Cherokee National Forest
Watauga Ranger District

Travel Analysis Process Report

Rich Mountain Watershed Assessment Area

January 2011

Background

In August 1999, the Washington Office of the USDA Forest Service published Miscellaneous Report FS-643 titled Roads Analysis: Informing Decisions about Managing the National Forest Transportation System. The objective of roads analysis is to provide decision makers with critical information to develop road systems that are safe and responsive to public needs and desires, are affordable and efficiently managed, have minimal negative ecological effects on the land, and are in balance with available funding for needed management actions.

In January 2001, the agency published the Transportation Final Rule and Administrative Policy authorizing units to use, as appropriate, the road analysis procedure embodied in FS-643 to assist land managers making major road management decisions.

The Federal Register Notice (73 FR 74689) for the **final travel management directives** was published on December 9, 2008. The directives become effective January 8, 2009 (Forest Service Manual (FSM) 7700 – Travel Management). FSM 7703.25 changes the term "roads analysis" to "travel analysis". Consequently, the terms are changed in this document to reflect the current direction unless there are references from previous documents using the term "roads analysis."

These directives require that a travel analysis is conducted to inform decisions related to:

a. Identification of the minimum road system needed for safe and efficient travel and for administration, utilization, and protection of National Forest System (NFS) lands per 36 CFR 212.5(b)(1).

b. Designation of roads, trails and areas for motor vehicle use per 36 CFR 212.51.

PROCESS

Travel analysis is a six-step process. The steps are designed to be sequential with the understanding the process may require feedback among steps over time as an analysis matures. The amount of time and effort spent on each step differs by project, based on specific situations and available information. The process provides a set of possible issues and analysis questions for which the answers can inform choices about the travel management. Decision makers and analysts determine the relevance of each question, incorporating public participation as deemed necessary.

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

The analysis is an integrated ecological, social, and economical approach to transportation planning that addresses both existing and future transportation system (USFS, 1999a). This analysis follows the process outlined in the document "Roads Analysis: Informing Decisions About Managing The National Forest Transportation System," (USFS, 1999a). *This is not a NEPA document*, but rather a site specific NFMA analysis for the Rich Mountain Assessment Area. This area encompasses approximately 23,823 acres of National Forest ownership within Compartments 0, 27-38, 305-7, 313-14, 319-21. This NFMA analysis defines the existing and desired conditions of the transportation system, and opportunities are identified to move towards the desired condition.

This analysis provides a framework to identify travel related concerns and management opportunities that can be incorporated into subsequent projects being evaluated through the NEPA process. This analysis will assist in the decisions involving transportation systems in the Rich Mountain Assessment Area.

PRODUCTS

The product of an analysis is a report for decision makers and the public that documents the information and analyses used to identify opportunities and set priorities for future national forest travel management. Included in the report is a map displaying the known transportation system for the analysis area, and the needs and opportunities for each road and trail, or segment of road or trail. A complete list of all the maps is included in Step 6. This report will:

- Identify needed and unneeded roads, trails, and areas for motor vehicle use;
- Identify travel-associated environmental and public safety risks;
- Identify site-specific priorities and opportunities for travel-related improvements and decommissioning;
- Identify areas of special sensitivity or any unique resource values.

THIS REPORT

This report documents the travel analysis process used for the Rich Mountain Ecosystem Assessment Area (wherever analysis area is referenced in this document, it corresponds to the Rich Mountain Assessment Area boundary). This report is a "living" document and reflects the conditions of the analysis area at the time of writing. The document can be updated as the need arises and conditions warrant. Any future updates will be reflected in the title (e.g., version 2.0).

STEP 1 SETTING UP THE ANALYSIS

Purpose and Products

The purposes of this step are to:

- Identify the geographic scale or scales for the analysis,
- Develop a process plan for conducting the analysis, and
- Clarify the roles of technical specialists and line officers in the team.

The products of this step are:

- A statement of the objectives of the analysis,
- A list of interdisciplinary team members and participants,
- A list of information needs, and
- A plan for the analysis.

Objectives of the Analysis

This travel analysis is specific to the project scale; it is being completed for the Rich Mountain Ecosystem EA. Unless otherwise stated, the boundary for this travel analysis will match the Rich Mountain Assessment Area boundary. (See maps in Appendix A.)

This report analyzes all the roads, trails, and areas for motor vehicle use in the analysis area – including the classified (existing Forest Service system roads), temporary, and unclassified roads and trails (see Step 2 for definitions). It will identify the minimum road system for the analysis area by determining which routes are needed, and it will describe opportunities and set priorities; and some of these opportunities will be carried forward in the Rich Mountain Ecosystem EA.

Interdisciplinary Team Members and Participants

Member	Title	Role for Travel Analysis
Quentin Bass	Team Consultant	Cultural Resources
Chris Bassett	Team Consultant	Cultural Resources
Jonathan Thomas	Team Consultant	Wildlife Biologist Trainee
Terry Bowerman	Team Consultant	N/U District Ranger
Marcia Carter	Team Consultant	Fisheries/Wildlife
Jeff Chynoweth	Analysis Team Leader	NEPA Planner (NZ)
Frank Lege	Team Consultant	Special Uses
Joe McGuinness	Team Consultant	Botany/Wildlife

Stephanie Medlin	Team Consultant	NEPA Coordinator (SO)
Tom Rowe/Anita Bailey	Team Consultants	GIS Support
Greg Salansky	Team Consultant	Fire and Fuels
Jim Stelick	Team Consultant	Timber and Veg Resources
Cheryl Summers	Team Consultant	Recreation
Gary Watson	Team Consultant	Engineering
Marcia Carter	Team Consultant	Soil and Water Resources
Chris Bassett	Team Consultant	Social Resources

Individuals from this Interdisciplinary team were utilized for the Travel analysis as needed. At critical points, Line Officers established sideboards, identified issues, and summarized management recommendations.

The Cherokee National Forest's Revised Land and Resource Management Plan (RLRMP) and amendments provide the management objectives, baseline information, and standards and guidelines to meet legal requirements. Additional information was obtained through field surveys, knowledge of forest personnel, and database queries. The analysis incorporates the best available scientific information as summarized in the document "Forest Service roads: a synthesis of scientific information" (USFS, 2001). This information was the foundation for determining impacts to different resources and identifying recommended management actions.

A Forest Wide Roads Analysis was completed in December 2002 (CNF RAP 2002). This analysis will tier to that document.

Information Needs

The data currently housed in the geographic information system (GIS) will be used for this analysis. Updates will be made as new information becomes available. Extensive GIS maps are needed for the various resource fields and are discussed in Step 2 and displayed in Appendix A.

Analysis Plan

Review of the document will occur on the Cherokee NF (Forest Service specialists); and, the report will be available for other Forests as well. Once finalized, the document will be available to the public if requested. It will be part of the administrative record for the, for much of the information and many of the opportunities identified may be carried forward in the EA. The Rich Mountain Ecosystem Team conducted the analysis using GIS data, field data, and public involvement. The interdisciplinary (ID) team developed issues related to road management and reviewed all the questions in Step 4 to determine which were applicable to the analysis area. In Step 5 the team brought together all the resource information and made recommendations and set priorities.

STEP 2 DESCRIBING THE SITUATION

Purpose and Products

The purpose of this step is to:

- Describe the existing transportation system in relation to current forest plan direction.

The products of this step are:

- A map or other descriptions of the existing transportation and access system defined by the current forest plan or transportation plan, and
- Basic data needed to address travel analysis issues and questions.

Existing Road and Access System Description

Most of the study area is on National Forest System land, and of the roads assessed in and near the boundary of this study area, most are National Forest System Roads (NFSRs) under the jurisdiction and maintenance of the Forest Service. There are approximately 33.79 miles of Forest Service jurisdiction roads within the analysis area. Many of the Forest Service roads (approximately 28.7 miles) are gated, vegetated, and closed seasonally or throughout the year. The remaining 5.1 miles of roads are open to public motor vehicle use.

NFS Roads With Status and Mileage	
Status	**Sum of Length**
Closed	11.9
Open	5.1
Seasonal	16.79
Grand Total	**33.79**

Most of the NFSRs are in fair to good condition, but all have annual routine maintenance needs. Deferred maintenance needs exist for just about all roads.

There are approximately 2.26 miles of documented unauthorized roads. Other unauthorized road mileages are still to be determined. This mileage may not represent all the existing unauthorized routes in the analysis area.

Land and Resource Management Plan Emphasis

The Rich Mountain Assessment Area covers approximately 33,261 acres. These acres are divided into FS and Non-FS acres:

Acres of Rich Mountain Assessment Area		% of Acres
NFS Acres	21,935	66%
Non-NFS Acres	11,326	34%
Total Acres	33,261	100

The NFS acreage is contained within Management Areas 8 and is allocated into the following Management Prescriptions:

Acres in Rich Mountain Assessment Area By Prescription		
Rx	**Description**	**Grand Total**
1.A	Designated Wilderness	7,958.50
1.B	Recommended Wilderness Study Area	3,107.00
4.E.1	Cultural/Heritage Acres	514.40
5.A	Administrative Sites	121.10
7.C	Off-Highway Vehicle Use Areas	27.10
7.D	Concentrated Recreation Zone	21.80
7.E.2	Dispersed Recreation Areas - Suitable	0.60
8.C	Black Bear Habitat Management	9,145.60
No Rx	New Acquisitions	1039
Grand Total		**21,935**

Road Definitions (36 CFR 212.1)

As mentioned above, the Federal Register published the Final Rule and Administrative Policy January 12, 2001; this established new definitions for road management on the National Forests. Listed below are some of the new definitions for related to travel management and analysis.

Area. A discrete, specifically delineated space that is smaller, and in most cases much smaller, than a ranger district (36 CFR 212.1).

Designated Road, Trail, or Area. An NFS road, an NFS trail, or an area on NFS lands that is designated for motor vehicle use pursuant to 36 CFR 212.51 on an MVUM (36 CFR 212.1).

Forest Road or Trail. A road or trail wholly or partly within or adjacent to and serving the NFS that the Forest Service determines is necessary for the protection, administration, and utilization of the NFS and the use and development of its resources (36 CFR 212.1).

Forest Transportation Atlas. A display of the system of roads, trails, and airfields of an administrative unit (36 CFR 212.1).

Forest Transportation Facility. A forest road or trail or an airfield that is displayed in a forest transportation atlas, including bridges, culverts, parking lots, marine access facilities, safety devices, and other improvements appurtenant to the forest transportation system (36 CFR 212.1).

