Cherokee National Forest
Watauga Ranger District

Travel Analysis Process Report

Pond Mountain II Watershed Assessment Area

July 2010

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 Pond Mountain II 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 Pond Mountain II 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 Pond Mountain II Ecosystem Assessment Area (wherever analysis area is referenced in this document, it corresponds to the Pond Mountain II 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 Pond Mountain II Ecosystem EA. Unless otherwise stated, the boundary for this travel analysis will match the Pond Mountain II 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 Pond Mountain II 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
Brittany Bird	Team Consultant	Wildlife/Fisheries/Botany: SCEP student
Terry Bowerman	Team Consultant	N/U District Ranger
Marcia Carter	Team Consultant	Fisheries/Wildlife
Jeff Chynoweth	Analysis Team Leader	NEPA Planner (NZ)
Mitch Ketron	Team Consultant	Watauga Fire and Fuels

Frank Lege	Team Consultant	Special Uses
Vern Maddux	Team Consultant	Watauga Recreation
Joe McGuinness	Team Consultant	Botany/Wildlife
Stephanie Medlin	Team Consultant	NEPA Coordinator (SO)
Don Palmer	Team Consultant	Watauga District Ranger
Tom Rowe/Anita Bailey	Team Consultants	GIS Support
Greg Salansky	Team Consultant	N/U Fire and Fuels
Jim Stelick	Team Consultant	Timber and Veg Resources
Cheryl Summers	Team Consultant	N/U 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 the information 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 Pond Mountain II 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 34.5 miles of Forest Service jurisdiction roads within the analysis area. Many of the Forest Service roads (approximately 32 miles) are gated, vegetated, and closed seasonally or throughout the year. The remaining 2.51 miles of roads are open to public motor vehicle use. 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.

Status	Sum of Miles in Water shed
Closed	15.76
Open	2.51
Seasonal	6.87
Yearlong - F	9.33
Grand Total	**34.47**

There are approximately 1.44 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 Pond Mountain II Assessment Area covers approximately 49,850 acres. These acres are divided into FS and Non-FS acres:

Total Acres	49850.1	Percentage of Acres
NFS Acres	23822.9	48%
Non-NFS Acres	26027.2	52%

The NFS acreage is contained within Management Areas 10, 11, and 13 and is allocated into the following Management Prescriptions:

Pond Mountain II RX Acres

Mgmt RX	Description	Total NFS Acres
1.A	Designated Wilderness (Pond Mountain)	6,490.5
12.A	REMOTE BACKCOUNTRY RECREATION	2,448.6
2.B.3	ELIGIBLE RECREATIONAL RIVER	646.5
4.A	APPALACHIAN TRAIL CORRIDOR	4,038.7
4.F	SCENIC AREAS	2,682.6
4.K	ROAN MOUNTAIN	0.1
5.A	ADMINISTRATIVE SITES	34.2
7.B	SCENIC CORRIDORS/SENSITIVE VIEWSHEDS	1,026.4
7.D	CONCENTRATED RECREATION ZONE	179.3
7.E.2	DISPERSED RECREATION AREAS -- SUITABLE	948.3
8.A.1	MIXED SUCCESSIONAL HABITATS	53.6
8.C	BLACK BEAR HABITAT MANAGEMENT	4,872.3
9.F	RARE COMMUNITIES	22.1
Grand Total		**24,278.6**

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 Pond Mountain II 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.
- Road logs.
- GIS layer of wildlife cover types.
- 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.
- Identification of wildlife species most at risk from roads, whose viability is a concern.
- 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 Pond Mountain II 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 Pond Mountain II 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 Pond Mountain II 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 Pond Mountain II Assessment Area include: horseback 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.

