT RESOURCE RISKS (IMPACTS)					Total Current Environmental **Risk Score**	CURRENT RESOURCE BENEFITS (ACCESS)							Total Current Environmental **Benefit Score**
						Aquatics Riparian AQ10, AQ12, AQ14	Hydrologic Process AQ1	Water Quality AQ2-5, AQ7, WP2	Terrestrial Species TW1,4	Public Use SI11		Fire Protection PT2, PT3	Fuels Management PT1	Economics EC1, EC2, EC3	Commodity Production TM2, TM3	Public Use MM1,SI3,SI4,SU1,RR6	Social Issues SI1	Access GT1-4, WP1&3, RM1	
6	1S22	SFMU	HF	0.2	Hells Gate CG	1.1	0.0	2.5	2.6	0	1.2	0	0	4.5	0	0	2	1.7	1.17
9	1S31	SFMU	HF	0.2	Forest Glen CG	0.9	0.0	2.7	2.4	0	1.2			4.5	0	0	2	1.7	1.17
10	1S39	SFMU	HF	0.3	May Forest Glen Station	1.7	0.0	1.9	2.8	0	1.3			4.5	0	1	2	1.7	1.31
14	2N08	SFMU	HF	0.2	Indian Valley GS	1.6	3.5	2.7	2.7	0	2.1			3.0	0	4	4	1.8	1.82
18	3N06	SFMU	HF	0.1	Big Slide CG	2.4	5.0	3.1	3.3	0	2.8			4.5	0	3	2	1.8	1.62
21	3N11	SFMU	HF	0.2	Little Rock CG	2.4	5.0	3.3	2.8	0	2.7			4.5	0	0	2	1.7	1.17
23	3N15	SFMU	HF	0.2	Slide Creek CG	2.4	5.0	3.1	3.3	0	2.8			4.5	0	1	2	1.7	1.31
24	3N17	SFMU	HF	0.1	Hyampom GS	1.0	1.0	1.1	2.0	0	1.0	3	3	4.0	0	2	2	1.5	2.21
34	4N16Q	TRMU	BB	0.1	Big Bar CG	1.0	0.0	1.8	2.3	0	1.0			4.0	0	0	2	1.3	1.05
36	4N33	TRMU	BB	0.1	Whites Bar Picnic	0.3	0.0	1.8	1.8	0	0.8			4.0	0	1	2	1.7	1.24
39	5N03	TRMU	BB	0.1	Burnt Ranch GS	0.7	1.3	0.9	1.8	0	0.9			4.0	0	2	2	1.3	1.33
41	5N04	TRMU	BB	0.3	Big Mtn (FA04) LO, Pvt. Access	1.6	2.2	1.9	3.9	1	2.1	4	4	5.0	5	3	2	1.7	3.53
46	5N22	TRMU	BB	0.4	Hayden Flat CG	1.0	5.0	4.3	1.5	0	2.3			4.0	0	1	2	1.3	1.19
47	5N22A	TRMU	HF	0.0	Hayden Flat CG	0.3	5.0	2.5	1.7	0	1.9			5.0	0	1	2	1.7	1.39
48	5N22B	TRMU	HF	0.1	Hayden Flat CG	0.3	2.2	1.2	1.7	0	1.1			5.0	0	1	2	1.7	1.39
49	5N23	TRMU	BB	0.3	Hayden Flat CG	2.0	5.0	4.7	1.7	0	2.7			4.0	0	1	2	1.3	1.19
50	5N24	TRMU	BB	0.5	Burnt Ranch CG	0.7	1.3	1.7	2.8	0	1.3			4.0	0	1	2	1.3	1.19
51	5N39	TRMU	BB	0.1	Cedar Flat Picnic	2.0	5.0	2.5	1.7	0	2.2			4.0	5	1	2	1.7	1.96
54	6N06	TRMU	BB	0.4	Denny GS	0.2	3.7	3.1	1.4	0	1.7			4.0	0	2	2	1.3	1.33
55	6N07	TRMU	BB	0.1	Denny CG	1.9	5.0	4.7	1.4	0	2.6			4.0	0	4	2	1.3	1.62
61	27N09	SFMU	YB	0.2	Saddle Camp GS	0.8	0.9	1.3	2.1	0	1.0	3	3	4.0	4	2	2	1.5	2.78
64	28N06	SFMU	YB	0.3	Beegum Gorge CG	0.6	0.0	4.8	1.7	0	1.4			3.5	0	0	2	1.3	0.97
80	29N19	SFMU	YB	1.0	Harrison Gulch Compound	1.0	0.0	0.7	2.6	0	0.9			5.0	0	1	2	1.7	1.39
81	29N19A	SFMU	YB	0.5	Harrison Gulch Bone Yard	1.1	0.0	0.7	2.4	2	1.2			4.5	0	1	2	1.5	1.29
82	29N19Y	SFMU	YB	0.3	Harrison Gulch Office	0.0	0.0	0.4	2.4	2	1.0			5.0	0	1	2	1.7	1.39
83	29N23	SFMU	YB	0.6	Basin Gulch CG	1.2	0.0	2.3	2.4	2	1.6			4.5	0	2	2	1.5	1.43
84	29N23A	SFMU	YB	0.2	Basin Gulch CG	1.2	0.0	3.3	2.4	0	1.4			3.5	0	0	2	1.1	0.95
105	30N32	SFMU	HF	0.1	Philpot CG	1.7	5.0	3.1	3.7	0	2.7			4.5	0	1	2	1.5	1.29
114	31N34	SFMU	HF	0.2	Hayfork Ranger Station	1.3	0.0	1.1	2.5	0	1.0			4.5	0	1	2	1.5	1.29
115	31N35	SFMU	HF	0.2	Hayfork Ranger Station	1.3	0.0	0.9	2.5	0	0.9			5.0	0	1	2	1.7	1.39
118	33N01Y	TRMU	BB	0.1	Skunk Point Picnic	2.7	5.0	4.3	2.0	0	2.8			3.0	2	0	2	1.3	1.19
119	33N04	SMMU	SL	2.2	Digger Bay Resort	0.0	0.0	2.8	1.9	0	0.9	3	3	4.5	0	5	2	1.5	2.72
120	33N04A	NRA	SL	0.2	Digger Bay Well	0.0	2.1	2.8	1.6	0	1.3			3.5	0	5	2	1.1	1.66
121	33N04C	NRA	SL	0.2	Digger Lower Parking Lot	0.0	0.0	2.4	1.8	0	0.8			5.0	0	5	2	1.7	1.96
122	33N09	NRA	SL	0.1	Rocky Ridge CG	0.0	0.0	2.2	1.9	0	0.8	3	3	5.0	0	5	2	1.7	2.82
123	33N13	NRA	SL	0.8	Jones Bay	0.0	5.0	4.2	3.2	1	2.7	3	3	4.5	0	5	2	1.5	2.72
124	33N13A	NRA	SL	0.0	Pollution Point	1.7	5.0	3.0	1.7	0	2.3			4.5	0	5	2	1.5	1.86