Forest Transportation System. The system of NFS roads, NFS trails, and airfields on NFS lands (36 CFR 212.1).

Forest Transportation System Management. Travel planning, analysis, designation of roads, trails and areas for motor vehicle use, recordkeeping, scheduling, construction, reconstruction, maintenance, decommissioning, and other operations undertaken to achieve environmentally sound, safe, and cost-effective access for the use, enjoyment, protection, administration, and management of NFS lands.

Highway-Legal Vehicle. Any motor vehicle that is licensed or certified under state law for general operation on all public roads in the state. Operators of highway-legal vehicles are subject to state traffic law, including requirements for operator licensing.

Jurisdiction Over a Forest Transportation Facility. The legal right to control or regulate use of a forest transportation facility derived from title, an easement, an agreement, or other similar source.

Motor Vehicle. Any vehicle which is self-propelled, other than:

a. A vehicle operated on rails; and

b. Any wheelchair or mobility device, including one that is battery-powered, that is designed solely for use by a mobility-impaired person for locomotion and that is suitable for use in an indoor pedestrian area (36 CFR 212.1).

Motor Vehicle Use Map (MVUM). A map reflecting designated roads, trails, and areas on an administrative unit or a ranger district of the NFS (36 CFR 212.1).

National Forest System Road. A forest road other than a road which has been authorized by a legally documented right-of-way held by a state, county, or local public road authority (36 CFR 212.1).

National Forest System Trail. A forest trail other than a trail which has been authorized by a legally documented right-of-way held by a state, county, or local public road authority (36 CFR 212.1).

Non-Highway-Legal Vehicle. Any motor vehicle that is not licensed or certified under state law for general operation on all public roads within the state. Operators of non-highway-legal vehicles are subject to state requirements, if any, for licensing and operation of the vehicle in question.

Private Road. A road under private ownership authorized by an easement granted to a private party or a road that provides access pursuant to a reserved or outstanding right.

Public Road. A road under the jurisdiction of and maintained by a public road authority and open to public travel (23 U.S.C. 101(a)).

Road. A motor vehicle route over 50 inches wide, unless identified and managed as a trail (36 CFR 212.1).

Road Construction or Reconstruction. Supervising, inspecting, actual building, and incurrence of all costs incidental to the construction or reconstruction of a road (36 CFR 212.1).

Road Decommissioning. Activities that result in restoration of unneeded roads to a more natural state (FSM 7734).

Road Maintenance. Ongoing upkeep of a road necessary to maintain or restore the road in accordance with its road management objectives (FSM 7714).

Road Subject to the Highway Safety Act. An NFS road that is open to public use in a standard passenger car, including a road with access restricted on a seasonal basis and a road closed during extreme weather conditions or for emergencies, but which is otherwise open to public travel.

Route. A road or trail.

Temporary Road or Trail. A road or trail necessary for emergency operations or authorized by contract, permit, lease, or other written authorization that is not a forest road or a forest trail and that is not included in a forest transportation atlas (36 CFR 212.1).

Trail. A route 50 inches or less in width or a route over 50 inches wide that is identified and managed as a trail (36 CFR 212.1).

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

Basic Data Needs

Basic data needs are listed below for the Rich Mountain Travel Analysis; these were data needed to adequately address the issues. Some of the data are displayed in this report, and other data was used to help answer questions in Step 4, but are located on file at the Watauga Ranger District.

- GIS layer of existing transportation system.
- GIS coverage and mapping of critical, unique or sensitive wildlife habitats.
- GIS map of potential unroaded areas (roads buffered ¼ mile).
- Classification of the transportation system by type and level of use, season of use and maintenance needs.
- Identification of illegal ORV use within the analysis area/garbage dumping sites.
- Mapping of wetlands, landforms, and ecological land types within the analysis area.
- On-Forest wildlife monitoring data.
- Identification of wildlife habitat management needs facilitated by the existing road system.
- Identification of existing monitoring/inventory sites and the required roads necessary for access.
- An assessment of the degree of encroachment and proximity of roads to wetland areas, and the potential impacts is needed.
- The location of the transportation system relative to riparian boundaries and the intersections that influence riparian vegetative communities.
- Vegetation inventory data.

STEP 3 IDENTIYING ISSUES

Purpose and Products

The purpose of this step is to:

- Identify the key questions and issues affecting travel management, and
- Describe the origin of the issues.

The products of this step are:

- A summary of key travel-related issues, including their origin and basis, presented by general categories of environmental, socio-cultural and economic, and
- A description of the status of current data, including sources, availability, and methods of obtaining information.

Issue Summary

The following were identified as issues, by the interdisciplinary team, for this travel analysis.

Issue 1 – Private Property/Special Use Access

Private property access and special use permit access are issues in this analysis. They are factors in deciding the management of roads in all Management Prescriptions in the Rich Mountain Assessment Area. Roads they need for access are retained on the road system.

Issue 2 – Use of roads for wildfire suppression and prescribed burning.

Existing system roads serve an important role in safe and efficient wildfire suppression operations. Timely access for suppression personnel and equipment is dependent upon an adequate road system.

Existing roads often serve as the primary control lines. This allows for suppression with minimal ground disturbance and minimal exposure of personnel to hazards. In addition to wildfire suppression, system roads serve as the primary containment sources for the Zone's Hazardous Fuels Reduction.

Issue 3 – Access for Vegetation Management

Generally, the road network in the Assessment Area was designed and built to facilitate vegetation management. Access is generally good, but small amounts of roading may be needed for future management.

Issue 4 – Access/Use for Wildlife Management

The presence of roads, especially roads open to public traffic, can have adverse effects on wildlife. Many adverse impacts are the result of disturbance, illegal harvest, and habitat alterations caused by roads. Controlling access, by gating roads, is an important tool for mitigating adverse impacts. Gated roads also provide benefits for wildlife when these areas are managed as linear wildlife openings or provide access to spot openings. Roads also facilitate and provide access for hunting and wildlife viewing opportunities. Maintaining un-roaded areas is crucial in order to provide wildlife with large contiguous blocks of un-fragmented habitat with low levels of disturbance. Controlling access, providing wildlife openings, and maintaining un-roaded areas were identified as important road issues for wildlife in the Rich Mountain Assessment Area.

Issue 5 – Recreation/Heritage Use

Roads are important factor from a recreational standpoint for numerous reasons. They serve as the primary conduit for ingress/egress to the National Forest and the recreation zones. Recreation activities in the Rich Mountain Assessment Area include: horseback & bicycle riding, fishing, hiking, camping, swimming, hunting, scenic driving, and many others. All of these recreational activities require a road system to access the recreation zones. Additionally from an administrative standpoint, roads are a necessity for emergency response and maintenance of recreational zones and campgrounds.

Equestrian/ Bicycle Use - System roads and undesignated routes in the Rich Mountain Assessment Area have become popular for equestrian & bicycle use. Road and trail management in the future should strive to provide multiple day-ride opportunities and minimize equestrian use on open roads. Seek opportunities to acquire land or right-of-ways for additional direct trail access and the development of the desired looped trail network.

Issue 6 – Potential Impacts to Water Quality

Unmaintained roads and illegal vehicle use could contribute to erosion and sedimentation problems, impacting water quality in streams.

Issue 7 – Road/Trail Safety

Due to environmental factors (drought, ice storms, etc), invasive species (HWA, Gypsy Moth, etc) and an ever aging forest the number of snags within the forest and along forest roads and trails will increase. This increase of snags will be severe along forest roads and trails near riparian areas where Eastern Hemlock is most dense. On the forest Eastern Hemlock death started in 2008 with snags being a threat for decades into the future. Because of these factors it may require the Forest Service to close certain roads and trails for salvage timber sales, non-commercial hazard tree falling operations until the threat to the public is reduced.

Issue8 – Illegal Road/Trail Use

Illegal ATV use occurs across the Rich Mountain Analysis Area. Some areas are accessed from private land, and others are accessed from public roads. ATV's are driving on gated Forest Service roads, old non-system roads, wildlife openings, and are creating new trails. This use causes erosion of soils, sedimentation to enter streams, and degradation of wildlife habitat**.** Controlling illegal ATV use was identified as an important road issue for aquatic and terrestrial resources and recreation in the Rich Mountain Analysis Area. Physical resources are impacted by unauthorized ATV trails to various degrees depending on trail location, amount of use, soil types and exposure. Impacts may include rutting, soil compaction, erosion, sedimentation, and loss of vegetation. Disturbance can remove the litter layer, organic layer, and expose mineral soil. This reduces water infiltration and increase over land flow and sediment movement. Forest Service system roads are also heavily used by riders to extend their riding experience. Exceeding the current maintenance level on FSRS can degraded the roads over time which increases the potential for impacts.

Status of Current Data

The roads in the analysis area are in the GIS system, and their condition/status is current as of the January 2011. The road number, name, length, and other data are detailed in **Table 1** below**.**

Table 1. Rich Mountain Watershed Assessment Area Roads - Current Condition (Jan 2011)