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 2009. The road number, name, length, and other data are detailed in **Table 1** below**.**

Table 1. Pond Mountain II Watershed Assessment Area Roads - Current Condition (July 2010)

Road #	Road Name	Miles in Water shed	Miles w/in 100' of stream	Status (as defined by Travel Mgmt Rule)	RMO	Oper ML	Surface Type	Remarks
NATIONAL FOREST SYSTEM ROADS								
166	BUCK RIDGE TOWER	0.81	0.08	Closed	D1	1 - BASIC CUSTODIAL	NAT - NATIVE MATERIAL	No Known R.O.W. BMP in NC.
292	WATAUGA POINT	0.47		Seasonal	A5	5 - HIGH DEGREE OF	BST - BITUMINOUS SURFACE TREATMENT	
292A	WATAUGA POINT ENTRANCE PARKING	0.05		Seasonal	A5	5 - HIGH DEGREE OF	P - PAVED	
292B	WATAUGA POINT LOOP PARKING	0.10		Seasonal	A5	5 - HIGH DEGREE OF	P - PAVED	
293A	CEDAR GAP	0.92		Closed	D2-FS	2 - HIGH CLEARANCE	NAT - NATIVE MATERIAL	
293A	CEDAR GAP	0.11		Seasonal	D2-FS	2 - HIGH CLEARANCE	NAT - NATIVE MATERIAL	
293B	BIG FLATS	1.22	0.18	Closed	D2-WL	2 - HIGH CLEARANCE	NAT - NATIVE MATERIAL	
293C	BIG FLATS BRANCH	0.40	0.32	Closed	D2-WL	2 - HIGH CLEARANCE	NAT - NATIVE MATERIAL	
296	SHOOK BRANCH	0.29	0.11	Seasonal	A5	5 - HIGH DEGREE OF	BST - BITUMINOUS SURFACE TREATMENT	
329	CARDENS BLUFF	0.73		Seasonal	A5	5 - HIGH DEGREE OF	BST - BITUMINOUS SURFACE TREATMENT	
329A	CARDENS BLUFF LOOP A	0.15		Seasonal	A5	5 - HIGH DEGREE OF	BST - BITUMINOUS SURFACE TREATMENT	
329B	CARDENS BLUFF SPUR B	0.09		Seasonal	A5	5 - HIGH DEGREE OF	BST - BITUMINOUS SURFACE TREATMENT	
329C	CARDENS BLUFF LOOP C	0.18		Seasonal	A5	5 - HIGH DEGREE OF	BST - BITUMINOUS SURFACE TREATMENT	
344	LITTLE POND SHOOTING	0.13		Yearlong - F	A5	5 - HIGH DEGREE OF	BST - BITUMINOUS SURFACE TREATMENT	
376	LUNSFORD HOLLOW	0.06		Closed	D2-FS	2 - HIGH CLEARANCE	AGG - CRUSHED AGGREGATE OR GRAVEL	FS. R.O.W.
39	LITTLE STONY CREEK	4.93	1.53	Yearlong - F	B4	3 - SUITABLE FOR PA	BST- PAVEMENT / AGG- CRUSHED AGGREGATE OR GRAVEL	
4315	CANNUCK FIELD	0.38		Closed	D2-WL	2 - HIGH CLEARANCE	NAT - NATIVE MATERIAL	
499	Y'S MEN LAKE ACCESS	0.10		Yearlong - F	C3	3 - SUITABLE FOR PA	AGG - CRUSHED AGGREGATE OR GRAVEL	
50	LAUREL FORK	3.29	0.26	Yearlong - F	B4	3 - SUITABLE FOR PA	AGG - CRUSHED AGGREGATE OR GRAVEL	
50D	LOUIE GREEN EASEMENT	0.10	0.05	Closed	C3	3 - SUITABLE FOR PA	NAT - NATIVE MATERIAL	P.O. R.O.W.
530101	CAMPBELL TRACT	0.27		Yearlong - F	C3	3 - SUITABLE FOR PA	AGG - CRUSHED AGGREGATE OR GRAVEL	County Rd
5306	HAMPTON TRAILHEAD	0.06	0.06	Yearlong - F	B4	3 - SUITABLE FOR PA	AGG - CRUSHED AGGREGATE OR GRAVEL	