Table F-1 Maintenance Level 3 and 4 Roads Dropped From Analysis

ID#	ROAD NUMBER	MANAGEMENT UNIT 1/	RANGER DISTRICT 2/	MILES	ROAD NAME	CURRENT RESOURCE RISKS (IMPACTS)					Total Current Environmental **Risk Score**	CURRENT RESOURCE BENEFITS (ACCESS)							Total Current Environmental **Benefit Score**
						Aquatics Riparian AQ10, AQ12, AQ14	Hydrologic Process AQ1	Water Quality AQ2-5, AQ7, WP2	Terrestrial Species TW1,4	Public Use SI11		Fire Protection PT2, PT3	Fuels Management PT1	Economics EC1, EC2, EC3	Commodity Production TM2, TM3	Public Use MM1,SI3,SI4,SU1,RR6	Social Issues SI1	Access GT1-4, WP1&3, RM1	
125	33N13B	NRA	SL	0.0	Jones Bay Uphill	0.0	0.0	2.4	2.9	0	1.1			5.0	0	5	2	1.7	1.96
126	33N24	NRA	SL	0.5	Fishermans Point	0.0	0.0	2.7	1.8		1.1	3	3	5.0	0	4	2	1.7	2.67
127	33N26	NRA	SL	0.2	West Jones Valley CG	0.3	0.0	1.0	2.2	1	0.9			5.0	0	4	2	1.7	1.82
128	33N26A	NRA	SL	0.1	West Jones Valley Access	0.3	0.0	2.4	2.2		1.2			4.5	0	4	2	1.5	1.72
129	33N27	NRA	SL	0.2	East Jones Valley CG	0.3	0.0	2.2	2.2		1.2			4.8	0	4	2	1.6	1.77
130	33N33	NRA	SL	0.2	Centimudi Overflow	0.0	5.0	3.0	1.8		2.5			5.0	0	4	2	1.7	1.82
131	33N33A	NRA	SL	0.1	Centimudi Parking	0.0	0.0	2.4	1.8		1.0			5.0	0	4	2	1.7	1.82
132	33N36	TRMU	WV	0.4	Weaverville Compound	1.2	5.0	2.8	2.4	0	2.3			5.0	0	1	2	1.7	1.39
137	33N54	TRMU	BB	0.1	Junction City Station	0.9	1.9	1.1	2.2	0	1.2			4.5	0	1	2	1.5	1.29
138	33N61	TRMU	BB	0.2	Big Flat CG	1.0	2.0	1.3	2.3	0	1.3			4.0	0	4	2	1.3	1.62
139	33N62	TRMU	BB	0.3	Big Bar Station	0.3	0.0	2.0	2.0	0	0.9			4.8	0	1	2	1.6	1.34
140	33N70	NRA	SL	0.1	Shasta OHV	0.0	5.0	3.1	1.9	0	2.0			5.0	0	4	2	1.7	1.82
141	33N72	NRA	SL	0.2	Shasta CG	1.7	5.0	3.1	1.9	0	2.3			5.0	0	4	2	1.7	1.82
142	33N72A	NRA	SL	0.1	SHASTA A CG	0.0	0.0	2.5	1.9	0	0.9			5.0	0	4	2	1.7	1.82
143	33N72B	NRA	SL	0.1	Shasta B CG	0.0	1.5	1.4	1.9	0	1.0			5.0	0	4	2	1.7	1.82
144	33N74	NRA	SL	0.1	Shasta Day Use CG	0.0	5.0	3.1	1.9	0	2.0			5.0	0	4	2	1.7	1.82
145	33N78	NRA	WV	0.2	Cooper GU CG	1.3	0.0	1.9	2.5		1.4			5.0	0	4	2	1.7	1.82
146	33N79	NRA	WV	0.6	Mary Smith CG	1.3	0.0	2.2	3.0	0	1.3			5.0	0	4	2	1.7	1.82
148	33N83A	NRA	SL	0.0	Centimudi Boat Ramp	0.0	0.0	2.6	1.8	0	0.9	3	3	5.0	0	4	2	1.7	2.67
149	33N83B	NRA	SL	0.2	Centimudi Park	0.0	0.0	2.4	1.8	0	0.8			5.0	0	4	2	1.7	1.82
152	33N85A	NRA	SL	0.3	Silverthorn Resort	0.0	0.0	2.2	1.7		1.0			5.0	0	5	2	1.7	1.96
153	33N85B	NRA	SL	0.1	Silverthorn Day Use Resort	0.0	5.0	4.2	1.7		2.7			4.5	0	5	2	1.5	1.86
155	33N86D	NRA	SL	0.1	Jones Valley Park Resort	0.0	5.0	3.4	1.9		2.6			5.0	0	4	2	1.7	1.82
156	33N86E	NRA	SL	0.2	Jones Valley Boat Ramp	0.0	5.0	4.1	1.9		2.7			5.0	0	4	2	1.7	1.82