Road #	Road Name	BMP	EMP	Infra Miles in Watershed	GIS Miles in Water shed	Miles w/in 100' of stream	Status (as defined by Travel Mgmt Rule)	RMO	Oper ML	Obj ML	Surface Type	Remarks
190	RICH MOUNTAIN	0	6.3	15.1	12.99	.99	Seasonal	D2-FS	2	3	AGG	Seasonal
		6.3	7.7				Seasonal	D2-FS	2	3	NAT	Seasonal
		7.7	11.1				Seasonal	D2-FS	2	2	NAT	Seasonal
		11.1	15.1				Closed	D1	1	1	NAT	Closed or Seasonal?
190A	CHIGGER BR./MINK GAP	0	0.6	0.60	0.60		Open	D2-FS	2	2	NAT	If 190 L-1 from 11.1 - 15.1 this should be L-1? ATV use for another .5 mi.?? Determine in field where to block this road.
190B	CALIFORNIA FIELDS	0	0.5	0.50	0.77	0.16	Closed	D1	1	1	IMP	Needs to be GPS'd.
190E	BOWMAN	0	0.43	0.43	0.53		Seasonal	D2-WL	2	2	IMP	Needs to be GPS'd. Extend for LWO?
190EXT	RICH MT EXTENSION	0	0.25	0.25	0.29		Closed	D2-WL	2	2	NAT	
190F	RICH MT WILDLIFE	0	0.53	0.53	0.63		Closed	D2-WL	2	2	NAT	
190G	RICH MT RIDGE	0	1.1	1.10	1.11	0.03	Closed	D1	2	2	NAT	Change ML = 1
21971	SHORT SPUR	0	0.9	0.90	0.51	0.27	Closed	D1	1	1	IMP	
25	CLARKS CREEK	1.43	3.96	2.53	3.92	2.25	Open	C3	3	3	AGG	0-1.43 County Juris; OPML/OprML = 4; BST
38	JACKSON FARM	0	0.3	0.30	0.13	0.11	Closed	D2-FS	2	3	AGG	Needs to be corrected. Part needs to be GPSed. ML =1 for remainder of road.
5066	WILLARDS HUMP	0	2.4	2.40	2.52	0.73	Closed	D2-WL	1	1	AGG	Maintained as a L.W.O.
5073	LUKES ROAD	0	1.5	1.50	1.77	0.32	Closed	D2-WL	1	1	NAT	LWO?
538510	JACKSON MTN.	0	0.42	0.42	0.53	0.15	Closed	D2-WL	2	2	IMP	Needs to be GPS'd. Linear Wildlife Opening.
53987	GREEN KNOB/NORTON BR	0	1.5	1.50	0.11		Open	D2-WL	2	2	NAT	Needs ROW
94	HORSE CREEK	0.55	1.02	0.47	1.24	.23	Open	A5	4	5	BST	0-.55 County Juris; OPML/OprML = ?; BST
		1.02	5.77	4.75			Seasonal	D2-FS	2	2	NAT	
94B	HORSE CR.PICNIC AREA	0	0.16	0.16	0.16		Seasonal	A5	4	5	BST	
94C	HORSE CR.CAMPGROUND	0	0.29	0.29	0.26	0.22	Seasonal	A5	4	5	BST	
94C1	HORSE CR.PARKING	0	0.06	0.06	0.06	0.06	Seasonal	A5	4	5	BST	
				33.79								
UNAUTHORIZED ROADS												
OR-1	Little German	0	0.8	0.8			Open	D2-FS				BegTerm is Little German Rd. Evaluate as a trail. To Become FSR # 23821
OR-2	Off of 190G						Open					Close OR-3 if TWRA agrees. Close it where they can't drive it.
OR-3	Jackson Farm Cemetery						Closed					GPS. ML2 road. LWO. To become FSR # 23852
OR-4	Middle Springs Ridge	TBD					Closed	D2-FS/WL	2	2		To become FSR# 24051
							Closed	D1	1	1		Keep as a trail or road. Keeping for system?
OR-5	Ball Ground	0	0.63				Closed	D2-FS/PVT	2	2		To become FSR# 21972

STEP 4 ASSESSING BENEFITS, PROBLEMS, AND RISK

Purpose and Products

The purpose of this step is to:

- Assess the various benefits, problems, and risks of the current transportation system and whether the objectives of Forest Service policy and forest plans are being met.

The products of this step are:

- A synthesis of the benefits, problems, and risks of the current transportation system,
- An assessment of the risks and benefits of entering any unroaded areas, and
- An assessment of the ability of the transportation system to meet management objectives.

Current Transportations System Benefits, Problems, and Risks

The following section is a series of questions and answers that assess benefits, problems, and risks of the current transportation system and its ability to meet the objectives stated in the Forest Land Management Plan. The questions are from Forest Service publication FS-643, *Road Analysis: Informing Decisions About Managing the National Forest Transportation System*.

Although the questions specifically address the road system, in answering the questions, the transportation system was considered. *Table 2* provides documentation for this section of the travel analysis process.

Table 2. Documentation for Rich Mountain TAP Step 4.

Assigned to Specialist	Question Number	Addressed in Analysis?	Rationale For Questions Not Addressed
Brittany Bird	EF (1)	Yes	
	EF (2)	Yes	
	EF (3)	Yes	
	EF (4)	Yes	
	EF (5)	Yes	
Marcia Carter	AQ (1)	Yes	
	AQ (2)	Yes	
	AQ (3)	Yes	
	AQ (4)	Yes	
	AQ (5)	Yes	
	AQ (6)	Yes	
	AQ (7)	Yes	
	AQ (8)	Yes	
	AQ (9)	Yes	
	AQ (10)	Yes	
	AQ (11)	Yes	
	AQ (12)	Yes	
	AQ (13)	Yes	
	AQ (14)	Yes	
Brittany Bird/ Joe Mcguiness	TW (1)	Yes	
	TW (2)	Yes	
	TW (3)	Yes	
	TW (4)	Yes	
Gary Watson/ Vern Maddux	EC (1) Gary	Yes	
	EC (2) Vern	Yes	
	EC (3) Vern	Yes	
Jim Stelick	TM (1)	Yes	
	TM (2)	Yes	
	TM (3)	Yes	
Frank Lege	MM (1)	Yes	
Frank Lege	RM (1)	Yes	
?	WP (1)	Yes	
	WP (2)	Yes	
	WP (3)	Yes	
Jim Stelick	SP (1)	Yes	
Frank Lege	SU (1)	Yes	
Gary Watson	GT (1)	Yes	
	GT (2)	Yes	
	GT (3)	Yes	
	GT (4)	Yes	
Vern Maddux	AU (1)	Yes	
	AU (2)	Yes	
Guy Street	PT (1)	Yes	
	PT (2)	Yes	
	PT (3)	Yes	
	PT (4)	Yes	
Vern Maddux / Doug Byerly	UR (1)	Yes	
	UR (2)	Yes	
	UR (3)	No	

Table 2. Documentation for Rich Mountain TAP Step 4.

Assigned to Specialist	Question Number	Addressed in Analysis?	Rationale For Questions Not Addressed
	UR (4)	Yes	
	UR (5)	Yes	
Vern Maddux	RR (1)	Yes	
	RR (2)	Yes	
	RR (3)	Yes	
	RR (4)	Yes	
	RR (5)	Yes	
Marcia Carter	PV (1)	Yes	
	PV (2)	Yes	
	PV (3)	Yes	
	PV (4)	Yes	
Quentin Bass Chris Bassett	SI (1)	Yes	
	SI (2)	Yes	
	SI (3)	Yes	
	SI (4)	Yes	
	SI (5)	Yes	
	SI (6)	Yes	
	SI (7)	Yes	
	SI(8)	Yes	
	SI (9)	Yes	
	SI (10)	Yes	
	CR (1)	Yes	

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?

Any roading into currently unroaded areas would have effects to ecological attributes. However, most of the Rich Mountain area is similar to much of the northern part of the Cherokee, and does not have unique ecological attributes. The effects of roading would be similar to the effects of roads in those similar areas. Unique areas that do exist are generally already within Prescription Areas that discourage road-building.

Project specific effects of any new roads proposed would be analyzed in the respective environmental 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?

Exotic plants represent the greatest threats. Any additional roads or trails would provide opportunities for existing exotic plants to spread. Most existing exotics in the area are associated with disturbance.

EF (3): To what degree do the presence, type, and location of roads contribute to the control of insects, diseases, and parasites*?*

The presence of roads in drivable condition is crucial for accessing areas to treat and control the spread of insects, diseases and parasites, particularly hemlock woolly adelgid.

EF (4): How does the road system affect ecological disturbance regimes in the area?

Timber management roads provide avenues for needed ecological disturbance in order to promote forest health and improve wildlife habitat. Historically, roads have not increased the incidence of arson fires, but are used as fire control lines. This results in fire patterns being governed by the location of roads.

EF (5): What are the adverse effects of noise caused by developing, using, and maintaining roads?

Developing, using, and maintaining roads may affect recreational experience (hiking, hunting, birding, etc) and wildlife species utilizing the road corridor on a short term basis.

Aquatic, Riparian Zone, and Water Quality (AQ)

AQ (1): How and where does the road system modify the surface and subsurface hydrology of the area?

The roads have three primary effects on hydrologic processes. They intercept rainfall directly on the road surface and cut banks, and intercept subsurface water moving down the hillslope; they concentrate flow, either on the surface or in an adjacent ditch or channel; and they divert or re-route water flow from paths that it would otherwise take if the road were not present. Roads can affect peak streamflows depending upon the size of the watershed involved. In extreme cases they can capture or re-route water, dewatering a small stream. As a general rule, however, roads extend the drainage network of a watershed and result in quicker flood peaks.

AQ (2): How and where does the road system generate surface erosion?

By their nature, all native or aggregate surfaced roads will generate some surface erosion. The amount depends on factors such as soil type, road surface type, road gradient, road prism, the spacing and effectiveness of drainage structures, traffic use, and maintenance activity. Sandy textured soils in the project area are particularly prone to water erosion when exposed to disturbance on moderate to steep slopes. The extent of surface erosion occurring on road cutbanks depends on the steepness, slope length, soil type, and vegetative cover. Road ditches concentrate water flow which generates surface erosion and also increase sediment delivery to streams from road surfaces and road cutbanks. Ditches and culverts that are blocked create surface erosion issues by diverting water flow onto road surfaces. Any road opened and used for commercial use (such as logging traffic), would result in an increased potential for surface erosion, but reconstruction or maintenance activities associated with this kind of use would mitigate erosion during use and result in a road with less erosion potential after its use. Surface erosion would also be a concern on any newly constructed permanent or temporary road until the road is closed and re-vegetated or otherwise stabilized with mitigation measures.

Surface erosion is generated from vehicle use originating from Rich Mountain and Bowman roads.

AQ (3): How and where does the road system affect mass wasting?

Mass wasting is generally not a problem in the analysis area. Fill slope failure is primarily related to areas where concentrated surface water is turned off of roadbeds at relief culverts and turnouts or where uncontrolled surface drainage spills over fill slopes. Inadequate sized culverts or plugged culverts may blowout during high flow periods and initiate soil slides. Proper sizing and location of drainage culverts can reduce this potential, as well as, armoring the outfall areas associated with drainage structures, as needed. Road cutbanks propose a problem in steep areas where soils are coarse in texture, shallow, and where unstable colluvium material occurs.

AQ (4): How and where do road-stream crossings influence local stream channels and water quality?

Crossings represent direct interaction of roads and streams and serve as a primary conduit for road-related erosion and storm drainage to reach streams. Road-stream crossings can physically change the alignment of stream channels for short distances. Long-term contributions of sediment into streams can result in geomorphic changes to channel alignment and substrate condition. Increases in storm runoff associated with roads can also result in channel alignment and substrate changes such as downcutting.