Table 1. Pond Mountain II Watershed Assessment Area Roads - Current Condition (July 2010)

Road #	Road Name	Miles in Water shed	Miles w/in 100' of stream	Status (as defined by Travel Mgmt Rule)	RMO	Oper ML	Surface Type	Remarks
5314	LAUREL MT/WHITE ROCK	3.18	0.24	Seasonal	D2-FS	2 - HIGH CLEARANCE	IMP - IMPROVED NATIVE MATERIAL	
5314A	LAUREL MTN. SPUR	1.24	0.03	Closed	D1	1 - BASIC CUSTODIAL	IMP - IMPROVED NATIVE MATERIAL	
531901	JOHNSON TRACT	0.65	0.39	Closed	D2-HC	2 - HIGH CLEARANCE	NAT - NATIVE MATERIAL	No R.O.W.
6030	LITTLE MILLIGAN BOAT RAMP	0.43		Yearlong - F	A5	5 - HIGH DEGREE OF	BST - BITUMINOUS SURFACE TREATMENT	
60301	WHALEYTOWN	2.32	0.14	Closed	D1	1 - BASIC CUSTODIAL	IMP - IMPROVED NATIVE MATERIAL	
60302	FISH SPRINGS	1.42	0.18	Closed	D1	1 - BASIC CUSTODIAL	IMP - IMPROVED NATIVE MATERIAL	
6031	ROW BRANCH	2.21	0.24	Open	Dc-FS	2 - HIGH CLEARANCE	NAT - NATIVE MATERIAL	Fs to contuine to work on checking access ?'s Need to correct this one in infra?
6034	LITTLE POND MTN.	1.98	0.01	Closed	D2-WL	2 - HIGH CLEARANCE	IMP - IMPROVED NATIVE MATERIAL	
6034	LITTLE POND MTN.	1.20	0.05	Seasonal	D2-FS	2 - HIGH CLEARANCE	IMP - IMPROVED NATIVE MATERIAL	
60341	BLACK BRANCH	0.85	0.19	Closed	D2-FS	2 - HIGH CLEARANCE	NAT - NATIVE MATERIAL	Not Sure if we have a R.O.W. to this property
6034A	MAYS RIDGE	0.17		Closed	D2-FS	2 - HIGH CLEARANCE	IMP - IMPROVED NATIVE MATERIAL	Rename to Maple Springfs Gap Rd.
6035	FORK RIDGE	0.77		Closed	D1	1 - BASIC CUSTODIAL	IMP - IMPROVED NATIVE MATERIAL	
6036	FLINT RIDGE	0.89		Closed	D1	1 - BASIC CUSTODIAL	IMP - IMPROVED NATIVE MATERIAL	
60361	VANDERPOOL RIDGE	0.99		Closed	D1	1 - BASIC CUSTODIAL	IMP - IMPROVED NATIVE MATERIAL	
6037	ASHER BRANCH	0.10		Closed	B4	4 - MODERATE DEGR	BST - BITUMINOUS SURFACE TREATMENT	FS. R.O.W.
6303	RAT BRANCH	0.12		Yearlong - F	A5	4 - MODERATE DEGR	BST 0-0.2 / AGG 0.2-0.3	
71-2	WHITE ROCK TOWER SECT II	0.49		Closed	D2-FS	2 - HIGH CLEARANCE	IMP - IMPROVED NATIVE MATERIAL	
71-2	WHITE ROCK TOWER SECT II	0.32		Seasonal	D2-FS	2 - HIGH CLEARANCE	IMP - IMPROVED NATIVE MATERIAL	
60272	New Watauga Workcenter	0.30		open	A5	5 - HIGH DEGREE OF	BST - BITUMINOUS SURFACE TREATMENT	Planned
UNAUTHORIZED ROADS								
OR-1	Lewis Tract	0.45		Open?	C3	3 - SUITABLE FOR PA	NAT - NATIVE MATERIAL ?	F.S. R.O.W. Need to Add to system. FSR# 60271
OR-2	Rat Branch Loop 1	0.14		Open	A5	5 - HIGH DEGREE OF	BST - BITUMINOUS SURFACE TREATMENT	Need to add to system. FSR #6303A
OR-3	Rat Branch interloop	0.04		Open	A5	5 - HIGH DEGREE OF	BST - BITUMINOUS SURFACE TREATMENT	Need to add to system. FSR #6303B
OR-4	Fred Lowe Tract			open				P.O. R.O.W. Need to add to system . FSR #63191
OR-5	Decie Campbell Tr.	0.04		open	C3	3 - SUITABLE FOR PA	NAT - NATIVE MATERIAL	F.S. R.O.W. Need to Add to system. FSR# 60381