157	33N88	SMMU	SL	1.0	Old Digger Bay CG	1.7	5.0	5.0	1.6		3.3	0	0	1.5	0	1	2	1.1	0.81
158	34N07	NRA	SL	0.7	South O'Brian	0.0	0.0	3.0	1.9	0	1.0	3	3	5.0	0	4	5	1.7	3.10
160	34N07YA	TRMU	BB	0.2	Hobo Gulch CG	3.3	0.0	0.7	1.6	0	1.1			4.0	0	4	2	1.3	1.62
162	34N09	NRA	SL	0.5	Turntable Admin Site	0.0	5.0	3.2	1.7		2.5			4.5	0	5	2	1.5	1.86
163	34N09A	NRA	SL	0.5	Shasta Yacht Club	0.0	5.0	4.3	1.7		2.8			4.5	0	5	2	1.5	1.86
164	34N09B	NRA	SL	0.8	Lower Deck	0.0	0.0	2.8	1.7		1.1			4.0	0	5	2	1.3	1.76
166	34N12A	NRA	SL	0.2	Lake View Cabins, Resort	0.0	0.0	4.2	1.8		1.5	3	5	3.5	0	5	2	1.1	2.81
167	34N12B	NRA	SL	0.1	Lake View Bone Yard	0.7	0.0	1.8	1.8		1.1	3	5	5.0	0	5	2	1.7	3.10
168	34N12C	NRA	SL	0.2	Lake View Top Parking Lot	0.0	5.0	4.4	1.8		2.8	3	5	3.5	0	5	2	1.1	2.81
169	34N12D	NRA	SL	0.2	Lake View Mid Parking Lot	0.0	0.0	5.0	1.8		1.7	3	5	3.5	0	5	2	1.1	2.81
170	34N12E	TRMU	SL	0.1	Lake View Lower Parking Lot	0.0	0.0	4.9	1.8		1.7	3	5	3.5	0	5	2	1.1	2.81
171	34N16	NRA	WV	0.7	Ackerman CG	1.4	5.0	3.0	3.3		3.2			5.0	0	4	2	1.7	1.82
172	34N16A	NRA	HF	0.4	Ackerman CG	1.1	0.0	1.9	2.3		1.3			5.0	0	4	2	1.7	1.82
175	34N23Y	NRA	WV	0.1	Ackerman Sanitation Station	1.1	0.0	1.1	2.1	0	0.8			4.5	0	4	2	1.5	1.72
176	34N25Y	NRA	WV	0.1	Tunnel Rock CG	2.7	5.0	2.9	3.6	0	2.8			4.5	0	4	2	1.5	1.72
178	34N27A	NRA	SL	0.0	Waters Gulch TH	0.3	0.0	1.3	1.9		0.9	3	5	5.0	0	4	2	1.7	2.96
179	34N27B	NRA	SL	0.5	Packers / Resort	0.0	0.0	3.2	1.9		1.3	3	5	4.5	0	5	2	1.5	3.00
180	34N27C	NRA	SL	0.0	Packers Boat Ramp	0.0	0.0	2.6	1.9		1.1			5.0	0	5	2	1.7	1.96
183	34N35	NRA	WV	0.2	Pine Cove Boat Ramp	1.1	0.0	1.9	2.8		1.4			5.0	0	4	2	1.7	1.82
184	34N40	TRMU	WV	0.2	Trinity Mtn GS	0.8	0.0	0.4	1.8		0.8			2.0	0	2	2	1.3	1.05
186	34N40YA	NRA	SL	0.3	Bailey Cove CG	0.0	0.0	4.1	2.0		1.5			5.0	0	5	2	1.7	1.96
187	34N40YB	NRA	SL	0.1	Bailey Cove TH	0.0	0.0	2.4	2.0		1.1			5.0	0	5	2	1.7	1.96
188	34N40YC	NRA	SL	0.0	Bailey Cove Lot	0.0	0.0	0.1	2.0		0.5			5.0	0	5	2	1.7	1.96
189	34N41Y	TRMU	WV	0.1	Rush Cr Vista	1.3	0.0	0.9	2.0	0	0.8			4.0	0	3	2	1.7	1.53
190	34N48Y	NRA	WV	0.3	Fairview Boat Ramp	1.1	5.0	2.7	3.7	2	2.9			5.0	0	4	2	1.7	1.82
192	34N59	TRMU	BB	0.3	Pigeon Point CG	2.1	5.0	4.3	1.9	0	2.6			4.0	0	4	2	1.3	1.62
193	34N72	NRA	WV	0.1	Trinity Visitor Center	1.7	2.2	0.8	3.9	0	1.7			4.0	5	4	2	1.7	2.39
198	34N81	NRA	WV	1.3	Tannery Gulch CG	2.3	0.0	2.2	4.5	2	2.2			5.0	1	4	2	1.7	1.96
199	34N90	TRMU	WV	0.3	Helitack	1.1	0.0	0.4	2.3	0	0.8	5	5	5.0	2	5	2	2.1	3.73
200	34N92	NRA	SL	0.5	Bridge Bay Resort	0.0	0.0	2.8	1.9		1.2	0	0	5.0	0	5	2	1.9	1.98
201	34N92A	NRA	SL	0.5	Tunnel Two	0.0	5.0	3.5	1.9		2.6	0	0	5.0	0	5	2	1.9	1.98