In most cases culverts have more of an influence on stream channels and water quality than do bridges or bottomless culverts. Culverts concentrate and accelerate water flow causing soil displacement to occur at the outfalls and cause stream banks to undercut. Over time the stream channel adjusts to the change in flow by becoming deeper and/or wider for a short distance below the culvert. Piping occurring under or around culverts is usually a minor source of sediment; however, high sediment loading can occur from a culvert blowout due to piping. Blowouts can also occur from plugged culverts. Road surfacing, eroded materials and pollutants are usually deposited into steams by ditches that empty directly into streams at road-stream crossings.

AQ (5): How and where does the road system create potential for pollutants, such as chemical spills, oils, deicing salts, or herbicides, to enter surface waters?

A variety of road jurisdictions and surface types occur within the analysis area. These vary from native-surface woods roads to large Federal highways. Chemical pollutants such as accidental spills, oils, deicing salts and herbicides are more likely to be associated with paved county, state and federal roads than the typical aggregate surface Forest Service road. On national forest lands within this analysis area there is little concern that roads may contribute to chemical pollution of streams.

AQ (6): How and where is the road system "hydrologically connected" to the stream system? How do the connections affect water quality and quantity?

The road system is connected to streams at stream crossings, roadside ditches that empty directly into streams, drainage turnouts, and at some locations, by road surfaces that lie adjacent to streams and direct runoff and sediment from roadbed/fill surfaces to streams. Stream crossings and insloped roads with drainage ditches are the principle means of hydrologic connectivity within the analysis area. Hydrologic connectivity can result in an increase in the density of streams in the landscape, and as a consequence, change the amount of time required for water to enter a stream channel (Gucinski et. al, 2000). This hydrologic change can alter the timing of peakflows and can alter the shape of a watershed's hydrograph. Based on studies of small watersheds, however, the effect of roads on peak flow is detectable but relatively modest for most storms (Gusinski et. al, 2000). The primary consideration (on national forest lands) of hydrologic connectivity on water quality is the input and transport of sediment (See AQ (1) and AQ (4).

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?

The analysis area is a portion of the Nolichucky River basin, which includes Horse Creek, Cassi Creek, Clarke Creek, Broad Shoals Creek, California Creek, and a portion of the Nolichucky River. The streams in the analysis area support trout fisheries, and provide fishing opportunities for regional and local residents. Designated uses also include fish and aquatic life, livestock watering and wildlife, irrigation source, and recreation. Nolichucky River also provides domestic and industrial water supply. Recreation uses will likely increase and the fishing demand in the area can be expected to remain the same or increase in the future. The demand for industrial and domestic water supply should increase. Forest Service roads in this area do contribute to sediment entering into streams, however sediment amounts are considered minimal compared to sediment derived from private lands. Accelerated sediment delivery from roads may adversely affect fish and other aquatic organisms in the streams.

AQ (8): How and where does the road system affect wetlands?

There are no other known locations where the road system is affecting wetland conditions or function.

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?

The road system can alter physical channel dynamics by increasing runoff and sediment delivery to affected streams. Sediment entering streams can reduce pool depths and contribute to changes in channel substrate (i.e. embededness). Stream crossings can retard or prohibit the movement of large woody debris, fine organic matter and sediment. Areas located within the riparian corridor tend to isolate the floodplain associated with streams and impede or prevent natural channel migration.

AQ(10): How and where does the road system restrict the migration and movement of aquatic organisms? What aquatic species (i.e. fish and amphibians) are affected and to what extent?

There are road crossings known to restrict the movement of aquatic organisms in the Rich Mountain Analysis area (see Road No. 25, Table 4). Culverts that would restrict movement are either on private land or high up in the watershed where aquatic organisms would not be impacted. No aquatic species are affected to any extent.

AQ(11): How does the road system affect shading, litterfall, and riparian plant communities?

In general, the road system occupies such a small portion of the riparian community that the impact on shading, litterfall, and riparian plant communities is negligible.

AQ(12): How and where does the road system contribute to fishing, poaching, or direct habitat loss for at-risk species?

The road system contributes to the ease of public fishing in Clark Creek, Horse Creek, Broad Shoals River, and the Nolichucky River. Access for fishing provides opportunities for poaching, but the road system does not necessarily increase poaching of fish. Direct habitat loss for at-risk species from the road system is unlikely.

AQ(13): How and where does the road system facilitate the introduction of non-native aquatic species?

The road system facilitates introduction of non-native aquatic species used for bait fishing in Clark Creek and the Nolichucky River. However, these introductions would take place even if the roads were removed.

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?

No streams with exceptionally high diversity or productivity occur in the watershed. Two viability concern species, Sharphead Darter (*Etheostoma acuticeps*) and Olive Darter (*Percina squamata*), occur in the Nolichucky River. However, the Forest Service road system does not overlap with these species. Forest Service roads in this area do contribute to sediment entering into streams that flow into the Nolichucky River, however sediment amounts are considered minimal compared to sediment derived from private lands.

Terrestrial Wildlife (TW)

TW (1): What are the direct effects of the road system on terrestrial species habitat?

For smaller species of wildlife; such as salamanders, and invertebrates, roads can act as barriers to movement. However, road banks also can provide habitat for these types of wildlife, particularly for some salamanders. Night time surveys along Forest Service road cuts revealed a considerable amount of salamanders in burrows along road banks.

Roads are the center of human disturbance. Species such as bear, bobcat, and turkeys tend to avoid these areas, during periods of human activity. However, closed roads are utilized as travel routes and hunting and foraging areas. Seeded roads are highly sought after in early spring, as these are the first to green up. Water that collects in road ruts is utilized by bats, frogs, salamanders, and other wildlife species.

TW (2): How does the road system facilitate human activities that affect habitat?

The road system allows access for habitat management activities (timber harvest, prescribed burning, wildlife opening maintenance). It also serves as sites for illegal activities, such as garbage dumping, take-off places for off-road driving, creating unauthorized roads, and creating new dispersed campsites. The road system is extremely limited in the Rich Mountain Analysis Area, limiting management to improve terrestrial wildlife habitat.

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?

Roads provide means for humans to disperse throughout the area easily. The road system allows for greater utilization of the area for both legal and illegal activities. The greatest impacts to wildlife are from increased human disturbance.

TW (4): How does the road system directly affect unique communities or special features in the area?

Unique communities or special features are not directly affected by the road system.

Economics (EC)

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?

See Table 3 for the average maintenance costs for each road.

COSTS/REVENUES

Direct costs to the agency include road maintenance costs due to motor vehicle use and any needed restoration or protection costs to stabilize roads near resources such as streams.

Road maintenance costs fit into two categories:

- **Annual Maintenance**. Work performed to maintain serviceability, or repair failures during the year in which they occur. Includes preventive and/or cyclic maintenance performed in the year in which it is scheduled to occur. Unscheduled or catastrophic failures of components or assets may need to be repaired as a part of annual maintenance.

This amount will vary depending on the road's operational maintenance level which is the maintenance level currently assigned to a road considering today's needs, road condition, budget constraints, and environmental concerns. It defines the level to which the road is currently being maintained.

The annual costs shown in Table 3 are the expected costs based on the average costs for each ML over the last 5 years.

- **Deferred Maintenance**. Maintenance that was not performed when it should have been or when it was scheduled and which, therefore, was put off or delayed for a future period. When allowed to accumulate without limits or consideration of useful life, deferred maintenance leads to deterioration of performance, increased costs to repair, and decrease in asset value. Deferred maintenance needs may be categorized as critical or noncritical at any point in time. Continued deferral of noncritical maintenance will normally result in an increase in critical deferred maintenance.

  A critical need is a requirement that addresses a serious threat to public health or safety, a natural resource, or the ability to carry out the mission of the organization.

  The deferred costs shown in Table 3 are the costs of deferred maintenance needed based on condition surveys and random samples.

The objective maintenance level is the maintenance level to be assigned at a future date considering future road management objectives, traffic needs, budget constraints, and environmental concerns. The objective maintenance level may be the same as, or higher or lower than, the operational maintenance level.

The operational maintenance level is the maintenance level currently assigned to a road considering today's needs, road condition, budget constraints, and environmental concerns. It defines the level to which the road is currently being maintained.

Expenditures have decreased due to decreased funding. It is hard to predict future funding, but the trend in recent years is a decrease in road maintenance funding.

The need to provide forest visitors with safe and environmentally friendly roads seems to have become an important issue to many legislators. This concern may reverse the recent downward trend.

When funding is below the amount needed, priorities are set concerning which roads will have which maintenance activities (grading, brushing, gravel, etc.) performed.

Unless otherwise indicated in the recommendations, roads that are added to the transportation system will not be maintained for passenger cars, so an increase in maintenance costs is not likely. If roads added to the system are to be maintained for passenger cars, the Forest will likely have to reduce the amount of maintenance work done on other roads on the Forest that are maintained for passenger cars and/or not maintain some road(s) on the Forest for passenger cars.

Consideration is given to changing the objective maintenance level if a reduction in funds continues, e.g. maintenance level 3 (suitable for passenger car) is changed to maintenance level 2 (high clearance vehicles). Also, funds other than those specifically designated for road maintenance (CMRD) are often available for road maintenance. These include K-V Trust Fund - Special Legislation (CWK2), Legacy Roads and Trails (CMLG), Vegetation Management (NFVW), Wildlife Management (NFWF), Recreation Fee Revenue Program (FDFD), road maintenance deposits from timber purchasers, road permits that require the user to perform maintenance, and road legacy funds.

The road system provides for potential revenues to the agency in the following ways:

- Timber sales
- Recreation use fees
- Fees for special use and road use permits:
    - Access to timber on private land

Presently, direct costs exceed direct revenues, but many resource management targets could not be met or would cost more to accomplish without the current road system, so reducing the number of roads and/or reducing the amount of maintenance on roads could result in a net decrease in revenue. For example, roads that provide access to areas for prescribed burns which are needed to reduce hazardous fuels.

CHANGES

Changes to the road system that could increase net revenue:

- Manage the suitable timber base that can be accessed by existing roads and/or new roads that are low cost and would not harm resources. Any new system roads would likely have an objective maintenance level of 1 or 2 which reduce the long-term funding needs. New roads would be built to reduce annual maintenance costs. This would be done by the construction features including broad-based dips and the stabilization of the roadbed with gravel or vegetation. Some of the costs associated with this include planning, design, and contract administration. The forest would collect road maintenance deposits from the purchasers and/or the purchaser would perform the necessary maintenance on roads not open the public. It could also provide an opportunity to perform deferred maintenance work on roads open to the public if the work is also needed to accommodate log trucks. Such work would be done so that long-term impacts of a road to adjacent resources are reduced.