Table 1. Pond Mountain II Watershed Assessment Area Roads - Current Condition (July 2010)

Road #	Road Name	Miles in Water shed	Miles w/in 100' of stream	Status (as defined by Travel Mgmt Rule)	RMO	Oper ML	Surface Type	Remarks
OR-6	Richard Campbell Tr.	0.28		Open	D2-FS	2 - HIGH CLEARANCE	NAT - NATIVE MATERIAL	F.S. R.O.W. Need to Add to system. FSR# 60382
OR-7	Old Road							Illegal Road Decomm.
OR-8	Old Road							Illegal Road Decomm.
OR-9	Old Road							Illegal Road Decomm.
OR-10	Old Road							Illegal Road Decomm.
OR-11	Old Road							Illegal Road Decomm.
OR-12	Old Road	0.49			D2-FS	2 - HIGH CLEARANCE	NAT - NATIVE MATERIAL	Need to Add to system. FSR# 60301A
OR-13	Old Road							Illegal Road Decomm.
OR-14	Old Road							Illegal Road Decomm.
OR-15	Old Road							Illegal Road Decomm.
OR-16	Old Road							Illegal Road Decomm.
OR-17	Old Road	1.23		Closed	D2-WL			Linear Wildlife opening
OR-18	Old Road	0.61		Closed	D2-WL			Linear Wildlife opening

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 Pond Mtn II 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 Pond Mtn II 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 Pond Mountain 2 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 permanent roading 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 wooly 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?

Maintaining roads during hunting season may scare the game and have an adverse effect on hunting. There would be no other adverse effects of noise.

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. In the Pond Mountain II Project Area, roads constitute a small proportion of the land surface and have relatively insignificant effects on peak flow. Roads do not appear to alter annual water yields within the watershed.

Recommendation – Surface drainage can be improved by additional aggregate surfacing, additional drainage dips, cross drain culverts, berms and outsloping. These mitigation measures can reduce the impacts associated with the roads, including effects to surface and subsurface hydrology and erosion/sediment rates.

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. Roads open to public use provide a continual opportunity for surface erosion, but effective mitigation described in AQ1 will limit surface erosion. 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 illegal vehicle use originating from Whaley Town Road.

Recommendations - Block illegal vehicle access along Whaley Town Road and stabilize eroding areas.

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?

There is an estimation of at least 23 stream crossings found on FS lands within the analysis area. This estimation is based partially on field survey and partially on evaluation of maps and other information. These 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.

Recommendations- Create ditch turnouts so that ditchlines do not empty directly into stream channel, repair or replace culverts that are not functioning properly.

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)

Recommendations- - Create ditch turnouts so that ditchlines do not empty directly into stream channel. Determine roads where ditchlines may be eliminated and other types of water control structures such as coweeta dips may be use.