Table F-1 Maintenance Level 3 and 4 Roads Dropped From Analysis

ID#	ROAD NUMBER	MANAGEMENT UNIT 1/	RANGER DISTRICT 2/	MILES	ROAD NAME	CURRENT RESOURCE RISKS (IMPACTS)					Total Current Environmental Risk Score	CURRENT RESOURCE BENEFITS (ACCESS)							Total Current Environmental Benefit Score
						Aquatics Riparian AQ10, AQ12, AQ14	Hydrologic Process AQ1	Water Quality AQ2-5, AQ7, WP2	Terrestrial Species TW1,4	Public Use SI11		Fire Protection PT2, PT3	Fuels Management PT1	Economics EC1, EC2, EC3	Commodity Production TM2, TM3	Public Use MM1,SI3,SI4,SU1,RR6	Social Issues SI1	Access GT1-4, WP1&3, RM1	
202	34N94	TRMU	WV	0.2	Rock Pit, Conservation Camp	1.7	0.0	0.4	2.3		1.1	3	3	5.0	5	1	2	1.7	2.96
205	34N99	TRMU	WV	0.2	East Weaver CG	0.9	0.0	1.9	2.4		1.3			4.0	0	4	2	1.3	1.62
207	35N02XA	NRA	WV	0.2	Minersville CG	1.2	0.0	1.8	2.2	0	1.0			4.0	0	4	2	1.3	1.62
208	35N03X	NRA	WV	0.1	Osprey Vista	1.4	0.0	1.8	4.6	0	1.6			4.0	0	4	2	1.7	1.67
210	35N06X	NRA	WV	0.2	Minersville CG Loop	1.2	5.0	2.6	2.4	2	2.6			5.0	0	4	2	1.7	1.82
211	35N07X	NRA	WV	0.4	Bushytail CG Loop	1.2	1.2	0.7	3.2	2	1.6			4.0	0	4	2	1.3	1.62
213	35N08C	NRA	SL	0.1	Beehive Point	0.0	0.0	2.4	1.8		1.0	3	3	3.0	0	4	2	1.3	2.33
214	35N08G	NRA	SL	0.3	Old Man Parking	0.0	0.0	2.0	1.8		0.9	3	3	3.5	0	4	2	1.5	2.43
216	35N10A	TRMU	WV	0.1	East Stuart	1.0	0.0	1.3	2.2		1.1			2.5	0	3	2	1.1	1.23
218	35N14B	NRA	SL	0.9	Antlers CG	0.0	0.0	2.1	2.6		1.2			5.0	1	5	2	1.7	2.10
219	35N14C	NRA	SL	0.1	Antlers Boat Ramp Road	0.0	5.0	3.0	2.6		2.7			5.0	1	5	2	1.7	2.10
220	35N14D	NRA	SL	0.3	Antlers Park	1.2	0.0	2.0	2.6		1.5			5.0	1	5	2	1.7	2.10
221	35N14E	NRA	SL	0.3	Antlers Trash	0.0	5.0	2.9	2.4		2.6			5.0	1	5	2	1.7	2.10
224	35N15A	NRA	SL	0.2	Gregory CG	0.0	0.0	2.4	2.4		1.2			4.5	0	4	2	1.5	1.72
225	35N15B	NRA	SL	0.1	Gregory Beach	0.0	0.0	2.4	2.1		1.1			4.0	0	4	2	1.3	1.62
228	35N17A	NRA	SL	0.1	Nelson Point CG	0.0	0.0	2.4	3.3		1.4			5.0	0	4	2	1.7	1.82
229	35N17B	NRA	SL	0.1	Oak Grove Lake Park	0.0	5.0	3.4	3.0		2.8			5.0	0	4	2	1.7	1.82
230	35N18Y	NRA	SL	0.0	Solus RV Park	0.0	2.3	1.7	2.8	0	1.3			2.0	0	4	2	1.3	1.33
231	35N23	SMMU	SL	1.8	Pit 7, PGE access	0.5	5.0	4.2	2.7	0	2.5	3	3	5.0	2	2	5	1.7	3.10
235	35N26YA	NRA	WV	1.3	Hayward Flat CG	1.3	0.0	1.2	2.5		1.2			5.0	0	4	2	1.7	1.82
236	35N28	NRA	WV	0.2	Stoney Pt CG Loop	1.4	5.0	2.6	2.8		3.0			5.0	0	4	2	1.7	1.82
238	35N29	NRA	WV	0.2	Fawn CG Loop	1.2	1.7	0.7	3.4	2	1.8			5.0	0	4	2	1.7	1.82
239	35N29A	NRA	WV	0.2	Fawn CG Loop A	1.2	0.0	0.4	3.4	2	1.4			5.0	0	4	2	1.7	1.82
240	35N29B	NRA	WV	0.2	Fawn CG Loop B	1.2	0.0	0.4	3.4		1.3			5.0	0	4	2	1.7	1.82