- Close roads to motor vehicle use by the public. This could require the following costs: planning, enforcement, and mitigating unacceptable environmental effects such as sedimentation from roads adjacent to streams. Possible consequences of closure: decreases in revenues from commodities such as timber (if road is no longer used to access timber), recreation fees, and other services such as special-use permits. Reduced

maintenance costs and reductions in costs to mitigate unacceptable environmental effects would likely increase in net revenues. Some roads were built prior to FS ownership and were considered "public" access with an established historical use. Changes that prevent the public from using roads that feel they have a "right" to use could increase costs to the agency due to the need for enforcement of the closure and an increase in the amount of time spent responding to complaints.

- Decommissioning is the demolition, dismantling, removal, obliteration and/or disposal of a deteriorated or otherwise unneeded road, including necessary cleanup work. Decommissioning would be done so that the road no longer needs maintenance. Costs include planning, monitoring, repairing or mitigating any unacceptable impacts to resources, and the actual decommissioning work. Possible consequences include decreases in revenues from commodities such as timber, recreation fees, and other services such as special-use permits. This work would reduce maintenance costs and reduce costs to mitigate any unacceptable impacts to resources. This work could make some areas harder to access for resource management which could increase costs.

- Encourage individuals who use Forest Service roads to access private land to form homeowner associations and/or to approach the county road department to maintain those roads. This would reduce the agency's road maintenance costs.

EC (2): How does the road system affect priced and non-priced consequences included in economic efficiency analysis used to assess net benefits to society?

The management of the road system involves decisions to build new roads, reconstruct roads, perform maintenance on some roads and not others, decommission roads, or temporarily close them if they are no longer needed or are causing resource damage.

Construction of new roads, although improving access to the area (a benefit to some), may diminish the desired natural and remote character associated with the area and would reduce its passive use value to some visitors.

Passive use values include features society values simply because they exist without actually using them or they expect them to be preserved for others to use and enjoy (a scenic landscape, wilderness, or an endangered plat or animal). They are also features valued for preservation (cultural resources and historic sites).

Decommissioning and/or closing roads may be necessary to meet budget and funding constraints or to prevent resource damage, but may diminish access to areas that are important to certain users of forest resources. People with a strong attachment to a place, activity, or road may consider it a loss in value unless they are willing and able to find, and adapt, to substitute experiences.
The road users that contribute the most significant economic benefits are those who visit the area for recreation-related activities such as:

Driving for Pleasure

FSR #25 and #190 and SH 107 is popular with drivers looking for a rural experience. Any open road receives some of this type of use.

Rich Mountain FSR #190 is a popular 4-wheel drive venue.

Camping

Horse Creek FSR #94 provides access to Horse Creek Recreation Area. Clark Creek FSR #25 provides access for dispersed camping. #38 provides access to Katy Branch Pavilion rental.

Hunting

All the roads in the project area provide access for hunting. Even closed roads provide foot access.

Hiking/ Mountain Biking

All roads have the potential for use as hiking and mountain biking routes. Horse Creek FSR #94 provides access to trails in Sampson Mountain Wilderness Area. Clark Creek FSR #25 provides access to trails including the Sill Branch Waterfall Trail and Longarm Branch multiple use trail. Rich Mountain #190 provides access to Trail #113.

Fishing

Horse Creek, Clark Creek and Nolichucky River are popular fishing spots in this area. Other streams are used for fishing also.

Wildlife viewing

The open roads are used by visitors for this activity throughout the analysis area.

Special use areas

One permit for biking in the project area and one permit for a spring that access is needed for reaching the permit areas.

Wilderness

Sampson Mountain Wilderness may be accessed from Horse Creek FSR #94 and Clark Creek FSR#25.

Based on the activities that the road system accommodates, the following consequences are realized:

Priced:

- Sale of commodities such as timber (on Forest Service and private land)
- Less cost due to convenient access for research, inventory, and monitoring
- Road development and maintenance
- Liability
- Maintenance of trails and recreation-related sites
- Fire suppression
- Resource management
- Control of invasive species

- Mitigation of resource damage from roads

Non-priced:

- Resource protection such as fire suppression, wildlife and watershed management to preserve the "passive" value that the public assigns to natural resources.
- Access to public land and its resources
- Noise and air pollution
- Water quality
- Fish habitat
- Effect of road density on wildlife
- Litter

Typically, the transportation system increases the value of both priced and non-priced commodities, because without access these items have less value or cost more to obtain. The most notable exception to this is commodities that have an intrinsic value because they are difficult to access, such as a wilderness or areas with low road densities.

The type of experience society desires in the study area and its associated value depends in large part on whether or not there are roads, their density, their condition, and whether or not they are open to motor vehicle use. The consequence may be a net benefit or a cost depending on what value the public assigns to the type of experience they desire.

Road management activities that benefit some members of society by enhancing their quality of life, may negatively impact resources that other members value for their quality of life. These may include impacts to resources such as soil, water, habitat, scenic beauty, or a reduction in value that people assign to an area such as limited accessibility or solitude. Public input is needed to provide information to evaluate the tradeoffs being considered and will help assign "value" to non-priced consequences.

EC (3): How does the road system affect the distribution of benefits and cost among affected people?

The accessibility to resources in the study area is important to the local economy, and commerce associated with forest visitors also has an economic influence on Unicoi, Washington, and Greene Counties and the cities of Erwin and Jonesborough. Since counties do not collect property taxes on federal land, activities that generate other tax revenue such as sales tax are beneficial to the community.

Forest roads are the primary means of access to forest resources. Changes to the road system and/or in road management can affect long-established access and use patterns, lifestyles, recreation activities, forest resource-related businesses, the collection of forest products, fire suppression, and the distribution of recreational opportunities available to users. These effects can change the distribution benefits and costs for all users.

Construction, maintenance, or decommissioning of roads in the area is not likely to have a significant long-term impact on the economic benefits derived from recreation activities unless there is a significant reduction in the total mileage of roads that provide access for this use.

The road system distributes the following economic benefits to businesses of various sizes as well as individuals:

- Income from the sale of gas, food, lodging, supplies, and souvenirs.
- Employment under Government contracts for:
  - road maintenance
  - control of invasive species
  - maintenance of wildlife openings
  - vegetation management
  - trail maintenance
  - watershed management
  - fire suppression
  - maintenance of recreation sites

The road system creates different benefits and costs to people who use vehicles for travel within the area than to visitors who travel on foot or by other non-motorized methods. For those who choose non-motorized forms of transportation, the economics of the road system may cost more in terms of aesthetic values, air and noise pollution, and conflicts with motorized vehicle use.

Reduced road mileage and/or maintenance can lead to unbalanced recreation opportunities among users and directly affect the distribution of economic benefits and costs to the region. Closing roads would limit or eliminate access to those who are unable or unwilling to walk long distances and could increase the cost of resource removal, which usually requires mechanized equipment. This could have economic impacts for the local communities, which may depend on convenient access for employment opportunities.

In contrast, improved road access can increase the efficiency and effectiveness of fire-suppression activities, but can also contribute to an increase in the number of human-caused fires in the area. Closing or restricting roads to minimize traffic could be a benefit by reducing fires and keeping the road in a condition that facilitates use by fire fighting equipment.

State and county roads between communities affect how the benefits and costs associated with use of the area are distributed beyond the immediate communities.

As previously stated in *EC (2)*, the type of experiences and their associated values are dependent upon whether or not there are roads, how the roads are managed, and the desires of the user groups or individual. This may be a benefit or a cost depending on what value the public assigns to the type of experience they desire.

Commodity Production - Timber management (TM)

TM (1): How does road spacing and location affect logging system feasibility?

Transportation planning has been a key component of timber sale planning in this area. Most of the transportation network has been built for and through timber sales so the system serves the timber resource well. Planning has considered future needs as well as immediate sale needs. Timber sales may require the construction of roads, and/or the addition of existing roads, or

sections of roads, to the Forest Road System. Overall, there should be no net increase in open road densities.

TM (2): How does the road system affect managing the suitable timber base and other lands?

The road system is critical in utilizing timber harvest to meet wildlife management guidelines of early successional habitat. Roads for timber management are vital for implementing silvicultural treatments to promote forest health. Roads also provide access for fire control and insect and disease protection. Roads provide access for long-term stream monitoring, trout stocking, and habitat improvements for the management of coldwater fisheries.

***TM (3): How does the road system affect access to timber stands needing silvicultural treatment*?**

The road system is critical in utilizing timber harvest to meet wildlife management guidelines of early successional habitat.

Commodity Production - Minerals Management (MM)

MM (1): How does the road system affect access to locatable, leasable, and salable minerals?

N/A. No locatable, leasable and salable minerals.

Commodity Production - Range Management (RM)

RM (1): How does the road system affect access to range allotments?

N/A. No range allotments.

Commodity Production - Water Production (WP)

WP (1): How does the road system affect access, constructing, maintaining, monitoring, and operating water diversions, impoundments, and distribution canals or pipes?

Road access is adequate within this analysis area to build, maintain, operate and monitor any structures associated with present water uses.

WP (2): How does road development and use affect water quality in municipal watersheds?

The analysis area is a portion of the Nolichucky River basin, which includes Clark Creek and Horse Creek and many other streams and drainages. Forest Service roads in this area do contribute to sediment entering into streams. However, sediment amounts are considered minimal compared to sediment derived from private lands. The effects of roads on water quality within the analysis area are considered in Questions AQ (1) – AQ (9).

WP (3): How does the road system affect access to hydroelectric power generation?

No hydroelectric power generation facilities other than a transmission line are located within this analysis area. The road system is adequate to provide access to the transmission line.

Commodity Production - Special Forest Products (SP)

SP (1): How does the road system affect access for collecting special forest products?

There are a few permits let for rhododendron, grapevine, and firewood. The classified road system is adequate to meet demand for special forest products in this area.

Special-Use Permits (SU)

SU (1): How does this road system affect managing special-use permit sites (concessionaires, communication sites, utility corridors, and so on)?

See Question E (2) for this info.

General Public Transportation (GT)

GT (1): How does this road system connect to public roads and provide primary access to communities?