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 Watauga River basin, which includes Watauga Lake, Elk River, Doe River and Little Stony Creek. 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. Doe River also provides domestic and industrial water supply. Watauga Lake provides abundant fishing opportunities. Recreation uses will likely increase and the fishing demand in the area can be expected to remain the same 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 and lake. Fish or other aquatic organism passage may be affected at road crossings (See AQ10).

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

There are no 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?

No road crossings are known to restrict the movement of aquatic organisms in the Pond Mountain II Analysis area. 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?

No concern.

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 Little Stony Creek, Watauga Lake, Doe River, and Elk 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 Watauga Lake and Elk 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. No rare or unique aquatic species occur.

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 Pond Mountain II 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. However, the road system is very limited and does not provide much opportunity for these activities.

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

No concern.

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.

All the maintenance level 3 roads in the area are graded twice a year and mowed once every two years.

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 #50 is popular with drivers looking for a rural experience. Any open road receives some of this type of use.

Camping/Lake Recreation

US Highway 321 provides access to Rat Branch and Little Milligan boat ramps, Shook Branch and Watauga Point day use (beach access) areas, and Cardens Bluff campground. There are some other undeveloped areas used for primitive camping and lake access.

FSR #50f provides access to the Frog Level area, a popular dispersed camping and recreation spot along Laurel Fork Creek.

FSR #39 provides access to the Recreation Special Use Residences.

Hunting

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

Shooting Range

Pond Mountain Shooting Range is accessed off of US 321 via a short access road.

Hiking/ Mountain Biking

All roads have the potential for use as hiking and mountain biking routes. Major trailheads for the Appalachian Trail are accessed from US Highway 321 and FDR #50. Laurel Fork Trail #39, and Coon Den Falls Trail #37 are accessed from FDR#50. Lacey Trap Trail #36 is accessed from FSR #50f and 293. FSR #50f also provides access to FSR#39. Pond Mountain Trail #40 is accessed from US 321 and FDR #50, and Little Pond Mountain Trail #41 can be accessed from FSR #6031 and #6034.

Fishing

Laurel Fork Creek is the major draw for fishing in this area, aside from Watauga Lake. Laurel Fork Creek can be accessed from US #321 and FDR #50, and FSR #50f, and FSR #293. Watauga Lake is accessed from US #321.

Wildlife viewing

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

Special use areas

Five Recreation Residences and a Spring permit are accessed by FSR #39. FDR # 50 provides access to Elizabethton Electric and TVA powerlines. FSR # 60302 provides access to a TVA powerline. An additional permit for a barn does not utilize forest roads, but is accessed from State Highway 321.

Wilderness

Pond Mountain Wilderness may be accessed from the Laurel Fork Falls Trailhead, the Appalachian Trail crossing near Shook Branch Recreation Area along Highway 321, and the Pond Mountain trail #40 from Highway 321 or FDR #50. Additional access can be made from along FDR #50 in the Rough Ridge area, and from FSR # 30 where the Wilderness boundary parallels these roads.

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 Carter and Johnson Counties and the communities of Hampton, Butler and Roan Mountain. 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. Forest Service roads #50 and #39 are part of a road network that includes the state and county road systems.

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 and future water uses.

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

The analysis area is a portion of the Watauga River basin, which includes Doe Creek, Roan 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)?

Five Recreation Residences and a Spring permit are accessed by FSR #39. FDR # 50 provides access to Elizabethton Electric and TVA powerlines. FSR # 60302 provides access to a TVA powerline. An additional permit for a barn does not utilize forest roads, but is accessed from State Highway 321.