241	35N29C	NRA	WV	0.2	Fawn CG Loop C	1.2	0.0	1.8	3.4		1.6			5.0	0	4	2	1.7	1.82
243	35N33YA	TRMU	WV	0.2	Stuart Fork CG	2.1	0.0	3.9	2.6		2.1			3.5	0	4	2	1.1	1.52
244	35N36Y	NRA	WV	0.2	Mule Creek GS	1.2	0.0	0.4	4.4	0	1.2			5.0	0	1	2	1.7	1.39
245	35N40	NRA	SL	0.1	Lakeshore East CG	0.0	5.0	3.1	2.6		2.7			5.0	0	4	2	1.7	1.82
246	35N40A	NRA	SL	0.3	Lakeshore East CG	0.0	5.0	3.1	2.6		2.7			5.0	0	4	2	1.7	1.82
247	35N41	NRA	SL	0.2	Lakeshore GS	0.0	0.0	2.4	2.0		1.1			4.5	0	2	2	1.5	1.43
248	35N42	NRA	SL	0.4	Sugarloaf Beach, Boat Ramp	0.0	0.0	2.4	2.0		1.1			5.0	0	5	2	1.7	1.96
249	35N47	NRA	SL	0.2	Dekkas Rock CG	0.0	0.0	2.4	2.9		1.3			5.0	0	4	2	1.7	1.82
250	35N47A	NRA	SL	0.1	Dekkas Rock CG Access	0.0	0.0	2.4	2.9		1.3	3	3	5.0	0	4	2	1.7	2.67
254	35N48A	NRA	SL	0.1	Hirz Corp Yard CG	0.0	1.6	1.4	2.1		1.3	3	3	5.0	0	4	2	1.7	2.67
255	35N48B	NRA	SL	0.1	Hirz Group One CG	0.0	0.0	1.0	2.1		0.8	3	3	5.0	0	4	2	1.7	2.67
256	35N48C	NRA	SL	0.1	Hirz Residence CG	0.0	0.0	1.3	2.1		0.8	3	3	5.0	0	4	2	1.7	2.67
257	35N48D	NRA	SL	0.1	Hirz Group Two CG	0.0	0.0	2.2	1.9		1.0	3	3	5.0	0	4	2	1.7	2.67
258	35N48E	NRA	SL	0.1	Hirz Bay CG Ramp Prkng (Upper)	0.0	0.0	2.4	1.9		1.1	3	3	5.0	0	4	2	1.7	2.67
259	35N48F	NRA	SL	0.2	Hirz Boat Ramp Parking (Lower)	0.0	5.0	3.0	1.9		2.5	3	3	5.0	0	5	2	1.7	2.82
260	35N49	NRA	SL	0.9	Hirz Bay Camp Ground	0.0	0.0	1.3	2.1		0.8			5.0	0	4	2	1.7	1.82
261	35N49A	NRA	SL	0.1	Hirz Bay Camp Ground Parking	0.0	0.0	0.8	3.3		1.0			5.0	0	4	2	1.7	1.82
262	35N50	NRA	SL	0.5	Oak Grove CG	0.0	5.0	3.4	4.0		3.1	3	3	5.0	0	3	2	1.7	2.53
263	35N50A	NRA	SL	0.1	Oak Grove A Loop	0.0	4.0	3.2	2.6		2.5	3	3	5.0	0	2	2	1.7	2.39
264	35N50Y	TRMU	BB	0.2	Canyon Cr TH	1.7	1.4	1.1	2.3		1.6			4.0	0	4	2	1.7	1.67
265	35N53	NRA	SL	0.1	Lakeshore Heliport	1.7	5.0	4.9	1.4		3.2			3.5	0	1	2	1.1	1.09
266	35N56Y	TRMU	BB	0.1	Ripstein CG	1.8	5.0	4.4	2.6		3.5	0	0	4.0	0	4	2	1.3	1.62
267	35N58	NRA	SL	0.2	Pine Point CG	0.0	5.0	3.1	2.1		2.5			5.0	0	4	2	1.7	1.82
268	35N59	NRA	SL	0.5	Ellery Creek CG	0.0	0.0	2.4	2.9		1.3			5.0	0	4	2	1.7	1.82
269	35N61	NRA	SL	0.3	Moore Creek CG	0.0	5.0	3.0	2.4		2.6			5.0	0	4	2	1.7	1.82
272	35N80	NRA	WV	0.5	Clark Spg CG Loop	1.2	0.0	0.9	4.6		1.7			5.0	0	4	2	1.7	1.82
273	35N81	NRA	WV	0.1	Stoney Group	3.1	5.0	2.6	2.6		3.3	0	0	5.0	0	4	2	1.7	1.82
274	35N82	NRA	WV	0.0	Kokanee Picnic, Vista	1.4	5.0	4.3	2.6	0	2.7			4.0	5	4	2	1.7	2.39
275	35N83	NRA	WV	0.1	Stuart Fk Boat Ramp	1.4	5.0	2.6	2.8	0	2.4			5.0	0	4	2	1.7	1.82
276	35N84	NRA	WV	0.1	Tan Bark Vista, Picnic Day Use	1.4	5.0	2.6	3.5	2	2.9			4.0	0	4	2	1.7	1.67
277	35N85	NRA	WV	1.1	Alpine View CG Loop	1.3	0.0	2.2	3.6		1.8			4.5	5	4	2	1.5	2.43