There are no specific communities accessed solely by Forest Service roads in the study area. The collector road system within the study area is mainly State Highways and county roads but includes all or parts of the following Forest Service collector roads:

Road No.	Road Name
94	Horse Creek

GT (2): How does the road system connect large blocks of land in other ownership to public roads (ad hoc communities, subdivisions, in holdings, and so on)?

There are numerous private land inholdings in the study area that are accessed by roads described in GT (1) plus some additional local roads that provide access through easement or special use permit. In addition to the roads in GT (1), the following roads provide access to private land:

Local roads open to the public that provide access to in-holdings or permitted uses:

Road No.	Road Name
190	Rich Mountain
25	Clarks Creek
53987	Green Knob/Norton Branch
OR-1 (23821)	Little German

Local roads not usually open to the public that provide access to in-holdings or permitted uses:

Road No.	Road Name
OR-4 (24051)	Middle Springs Ridge
OR-5 (21972)	Ball Ground

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)?

There are no shared ownership (cost-share) roads in this watershed. The FS has a co-operative agreement with counties in the watershed for sharing various types of roadwork from planning to maintenance on roads of common interest to the FS and to the county.

GT (4): How does the road system address the safety of road users?

There are several open FS roads in the study area that are objective maintenance level 3, 4, or 5 (suitable for passenger cars). Since they are subject to the Highway Safety Act, safety of road users is a concern. Because they are designed for low speed and low volume, safety is usually not a major issue, but as private land has been subdivided, the number of land owners has increased and has caused in an increase in traffic. There may be a need to work with the counties to accept responsibility for the maintenance of some roads.

The objective maintenance level 3, 4, & 5 roads receive routine maintenance which normally consists of blading graveled surface twice a year and roadside mowing every two years. Other maintenance activities that are done on an as-needed basis include gravel placement, hazard tree removal, slide repair, pothole repair, etc.

Most of the other roads (ML's 1 & 2) in the area are not usually open to the public and are used only when needed for specific purposes or managed for other uses, such as hunter access, horse trails, or timber sales. Safety is not as much of a concern on those roads since there is generally single use and very little traffic.

Administrative Uses (AU)

AU (1): How does the road system affect access needed for research, inventory, and monitoring?

The current road system is adequate for these uses and has been utilized for bird, bat, salamander, butterfly, snail and botanical surveys in the past.

AU (2): How does the road system affect investigative or enforcement activities?

The transportation system provides opportunities for road blocks, drop-off points, surveillance

activities, and patrolling. The existence of roads increases forest visitation creating a need for increased law enforcement.

Protection (PT)

PT (1): How does the road system affect fuels management?

Roads, both authorized and unauthorized, are often used as firebreaks and control lines for prescribed burns and wildfire control. Using roads as firebreaks can be a particularly effective, efficient and low cost method of addressing the issues of wildfire hazards, and in the management of fuels.

PT (2): How does the road system affect the capacity of the Forest Service and cooperators to suppress wildfires?

Most roads are adequate for firefighting equipment mobilization. Some communities are using roads as firebreaks as part of their community planning.

PT (3): How does the road system affect risk to firefighters and to public safety?

Open roads provide a firebreak and control line for wildfires. Closed and gated authorized roads may need minimal dozer work for equipment movement. This lessens the risk to firefighters and the public.

PT (4): How does the road system contribute to airborne dust emissions resulting in reduced visibility and human health concerns?

The roads in the Rich Mountain Assessment Area can get dusty, but traffic is generally light enough for it not to be a major visibility hazard.

Recreation – Unroaded Recreation (UR)

UR (1-5): Is there now or will there be in the future excess supply or excess demand for unroaded recreation opportunities? 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? What are the adverse effects of noise and other disturbance caused by developing, using, and maintaining roads, on the quantity, quality, and type of unroaded recreation opportunities? Who participates in unroaded recreation in the areas affected by building, maintaining, and decommissioning roads? What are these participants' attachments to the area, how strong are their feelings, and are alternative opportunities and locations available?

A goal in CNF's RLRMP is to "manage areas to provide 'backcountry' (semi-primitive motorized and non-motorized/remote) recreation experiences that are generally not available on other land ownerships", and to "Manage at least 75,000 acres outside designated Wilderness for backcountry recreation." The supply and demand for unroaded recreation opportunities was

considered when apportioning the Prescription Areas during the planning process. The Sampson Mountain Wilderness and associated Wilderness Study Area provide non-motorized recreation areas. An area of Prescription 2.B.2 (Eligible scenic river), that includes a portion of the Nolichucky River, a cultural/heritage site and an administrative site exist within the watershed. Prescription Areas such as 8.C, provide some "backcounty" recreation, while they remain unroaded.

Developing new roads in areas currently unroaded will diminish those areas' intrinsic unroaded characteristics. Decommissioning existing roads could increase the unroaded characteristics. Significantly lowering maintenance levels of existing roads (i.e., into non-motorized trails for horses, bicycles, or hiking) would increase the area's non-motorized characteristics. Significantly raising maintenance levels of existing roads would diminish the remote character by potentially bringing more people and vehicles more frequently into the backcountry.

Visitors using the unroaded portions of this study area are generally three groups: (1) hunters who use roads to access the backcountry and then leave their vehicles to traverse the forest on foot, (2) equestrians and hikers seeking day use opportunities in an unroaded setting, and (3) bicyclists using Longarm Branch Trail. Noise, changes to existing scenic integrity and increased development provide constant threats to the remote primitive experience in unroaded areas. There are other opportunities for each of the previously mentioned activities in adjacent forest lands, though probably not as convenient for local people using these lands as their "backyards."

Recreation - 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? RR (3): What are the adverse effects of noise and other disturbances caused by building, using, and maintaining roads on the quantity, quality, or type of roaded recreation opportunities? RR (4): Who participates in road-related recreation in the areas affected by road building, 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?

Public land ownership in this area is generally contiguous, even though there are significant private inholdings in the Bumpus Cove area. Private inholdings are moderately to sparsely roaded. Visitors using forest roads in this area are mostly hunters, hikers, backpackers, bicyclists, equestrians and people driving the backcountry for pleasure, or are locals traveling near their "backyards", a few miles from their property. The lands adjacent to the road system do offer an opportunity for remoteness and solitude. The remote nature of the public lands in the area, with few or a moderate number of forest roads, provides a sense of remoteness and solitude for people in vehicles. Increasing the number of roads and/or their current maintenance levels would diminish the backcountry character of existing roads, but would also increase the access and opportunities for hunting and rural experiences for some.

RR (2): Is developing new roads into unroaded areas, decommissioning existing roads, or changing maintenance of existing roads causing significant changes in the quantity, quality, or type of roaded recreation opportunities?

Visitors using forest roads in this area are generally seeking a hunting or backcountry experience

with a sense of remoteness and solitude. Adding new roads in currently unroaded areas would increase access into portions of the backcountry and could provide a roaded yet remote experience for forest users, but would diminish those areas' unroaded characteristics. Carefully-planned decommissioning of some existing roads, lowering maintenance levels of some existing roads and converting some roads into trails while increasing maintenance levels (or at least routine and regular maintenance) of select roads could continue, and enhance, the remote backcountry roaded experience.

Passive-Use Value (PV)

PV (1): Do areas planned for road entry, closure, or decommissioning have unique physical or biological characteristics, such as unique natural features and threatened or endangered species?

The section of Bowman Road FSR#190E is recommended for decommissioning because it is effecting a wetland community.

PV (2): Do areas planned for road construction, closure, or decommissioning have unique cultural, traditional, symbolic, sacred, spiritual, or religious significance?

None of the areas planned for road construction, closure, or decommissioning have any known 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 unroaded areas planned for road entry or road closure?

No known groups of people hold cultural, symbolic, spiritual, sacred, traditional, or religious values for unroaded areas planned for road entry or road closure.

PV (4): Will road construction, closure, or decommissioning significantly affect passive-use value?

The road system is used by all groups of people. Changes in road management including closing or decommissioning of any of the roads would have the same effect on all groups of people including minorities and different cultures.

Social Issues (SI)

SI (1): What are people's perceived needs and values for roads? How does road management affect people's dependence on, need for, and desire for roads?

No known study has been conducted to ascertain people's perceived needs and values for roads. No known study has been conducted with respect to road management and people's dependence on, need for, and desire for roads.

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?

No known study has been conducted to ascertain people's perceived needs and values for access (to roads). No known study has been performed to determine people's dependence on, need for, and desire for access.

SI (3): How does the road system affect access to paleontological, archaeological, and historical sites?

The road system does not have any known affect on access to paleontological, archaeological, and historic sites.

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?

The present road system does not have any known affects on cultural and traditional uses and American Indian treaty rights.

SI (5): How are roads that are historic sites affected by road management?

No historic roads or transportation routes will be affected by road management.

SI (6): How is community social and economic health affected by road management (for example, lifestyles, businesses, tourism industry, infrastructure maintenance)?

There are no known affects of road management to community social and economic health.

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?

The community perception of its social and economic dependency on unroaded areas versus the value of that unroaded area for its intrinsic existence and symbolic values is not known.

SI (8): How does road management affect wilderness attributes, including natural integrity, natural appearance, opportunities for solitude, and opportunities for primitive recreation?

The presence of roads detracts from these attributes, while the absence of roads augments these attributes.

SI (9): What are the traditional uses of animal and plant species within the area of analysis?

There is no known study of the traditional uses of animal and plant species within the area of analysis.

SI (10): How does road management affect people's sense of place?

No known study has been performed that provides for determinations of the affects of road management with respect to people's sense of place.

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)?

Road system management has no known affects for minority, ethnic, cultural, racial, disabled, and low-income groups.

Ability of the Transportation System to meet Objectives

To meet the objective of determining needed and unneeded roads (minimum road system, trails, and areas for motor vehicle use), each route segment was examined to determine its uses. These uses are displayed in Table 4

- Recreation/Heritage Access
- Vegetation Management Access
- Access to Private Land/Special Uses
- Wildlife/Fish Management
- Fire Management

Based on these uses, the transportation system needed, as well as unneeded roads, were identified. These are displayed on Map 26. The results of this analysis indicated there weren't any roads that could be decommissioned at this time.

STEP 5 DESCRIBING OPPORTUNITIES AND SETTING PRIORITIES

Purpose and Products

The purpose of this step is to:

- compare the current transportation system with what is desirable or acceptable, and
- describe options for modifying the transportation system that would achieve desirable or acceptable conditions.