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 NFSRs in the study area connect to state and county roads that lead to the towns of Hampton, Butler & Roan Mountain in Carter County. 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
39	Little Stony Creek
50	Laurel Fork

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
293A	Cedar Gap
530101	Campbell Tract
6031	Row Branch
60271	Lewis Tract
63191	Fred Lowe Tract
60381	Decie Campbell Tract
60382	Richard Campbell Tract

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

Road No.	Road Name
293B	Big Flats
376	Lundsford Hollow
50D	Louie Green Easement
531901	Johnson Tract
60341	Black Branch
6037	Asher Branch

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 on the Forest. The FS has a co-operative agreement with Carter County 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 more than 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 road provides opportunities for road blocks, drop-off points, surveillance activities, and patrolling. The existence of the road creates the need for more law enforcement.

Protection (PT)

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

Roads, both classified 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 to travel on and 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 provides a firebreak and control line for wildfires. Closed and gated classified roads may need minimal dozer work to be utilized 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?

Pond Mountain project area roads and other open roads do 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 Pond Mountain Wilderness provides non-motorized recreation areas. The Appalachian Trail Prescription Area (a half-mile either side of the trail), an area of Prescription Area 12.B (Remote Backcountry recreation-Nonmotorized), a sizeable portion of the Doe River Gorge Scenic Area,

and an area designated Eligible Scenic River, provide unroaded recreation through prescription direction. 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 two groups: (1) hunters who use roads to access the backcountry and then leave their vehicles to traverse the forest on foot and (2) hikers seeking the unroaded setting along the Appalachian National Scenic Trail (A.T.). There are few similar alternatives for thousands of through-hikers travelling the A.T. from Georgia to Maine; noise, changes to existing scenic integrity and increased development provide constant threats to the remote primitive experience along the Trail. There are other opportunities for hunting 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 Dennis Cove area. Private inholdings are moderately to sparsely roaded. FSR #50 that goes through the middle of the area is considered a public thoroughfare, although drivers generally have a sense of "being in the woods". Visitors using forest roads in this area are mostly hunters, hikers and backpackers 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?

No.