Table F-1 Maintenance Level 3 and 4 Roads Dropped From Analysis

ID#	ROAD NUMBER	MANAGEMENT UNIT 1/	RANGER DISTRICT 2/	MILES	ROAD NAME	CURRENT RESOURCE RISKS (IMPACTS)					Total Current Environmental **Risk Score**	CURRENT RESOURCE BENEFITS (ACCESS)								Total Current Environmental **Benefit Score**
						Aquatics Riparian AQ10, AQ12, AQ14	Hydrologic Process AQ1	Water Quality AQ2-5, AQ7, WP2	Terrestrial Species TW1,4	Public Use SI11		Fire Protection PT2, PT3	Fuels Management PT1	Economics EC1, EC2, EC3	Commodity Production TM2, TM3	Public Use MM1,SI3,SI4,SU1,RR6	Social Issues SI1	Access GT1-4, WP1&3, RM1		
278	35N91	NRA	WV	0.1	Stoney Swim CG Loop	1.4	0.0	1.8	2.4		1.4			5.0	0	4	2	1.7	1.82
281	35N94	SMMU	SL	0.2	Madrone CG	2.7	5.0	4.3	2.6		3.6	0	0	3.5	1	4	2	1.1	1.66
282	36N04Y	TRMU	BB	0.1	Hobo Gulch CG	1.8	5.0	4.3	2.4		3.4	0	0	2.5	0	4	2	1.1	1.38
288	36N37	NRA	SL	0.4	Mc Cloud Bridge CG	1.7	5.0	3.3	3.0		3.2	0	0	5.0	1	4	2	1.7	1.96
289	36N75	TRMU	WV	0.2	Clear Creek CG	1.5	0.0	4.4	2.9		2.2			1.5	0	0	2	1.1	0.66
291	36N98	TRMU	WV	0.7	Preacher Meadow CG	0.9	0.0	0.9	3.4	2	1.4			5.0	0	4	2	1.7	1.82
292	36N98A	TRMU	WV	0.3	Preacher Meadow CG	2.6	2.9	1.5	2.4	2	2.3			5.0	0	4	2	1.7	1.82
296	37N20Y	TRMU	WV	0.1	Oneeyed Flat TR Park	1.0	0.0	0.4	3.4		1.2			4.0	5	4	2	1.9	2.41
297	37N27Y	SMMU	SL	0.4	Deadlum Cr CG	1.7	5.0	5.0	4.0	0	3.1			3.5	0	1	2	1.1	1.09
298	37N34Y	NRA	WV	0.1	North Shore Vista	1.4	3.5	2.8	3.0		2.7			4.0	5	4	2	1.7	2.39
299	37N35Y	SMMU	MS	0.5	Sims Flat CG	3.0	5.0	3.9	2.8		3.7	0	0	5.0	0	4	2	1.7	1.82
300	37N35YA	SMMU	MS	0.0	Sims Connect CG	1.3	0.0	5.0	2.3		2.2			3.5	0	4	2	1.1	1.52
301	37N35YB	SMMU	MS	0.0	Sims Cross Over	1.3	0.0	2.7	2.4		1.6			5.0	0	4	2	1.7	1.82
308	37N60	SMMU	MS	0.0	Sims Guard Station	1.3	0.0	1.7	3.7		1.7			5.0	2	1	3	1.7	1.82
311	37N66Y	SMMU	SL	0.5	Hawkins Landing	0.0	0.0	4.9	3.2		2.0			3.5	0	4	2	1.1	1.52
312	37N66YA	SMMU	SL	0.2	Hawkins Landing	0.0	0.0	3.8	3.1		1.7			3.5	0	4	2	1.1	1.52
317	37N82	NRA	SL	0.3	Big Bend Guard Station	2.8	5.0	4.4	2.6		3.7	0	0	4.0	0	1	2	1.3	1.19
318	37N83	NRA	SL	0.4	Big Ben Fire Camp	2.8	5.0	4.4	2.0		3.5	0	0	4.0	0	1	2	1.3	1.19
320	38N07Y	TRMU	WV	0.2	Trinity River CG	2.6	5.0	2.7	2.4		3.2			5.0	0	4	2	1.7	1.82
323	38N11H	SMMU	MC	0.1	Ash Camp	3.3	5.0	5.0	2.3		3.9	0	0	1.0	1	4	2	1.1	1.31
329	38N71	TRMU	WV	0.4	Eagle Cr CG	0.5	0.0	1.9	3.9		1.6			1.5	0	4	2	1.3	1.26