The products of this step are:

- a map and descriptive ranking of the problems and risks posed by the current road system,
- a map and list of opportunities, by priority, for addressing important problems and risks, and
- a prioritized list of specific actions, projects, or forest plan adjustments requiring NEPA analysis.

Problems and Risks Posed by the Current Transportation System

Overall Priorities for Rich Mountain Assessment Area

The priorities listed below in the table and in the site-specific descriptions are prioritized by resource area. The Team analyzed the individual resource priorities in order to develop larger, overall priorities for the assessment area. These priorities are:

- Recreation/Heritage Access
- Vegetation Management Access
- Access to Private Land/Special Uses
- Wildlife/Fish Management
- Fire Management.

Road Maintenance Needs

During the course of completing maintenance surveys of the Forest Service roads within this assessment area, a large amount of data was gathered on maintenance needs on the FS roads open to motor vehicle use. Data on roads closed to motor vehicle use is based on random sampling. Condition surveys were also completed on unauthorized roads that have the potential to be added to the system. Table 3 lists the work needed.

Table 3. Road Work Needed in Rich Mountain Assessment Area

ROAD #	NAME	LENGTH	OBJ_ ML	Infra Miles in Watershed	GIS Miles in Watershed	ANNUAL COSTS	DEFERRED COSTS	RMO	MACHINE GRADE	GRAVEL	DITCH	PAVE	BRUSH	BRIDGE MAINT.	CULVERTS	SURFACE TYPE	REMARKS
SYSTEM ROADS:																	
190	RICH MOUNTAIN	6.3	3	15.1	12.99	43,470	61,110	D2-FS	x	x	x		x		x	AGG	
		1.4	3			9,660	13,580	D2-FS	x	x	x		x		x	NAT	
		3.4	2			639	15,300	D2-FS								NAT	
		4	1			752	18,000	D1								NAT	
190A	CHIGGER BR./MINK GAP	0.6	1	0.60	0.60	113	2,700	D2-FS					x			NAT	If 190 L-1 from 11.1 - 15.1 this should be L-1. Field location to close.
190B	CALIFORNIA FIELDS	0.5	2	0.50	0.77	94	2,250	D1								IMP	Need to figure which location is correct. Determine ML2 and ML1 location.
190E	BOWMAN	0.43	2	0.43	0.53	81	1,935	D2-WL								IMP	
190EXT	RICH MT EXTENSION	0.25	2	0.25	0.29	47	1,125	D2-WL								NAT	Maintained as a L.W.O.
190F	RICH MT WILDLIFE	0.53	2	0.53	0.63	100	2,385	D2-WL								NAT	
190G	RICH MT RIDGE	1.1	1	1.10	1.11	207	4,950	D1								NAT	Check with TWRA for closure. ML=1
21971	SHORT SPUR	0.9	1	0.90	0.51	169	4,050	D1								IMP	
25	CLARKS CREEK	3.96	3	2.53	3.92	27,324	38,412	C3	x	x	x		x	x	x	AGG	0-1.43 County Juris; OPML/OprML = 4; BST
38	JACKSON FARM	0.3	3	0.30	0.13	2,070	2,910	C3	x	x	x		x		x	AGG	
5066	WILLARDS HUMP	2.4	2	2.40	2.52	451	10,800	D2-WL					x			AGG	Maintained as a L.W.O. ML=2.
5073	LUKES ROAD	1.5	1	1.50	1.77	282	6,750	D2-WL?								NAT	
538510	JACKSON MTN.	0.42	2	0.42	0.53	79	1,890	D2-WL								IMP	
53987	GREEN KNOB/NORTON BR	1.5	2	1.50	0.11	282	6,750	D2-WL								NAT	Need ROW
94	HORSE CREEK	0.47	5	0.47	1.24	3,243	4,559	A5			x	x	x	x		BST	0-.55 County Juris; OPML/OprML = ?; BST; Functional Class from B to A.
		4.75	2	4.75		893	21,375	D2-FS		x	x		x		x	NAT	
94B	HORSE CR.PICNIC AREA	0.16	5	0.16	0.16	1,104	1,552	A5				x	x			BST	
94C	HORSE CR.CAMPGROUND	0.29	5	0.29	0.26	2,001	2,813	A5				x	x			BST	
94C1	HORSE CR.PARKING	0.06	5	0.06	0.06	414	582	A5				x	x			BST	
UNAUTHORIZED ROADS																	
OR-1	Old road - Sampson Mtn Wilderness																
OR-2	Little German	0.08	2			15	360	D2-FS									
OR-3	Off of 190G																
OR-4	Jackson Farm Cemetery																

Opportunities for Travel Management

Table 4 summarizes recommendations in response to the issues identified in Step 3 and the questions answered in Step 4. A more detailed narrative follows the table, and priorities are listed above. Maps are included in Appendix A to assist in tracking the recommendations. Each specialist identified recommendations based on how the transportation system affected their resource; therefore, conflicting recommendations may exist between resource areas due to differing needs.

Aquatics

Road surfaces and ditches are properly aligned and graded to minimize sediment runoff.

As road improvements are made, culverts are replaced to allow aquatic species passage.

Locate sediment sources in Laurel Creek watershed and stabilize them.

Table 4. Summary of Road Recommendations by Issues (Y or N answers) Rich Mountain Assessment Area

Road #	Road Name	BMP	EMP	Infra Miles in Watershed	GIS Miles in Watershed	Private Access	Wildfire Suppression Use	Recreation/ Heritage Use	Wildlife Use	Vegetation Mgmt	Environmental Risk	Recommendation(s) to be considered
190	RICH MOUNTAIN	0.00 6.30 7.70 11.10	6.30 7.70 11.10 15.10	15.1	12.99	x	x	x	x	x	x?	Need to do some heavy Maintenance on this road from about m.p. 3.0 to m.p. 6.3. M.P. 6.3 to 11.10 needs to have portions of the road relocated to be able to help drainage problems.
190A	CHIGGER BR./MINK GAP	0.00	0.60	0.60	0.60		x					
190B	CALIFORNIA FIELDS	0.00	0.50	0.50	0.77		x	x				
190E	BOWMAN	0.00	0.43	0.43	0.53		x	x	x			Decommission from first WLO to end.
190EXT	RICH MT EXTENSION	0.00	0.25	0.25	0.29		x					
190F	RICH MT WILDLIFE	0.00	0.53	0.53	0.63		x	x	x	x		
190G	RICH MT RIDGE	0.00	1.10	1.10	1.11		x			x	x?	Would recommend going to Level 1 and blocking Access. Check with TWRA
21971	SHORT SPUR	0.00	0.90	0.90	0.51		x					from state property. Coordinate with TWRA.
25	CLARKS CREEK	1.43	3.96	2.53	3.92		x	x	x	x		2 potential sites for fish passage / culvert replacement.
38	JACKSON FARM	0.00	0.30	0.30	0.13		x	x	x	x		Infra Milage Correct not GIS
5066	WILLARDS HUMP	0.00	2.40	2.40	2.52		x	x	x	x		
5073	LUKES ROAD	0.00	1.50	1.50	1.77		x	x	x	x		
538510	JACKSON MTN.	0.00	0.42	0.42	0.53		x	x	x	x		
53987	GREEN KNOB/NORTON BR	0.00	1.50	1.50	0.11	x	x	x	x		x?	Needs ROW. Repair washout.
94	HORSE CREEK	0.55 1.02	1.02 5.77	0.47 4.75	1.24	x	x	x	x	x		
94B	HORSE CR.PICNIC AREA	0.00	0.16	0.16	0.16		x	x		x		
94C	HORSE CR.CAMPGROUND	0.00	0.29	0.29	0.26		x	x		x		
94C1	HORSE CR.PARKING	0.00	0.06	0.06	0.06		x	x		x		
UNAUTHORIZED ROADS												
OR-1	Old road - Sampson Mtn Wilderness											Possible hiking trail.
OR-2	Little German					x	x	x	x	x		Make ML2. Estab possible parking area. Research for trail. Verify ROW rights.
OR-3	Off of 190G - TWRA											Partner with TWRA
OR-4	Jackson Farm Cemetery						x	x	x	x		Make system road.

Recommendations

See Table 4.

NEPA Analysis Needs

Many opportunities identified in this report can be incorporated into the Rich Mountain EA process. If there are some opportunities identified that will not be incorporated into the EA, they will require a site-specific NEPA analysis in the future when the decision is made to implement them (activities other than maintenance and administrative decisions).

STEP 6 REPORTING

Purpose and Products

The purpose of this step is to:

- report the key findings of the analysis.

The products of this step are:

- a report including maps, analyses, and test documentation of the travel analysis, and
- maps that show the data and information used in the analysis, and the opportunities identified during the analysis.

Report

This report will be reviewed by the Cherokee NF, and shared with other offices in the Forest Service that are also working on travel analysis. This report is available to the public if requested, and will be part of the Rich Mountain Assessment project file.

Maps

Attachment 3

Road Management Objectives (RMO's)

RECOMMENDED BY: Gary Watson **Date: February 2009**

APPROVED BY: _____ **DATE: February 2009**

ROAD MANAGEMENT OBJECTIVE
Cherokee National Forest
D1
190, 190B, 190G, 21971, OR-5

Intended Purpose of Road
The purpose of this road is to provide access for various resource activities on an intermittent basis. There currently is no management activity that requires vehicular access. The road is physically blocked to prevent all vehicular traffic. It will be opened when there is a management need for vehicular traffic. A different Road Management Objective will be in effect during the period of use.

Design, Operation and Maintenance Criteria	
Traffic Service Level	D
Maintenance Level	1
Functional Classification	Local
Traffic Volume	Zero
Traffic Classification	Timber 0%, Recreation 0%, Administrative 0%
Traffic Management	Closed to all vehicular traffic
Environmental Consideration	May or may not be adjacent to streams and/or have erosive soils
Design Vehicle •For curve widening •For surfacing •For grade •For travel way width •For sight distance	 •Depends on next management activity •Same •Same •Same •Pickup/SUV
Critical Vehicle	Depends on next management activity
Subject to Highway Safety Act	No
Design, Operation and Maintenance Standards	
Width	10-15 feet
Turnouts	Not necessarily intervisible
Surfacing	May have been spot surfaced; currently grassed or trees growing
ADT	0
Design Speed	5 mph
Highway Safety Act	Does not apply
Maintenance Level 1 requirements	•Do annual inspection (condition survey) •Repair only where damage is occurring to adjacent resources •Allow grass, brush to grow up

Recommended: Gary Watson	Date: February 2009
Approved: District Ranger	Date:

ROAD MANAGEMENT OBJECTIVE
Cherokee National Forest
D2-HC

Intended Purpose of Road
The purpose of this road is to provide access for the recreation use of 4WD and high clearance vehicles.