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 Pond Mountain II 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 Maintenance Needed on National Forest System Roads in the Pond Mountain II Watershed Assessment Area														
Road #	Road Name	Miles in Watershed	Obj_ML	Annual Costs	Deferred Costs	RMO	Machine Grade	Gravel	Ditch	Pave	Brush	Bridge Mtce	Culverts	Remarks
NATIONAL FOREST SYSTEM ROADS														
166	BUCK RIDGE TOWER	0.81	1	152	3,645	D1								No Know R.O.W. FS try to get R.O.W. in future BMP in NC.
292	WATAUGA POINT	0.47	5	3,243	4,559	A5				x			x	
292A	WATAUGA POINT ENTRANCE PARKING	0.05	5	345	485	A5				x				
292B	WATAUGA POINT LOOP PARKING	0.10	5	690	970	A5				x				
293A	CEDAR GAP	0.92	2	173	4,140	D2-FS	x	x	x		x		x	
293A	CEDAR GAP	0.11	2	21	495	D2-FS	x	x	x		x		x	
293B	BIG FLATS	1.22	2	229	5,490	D2-WL					x		x	
293C	BIG FLATS BRANCH	0.40	2	75	1,800	D2-WL					x		x	
296	SHOOK BRANCH	0.29	5	2,001	2,813	A5				x				
329	CARDENS BLUFF	0.73	5	5,037	7,081	A5				x	x		x	
329A	CARDENS BLUFF LOOP A	0.15	5	1,035	1,455	A5				x	x		x	
329B	CARDENS BLUFF SPUR B	0.09	5	621	873	A5				x	x		x	
329C	CARDENS BLUFF LOOP C	0.18	5	1,242	1,746	A5				x	x		x	
344	LITTLE POND SHOOTING	0.13	5	897	1,261	A5				x	x		x	
376	LUNSFORD HOLLOW	0.06	2	11	270	D2-FS								FS. R.O.W.
39	LITTLE STONY CREEK	4.93	4	34,017	47,821	B4	x	x	x	x	x	x	x	
4315	CANNUCK FIELD	0.38	2	71	1,710	D2-WL					x			
499	Y'S MEN LAKE ACCESS	0.10	5	690	970	C3	x	x						
50	LAUREL FORK	3.29	4	22,701	31,913	B4	x	x	x		x		x	
50D	LOUIE GREEN EASEMENT	0.10	3	690	970	C3								P.O. R.O.W.
530101	CAMPBELL TRACT	0.27	3	1,863	2,619	C3	x	x	x		x		x	
5306	HAMPTON TRAILHEAD	0.06	4	414	582	B4	x	x						
5314	LAUREL MT/WHITE ROCK	3.18	2	598	14,310	D2-FS		x	x		x		x	
5314A	LAUREL MTN. SPUR	1.24	1	233	5,580	D1					x			
531901	JOHNSON TRACT	0.65	2	122	2,925	D2-HC					x			
6030	LITTLE MILLIGAN BOAT RAMP	0.43	5	2,967	4,171	A5				x	x		x	
60301	WHALEYTOWN	2.32	1	436	10,440	D1		x	x		x			
60302	FISH SPRINGS	1.42	1	267	6,390	D1					x			
6031	ROW BRANCH	2.21	1	415	9,945	D1		x	x		x		x	
6034	LITTLE POND MTN.	1.98	2	372	8,910	D2-WL		x	x		x		x	
6034	LITTLE POND MTN.	1.20	2	226	5,400	D2-FS		x	x		x		x	
60341	BLACK BRANCH	0.85	2	160	3,825	D2-FS								
6034A	MAYS RIDGE	0.17	2	32	765	D2-FS					x			**Remame to Maple Springs Gap**
6035	FORK RIDGE	0.77	1	145	3,465	D1		x	x		x		x	
6036	FLINT RIDGE	0.89	1	167	4,005	D1		x	x		x		x	
60361	VANDERPOOL RIDGE	0.99	1	186	4,455	D1					x			
6037	ASHER BRANCH	0.10	2	19	450	B4		x	x	x	x		x	FS. R.O.W.
6303	RAT BRANCH	0.12	5	828	1,164	A5				x				
71-2	WHITE ROCK TOWER SECT II	0.49	2	92	2,205	D2-FS		x	x		x		x	
71-2	WHITE ROCK TOWER SECT II	0.32	2	60	1,440	D2-FS		x	x		x		x	
60272	New Watauga Workcenter	0.30	5	2,070	2,910	A5				x				
UNAUTHORIZED ROADS														
OR-1	Lewis Tract	0.45	3	3,105	4,365	C3		x	x		x		x	F.S. R.O.W. Need to Add to system. FSR# 60271
OR-2	Rat Branch Loop 1	0.14	4	966	1,358	A5				x				Need to add to system. FSR #6303A

Table 3. Road Maintenance Needed on National Forest System Roads in the Pond Mountain II Watershed Assessment Area														
Road #	Road Name	Miles in Watershed	Obj_ML	Annual Costs	Deferred Costs	RMO	Machine Grade	Gravel	Ditch	Pave	Brush	Bridge Mtce	Culverts	Remarks
OR-3	Rat Branch interloop	0.04	5	276	388	A5				x				Need to add to system. FSR #6303B
OR-4	Fred Lowe Tract													P.O. R.O.W. Need to add to system . FSR #63191
OR-5	Decie Campbell Tr.	0.04	3	276	388	C3 ?								F.S. R.O.W. Need to Add to system. FSR# 60381
OR-6	Richard Campbell Tr.	0.28	2	53	1,260	D2-FS								F.S. R.O.W. Need to Add to system. FSR# 60382
OR-7	Old Rd.													Illegal Road Decomm
OR-8	Old Rd.													Illegal Road Decomm
OR-9	Old Rd.													Illegal Road Decomm
OR-10	Old Rd.													Illegal Road Decomm
OR-11	Old Rd.													Illegal Road Decomm
OR-12	Old Rd.	0.49	2	92	2,205	D2-WL		x			x			Need to add to system. FSR #60301A
OR-13	Old Rd.													Illegal Road Decomm
OR-14	Old Rd.													Illegal Road Decomm
OR-15	Old Rd.													Illegal Road Decomm
OR-16	Old Rd.													Illegal Road Decomm
OR-17	Old Rd.	1.23	2	231	5,535	D2-WL		x			x			**Need to add to system. FSR #6034B Mays Ridge**
OR-18	Old Rd.	0.61	2	115	2,745	D2-WL		x			x			**Need to add to system. FSR #6034C Sheffield Ridge**