330	38N75	TRMU	WV	0.2	Goldfield CG	2.0	5.0	4.3	2.9	0	2.8			3.5	0	4	2	1.3	1.54
331	38N81	SMMU	MC	0.3	Brown Trout Boat Ramp	1.7	5.0	4.4	3.7	0	3.0	1	3	5.0	0	4	2	1.7	2.39
332	38N83	TRMU	WV	0.1	Sugarpine TH	0.2	0.0	1.8	3.5		1.4			3.0	0	4	2	1.5	1.50
334	39N03Y	SMMU	MS	0.2	Castle Lake CG	4.7	5.0	5.0	2.8		4.4	0	0	2.5	1	4	2	1.1	1.52
342	39N22A	SMMU	MC	0.3	Cattle Camp	1.3	0.0	2.3	3.7		1.8			5.0	0	4	2	1.7	1.82
343	39N23	SMMU	MC	0.2	McCloud Station	1.8	0.0	0.9	3.0		1.4			5.0	0	2	2	1.9	1.55
344	39N23H	SMMU	MC	0.1	McCloud Station	3.5	5.0	2.8	3.0		3.6	0	0	5.0	0	1	2	1.7	1.39
348	39N28	SMMU	MC	0.7	Lower Falls CG	3.0	2.7	3.1	3.0	2	2.7	1	3	3.8	2	4	2	1.2	2.43
349	39N28B	SMMU	MC	0.1	Lower Falls Parking	1.3	0.0	2.2	2.9		1.6			5.0	0	4	2	1.7	1.82
350	39N30	SMMU	MC	0.3	Fowlers CG	1.7	4.2	2.8	2.5	3	2.8	1	1	4.5	0	4	2	1.5	2.00
351	39N30A	SMMU	MC	0.3	Fowler's A Loop CG	3.0	5.0	2.8	2.9		3.4	0	0	4.5	0	4	2	1.5	1.72
352	39N30B	SMMU	MC	0.3	Fowler's B Loop CG	3.0	5.0	4.4	2.3		3.7	0	0	4.5	0	4	2	1.5	1.72
353	39N30C	SMMU	MC	0.0	Fowlers Turn Around CG	1.0	2.5	1.6	2.7		1.9			4.5	0	4	2	1.5	1.72
355	39N88	TRMU	WV	0.2	Scott Mtn CG	0.7	1.8	2.1	2.8	5	2.5			1.0	0	4	2	1.1	1.16
360	40N21	SMMU	MC	0.3	Snowmobile Park	0.0	1.2	0.7	3.5		1.3			3.5	0	4	2	1.7	1.60
361	40N21A	SMMU	MC	0.2	Snowmobile Park Parking Lot	0.0	1.2	0.9	3.5		1.4			3.5	0	4	2	1.5	1.57
364	40N26E	SMMU	MS	0.1	Gumboot TH	1.7	0.0	0.9	2.3		1.2			1.5	5	4	2	1.3	1.98
365	40N28	SMMU	MS	0.2	Jemmuda	0.0	1.7	0.8	4.0		1.6	1	1	4.0	0	4	2	1.7	1.96
367	40N37	SMMU	MS	0.7	Gumboot Lake CG	2.3	1.5	3.1	2.0		2.2			1.8	2	4	2	1.4	1.60
369	40N39	SMMU	MS	0.1	Mt Shasta Station	1.5	2.4	1.2	2.6		1.9			5.0	0	1	2	1.7	1.39
370	40N39XA	SMMU	MS	0.0	Mt Shasta Station, Compound	1.5	2.4	1.2	2.6		1.9			5.0	0	2	2	1.7	1.53
371	40N39XB	SMMU	MS	0.0	Tree Cooler	1.5	2.4	1.2	2.6		1.9	3	3	5.0	0	1	2	1.7	2.24
373	40N44A	SMMU	MC	0.2	Middle Falls Overlook	1.0	0.0	0.1	3.5		1.1			4.0	0	4	2	1.7	1.67
374	40N44B	SMMU	MC	0.4	Upper Falls	4.3	5.0	4.7	3.0		4.2	0	0	2.5	0	4	2	1.1	1.38
375	40N44G	SMMU	MC	0.0	West Portal	0.0	0.0	0.1	3.2		0.8			4.0	0	4	2	1.7	1.67
382	40N92X	SMMU	MC	0.2	Ash Cr South, Ash Cr Station	0.0	2.5	1.2	2.9		1.6			5.0	0	2	2	1.7	1.53
390	41N30	SMMU	MS	0.3	Mc Bride Springs	0.3	5.0	2.8	2.0		2.5	1	1	5.0	0	4	2	1.7	2.10
397	41N78	SMMU	MS	0.1	Panther Meadow CG	1.3	1.2	2.1	2.7		1.8	1	1	2.5	0	4	2	1.1	1.66
405	42N17C	SMMU	MS	0.1	Parks Cr TH	0.3	0.0	0.5	2.1		0.7			3.0	2	4	2	1.5	1.78