Design, Operation and Maintenance Criteria	
Traffic Service Level	D
Maintenance Level	2
Functional Classification	Local
Traffic Volume	Low
Traffic Classification	Timber 0%, Recreation 100%, Administrative 0%
Traffic Management	Limited to 4WD/high clearance vehicles
Environmental Consideration	May or may not be adjacent to streams and/or have erosive soils
Design Vehicle •For curve widening •For surfacing •For grade •For travel way width •For sight distance	 •N/A •Same •Same •Same •Same
Critical Vehicle	N/A
Subject to Highway Safety Act	No

Design, Operation and Maintenance Standards	
Width	10-15 feet
Turnouts	Not necessarily intervisible
Surfacing	May have been spot surfaced; currently probably native
ADT	Low
Design Speed	5 mph
Highway Safety Act	Does not apply
Maintenance Level 2 requirements	•Do annual inspection (condition survey) •Repair where damage is occurring to adjacent resources •No scheduled blading, drainage, surfacing work •Clear out blowdown as needed for access and mow every 5 years

Recommended:	Date:
Approved: District Ranger	Date:

ROAD MANAGEMENT OBJECTIVE
Cherokee National Forest
D2-WL
190E, 190EXT, 190F, 5066, 5073, 538510, 53987, OR-5?

Intended Purpose of Road
The purpose of this road is to provide access for various resource activities on an as-needed basis. In the meantime it serves as a linear wildlife opening. Public traffic is restricted by means of a gate or similar device and access is limited to administrative traffic including contract wildlife maintenance traffic.

Design, Operation and Maintenance Criteria	
Traffic Service Level	D
Maintenance Level	2
Functional Classification	Local
Traffic Volume	Low
Traffic Classification	Timber 0%, Recreation 0%, Administrative 100%
Traffic Management	Limited to administrative traffic
Environmental Consideration	May or may not be adjacent to streams and/or have erosive soils
Design Vehicle •For curve widening •For surfacing •For grade •For travel way width •For sight distance	 •Depends on next management activity •Same •Same •Same •Pickup/SUV
Critical Vehicle	Depends on next management activity
Subject to Highway Safety Act	No

Design, Operation and Maintenance Standards	
Width	10-15 feet
Turnouts	Not necessarily intervisible
Surfacing	May have been spot surfaced; currently grassed - wildlife mixture
ADT	Low
Design Speed	5 mph
Highway Safety Act	Does not apply
Maintenance Level 2 requirements	•Do annual inspection (condition survey) •Repair where damage is occurring to adjacent resources •No scheduled blading or drainage work •Clear out blowdown as needed for access and mow annually

Recommended:	Date:
Approved: District Ranger	Date:

ROAD MANAGEMENT OBJECTIVE
Cherokee National Forest
D2-FS
190, 190A, 38, 94, OR-2, OR-5?, OR-6

Intended Purpose of Road
The purpose of this road is to provide access for various resource activities on an as-needed basis. Public traffic is restricted by means of a gate or similar device and access is limited to administrative traffic including Forest Service, Special Use/Road Easement or other authorized traffic. Road may be open seasonally during certain hunting seasons.

Design, Operation and Maintenance Criteria	
Traffic Service Level	D
Maintenance Level	2
Functional Classification	Local
Traffic Volume	Low
Traffic Classification	Timber 0%, Recreation low%, Administrative high%
Traffic Management	Limited to administrative traffic (FS, SU, etc.)
Environmental Consideration	May or may not be adjacent to streams and/or have erosive soils
Design Vehicle •For curve widening •For surfacing •For grade •For travel way width •For sight distance	 •Depends on next management activity •Same •Same •Same •Pickup/SUV
Critical Vehicle	Depends on next management activity
Subject to Highway Safety Act	No

Design, Operation and Maintenance Standards	
Width	10-15 feet
Turnouts	Not necessarily intervisible
Surfacing	May have been spot surfaced; could be grassed or other vegetation
ADT	Low
Design Speed	5 mph
Highway Safety Act	Does not apply
Maintenance Level 2 requirements	•Do annual inspection (condition survey) •Repair where damage is occurring to adjacent resources •No scheduled blading or drainage work •Clear out blowdown as needed for access and mow every three years

Recommended:	Date:
Approved: District Ranger	Date:

ROAD MANAGEMENT OBJECTIVE
Cherokee National Forest
C3
25

Intended Purpose of Road
The purpose of this road is to provide access for various resource activities . The road is open to public traffic in standard 4-wheel passenger cars and, thus, is subject to the Highway Safety Act. Road may be closed seasonally or for periods of freeze-thaw conditions.

Design, Operation and Maintenance Criteria	
Traffic Service Level	C
Maintenance Level	3 (or 4)
Functional Classification	Collector
Traffic Volume	Moderate – High
Traffic Classification	Timber Moderate%, Recreation high%, Administrative low%
Traffic Management	Open to all legal traffic (commercial traffic by permit only)
Environmental Consideration	May or may not be adjacent to streams and/or have erosive soils
Design Vehicle •For curve widening •For surfacing •For grade •For travel way width •For sight distance	 •Generally tractor trailer •Same •Same •Same •Pickup/SUV
Critical Vehicle	Low boy
Subject to Highway Safety Act	Yes

Design, Operation and Maintenance Standards	
Width	12 - 16 feet plus curve widening
Turnouts	Intervisible
Surfacing	Fully surfaced with approximately 4 inches crushed aggregate
ADT	Moderate – High
Design Speed	10 - 15 mph
Highway Safety Act	Signed to meet MUTCD
Maintenance Level 3 requirements	•Do annual inspection (condition survey) •Make repairs as soon as need is recognized •Scheduled blading 2 times per year; dips and/or ditches/culvert inlets cleaned once per year •Clear out blowdown as it occurs and mow every year to maintain safe sight distance •Maintain 4 inches of crushed aggregate •Maintain signs and other safety considerations

Recommended:	Date:
Approved: District Ranger	Date:

ROAD MANAGEMENT OBJECTIVE

Cherokee National Forest

B4

Intended Purpose of Road
The purpose of this road is to provide access for various resource activities . The road is open to public traffic in standard 4-wheel passenger cars and, thus, is subject to the Highway Safety Act. User convenience is more of a concern than for TSL C roads. Road may be closed seasonally or for periods of freeze-thaw conditions.

Design, Operation and Maintenance Criteria	
Traffic Service Level	B
Maintenance Level	4 (or 5)
Functional Classification	Collector (or local)
Traffic Volume	Moderate – High
Traffic Classification	Timber Low%, Recreation high%, Administrative low%
Traffic Management	Open to all legal traffic (commercial traffic by permit only)
Environmental Consideration	May or may not be adjacent to streams and/or have erosive soils
Design Vehicle •For curve widening •For surfacing •For grade •For travel way width •For sight distance	 •Generally tractor trailer •Same •Same •Same •Pickup/SUV
Critical Vehicle	Low boy
Subject to Highway Safety Act	Yes

Design, Operation and Maintenance Standards	
Width	Generally 16 - 18 feet plus curve widening
Turnouts	Intervisible, if needed
Surfacing	Fully surfaced - approximately 6 inches crushed aggregate (or paved)
ADT	Moderate – High
Design Speed	10 - 15 mph
Highway Safety Act	Signed to meet MUTCD
Maintenance Level 4 requirements	•Do annual inspection (condition survey) •Make repairs as soon as need is recognized •Scheduled blading 3 times per year (or pavement repair as needed); ditches/culvert inlets cleaned annually •Clear out blowdown as it occurs and mow every year to maintain safe sight distance •Maintain 6 inches of crushed aggregate (or repave on a 10-12 year cycle) •Maintain signs and other safety considerations

Recommended:	Date:
Approved: District Ranger	Date:

ROAD MANAGEMENT OBJECTIVE
Cherokee National Forest
A5
94, 94B, 94C, 94C1

Intended Purpose of Road
The purpose of this road is to provide access for various resource activities . The road is open to public traffic in standard 4-wheel passenger cars and, thus, is subject to the Highway Safety Act. User convenience is more of a concern than for TSL C roads. Usually paved. Road may be closed seasonally or for periods of freeze-thaw conditions.

Design, Operation and Maintenance Criteria	
Traffic Service Level	A
Maintenance Level	5
Functional Classification	Arterial (or collector or local)
Traffic Volume	Moderate – High
Traffic Classification	Timber Low%, Recreation high%, Administrative low%
Traffic Management	Open to all legal traffic (commercial traffic by permit only)
Environmental Consideration	May or may not be adjacent to streams and/or have erosive soils
Design Vehicle •For curve widening •For surfacing •For grade •For travel way width •For sight distance	 •Generally tractor trailer •Same •Same •Same •Pickup/SUV
Critical Vehicle	Low boy
Subject to Highway Safety Act	Yes

Design, Operation and Maintenance Standards	
Width	Generally 18 feet plus curve widening
Turnouts	N/A
Surfacing	Paved
ADT	Moderate – High
Design Speed	10 - 15 mph
Highway Safety Act	Signed to meet MUTCD
Maintenance Level 5 requirements	•Do annual inspection (condition survey) •Make repairs as soon as need is recognized •Pavement repairs as needed; ditches/culvert inlets cleaned annually •Clear out blowdown as it occurs and mow every year to maintain safe sight distance •Repave on a 10-12 year cycle) •Maintain signs and other safety considerations

Recommended:	Date:
Approved: District Ranger	Date:

Road Management Objective (RMO)

Project

#	NAME	Traffic Service Level/Mtc. Level.	Comments
OR-1	Old road – Sampson Mtn Wilderness		
OR-2	Little German	D2-FS	
OR-3	Off of 190G		
OR-4	Jackson Farm Cemetery		
OR-5	Middle Springs Ridge	D2-FS/WL?	
OR-6	Ball Ground	D2-FS/PVT	

REFERENCES

Recreation

USDA Forest Service. 2004. Revised Cherokee National Forest Land and Resource Management Plan 2004. Cleveland, TN.

USDA Forest Service. 2004. Recreation Sites Facility Master Plan, Cleveland, TN

USDA Forest Service. 2006. Cherokee National Forest Strategic Trails Analysis DRAFT. Cleveland, TN

USDA Forest Service (2009), Cherokee NF, GIS Data Base.