APPENDIX F

FOREST-LEVEL ROADS ANALYSIS REFERENCES

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APPENDIX G

FOREST-LEVEL ROADS ANALYSIS BIOGRAPHICAL SUMMARIES

The Interdisciplinary Team formed by the Forest Supervisor in June 2001 held primary responsibility for the preparation of the Shasta-Trinity National Forest Roads Analysis Report. The Team included Core Team Members and Extended Core Team Members. In addition, the Forest's Line and Staff Officers, consisting of the Forest Supervisor, Deputy Forest Supervisor, Forest Staff Officers, and District Rangers, provided additional input to the planning process from a managerial viewpoint. They were also involved in the review of this document throughout the planning period.

During the preparation of this document, many individuals assisted in a variety of ways. Without their expertise, ideas, and opinions, this document would not have been possible.

Core Team Members

Kathleen A. Jordan Team Leader

Program Management Officer - *Forest program leader for business administration*

Experience:	27 years experience as an Engineering Geologist; Geologist; Forester; District Ranger; Forest Staff Officer.
Education:	Honors B.S., Earth Science (Geology), with honors; Master of Forestry, Forest Engineering.
Licenses & Certificates:	Public Administration, Lewis and Clark College; Registered Engineering Geologist, Oregon; Registered Geologist, Oregon.

Arlene B. Kallis Co-Team Leader, LMP Technical Expert

Forest Planner/Analyst - *Forest-wide planning, analysis, and monitoring program; Forest planning database administration; and Forest fuelwood program*

Experience:	24 years experience in timber planning, sale prep, sale administration and silviculture; Geographical Information Systems Coordinator; Forest Planner/Analyst.
Education:	B.S. Forestry.

Bill Branham Commodity Issues Coordinator

Forester – *Planning and Silviculture*

Experience:	28 years experience in sale planning, sale administration, and silviculture.
Education:	MS Forest Ecology and Silviculture; BS Forestry.
Licenses & Certificates:	Registered Professional Forester #2539; Certified Silviculturist; Planning Section Chief.

Nancy L. Hutchins Terrestrial Habitat (Wildlife and Botany)

Fish and Wildlife Staff Officer – *Program manager for fisheries and wildlife for the National Recreation Area Unit, Shasta-Trinity NF*

Experience:	23 years experience as a Wildlife Biologist; including details as Threatened and Endangered Species Coordinator and Forest Biologist.
Education:	BS Forestry and Wildlife Management; 2 years in MS Program.

Mike Jellison Transportation Road Management

Forest Road Manager – *Database management (INFRA), cooperative roads coordinator*

Experience:	30 years experience in contract administration; logging system engineering; road design; cooperative roads coordination.
Education:	AA Forestry, Forest Engineering Institute.
Licenses & Certificates:	Certified Engineering Representative; Contracting Officers Representative; Public Works Administrator.

Duane H. Lyon Public Involvement and Social Assessment Issues

Forest Public Affairs Officer / Rural Community Assistance Coordinator – *Public affairs program management, administration of national fire plan and rural community assistance grant programs, FOIA coordinator, and tribal government liaison*

Experience:	36 years experience in public affairs; Recreation Staff; Planning Staff; Recreation Planner; Assistant Chief Landscape Architect (LA); Assistant Regional LA; Forest LA; Assistant Forest LA.
Education:	Honors BS Landscape Architecture.
Licenses & Certificates:	Registered Professional Landscape Architect.

Karol McGuire GIS Analysis and Map Products

GIS Specialist – *Develop and implement Shasta-Trinity National Forest GIS and related technology*

Experience:	19 years experience as a GIS Specialist; Timber Sale Planner.
Education:	BS Forestry; 1 year Post-Graduate Operation Research.

Darrel Ranken Aquatic, Riparian, and Water Quality

Forest Hydrologist – *Forest program manager for hydrology*

Experience:	28 years experience as Forest Hydrologist; District Hydrologist.
Education:	BS Forest Management; MS Forest Hydrology.

Diane Rubiaco Minerals, Heritage, Recreation, and Special Uses

Assistant Public Uses Officer – *Program oversight for minerals, heritage, lands, recreation, and special uses*

Experience:	20 years experience in assistant public uses; Special Uses; District Liaison; Forest Fuels/Prevention; Timber Sale Preparation; Forestry Co-Op student.
Education:	BS Forestry.

Scott Vaughn Fire and Fuels

Fire Planner – *Program manager for fire planning*

Experience:	18 years experience as a Fire Planner; Battalion Chief.
Education:	BS Forestry.

Some members of the Team!