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)

Road #	Road Name	Mileage in Watershed	Private Access	Wildfire Suppression Use	Recreation/ Heritage Use	Wildlife Use	Vegetation Mgmt	Environmental Risk	Recommendation(s) to be considered
NATIONAL FOREST SYSTEM ROADS									
166	BUCK RIDGE TOWER	0.81							No Know R.O.W. FS try to get R.O.W. in future BMP in NC.
292	WATAUGA POINT	0.47			x				Continue existing use
292A	WATAUGA POINT ENTRANCE PARKING	0.05			x				Continue existing use
292B	WATAUGA POINT LOOP PARKING	0.10			x				Continue existing use
293A	CEDAR GAP	0.92		x		x	x		Continue existing use
293A	CEDAR GAP	0.11	x	x	x	x	x		Continue existing use
293B	BIG FLATS	1.22	x	x			x		Continue existing use
293C	BIG FLATS BRANCH	0.40	x	x			x		Continue existing use
296	SHOOK BRANCH	0.29			x				Continue existing use
329	CARDENS BLUFF	0.73			x				Continue existing use
329A	CARDENS BLUFF LOOP A	0.15			x				Continue existing use
329B	CARDENS BLUFF SPUR B	0.09			x				Continue existing use
329C	CARDENS BLUFF LOOP C	0.18			x				Continue existing use
344	LITTLE POND SHOOTING	0.13			x				Continue existing use
376	LUNSFORD HOLLOW	0.06	x	x			x		FS. R.O.W.
39	LITTLE STONY CREEK	4.93	x	x	x	x	x		Continue existing use
4315	CANNUCK FIELD	0.38		x		x			Continue existing use
499	Y'S MEN LAKE ACCESS	0.10			x				Continue existing use
50	LAUREL FORK	3.29	x	x	x	x	x		Continue existing use
50D	LOUIE GREEN EASEMENT	0.10	x				x		P.O. R.O.W.
530101	CAMPBELL TRACT	0.27	x	x	x				FS. Needs to get R.O.W.
5306	HAMPTON TRAILHEAD	0.06			x				Continue existing use
5314	LAUREL MT/WHITE ROCK	3.18		x		x	x		Continue existing use
5314A	LAUREL MTN. SPUR	1.24		x		x	x		Continue existing use
531901	JOHNSON TRACT	0.65	x						FS. Needs to get R.O.W.
6030	LITTLE MILLIGAN BOAT RAMP	0.43		x	x		x		Continue existing use
60301	WHALEYTOWN	2.32		x		x	x		Continue existing use
60302	FISH SPRINGS	1.42		x		x	x		Continue existing use
6031	ROW BRANCH	2.21	x	x		x	x		Fs to continue to work on checking access ?'s Need to correct this one in infra?
6034	LITTLE POND MTN.	1.98		x	x	x	x		Continue existing use
6034	LITTLE POND MTN.	1.20		x		x	x		Continue existing use
60341	BLACK BRANCH	0.85	x	x		x	x		Need to check to see if gate was removed

Table 4. Summary of Road Recommendations by Issues (Y or N answers)

Road #	Road Name	Mileage in Watershed	Private Access	Wildfire Suppression Use	Recreation/ Heritage Use	Wildlife Use	Vegetation Mgmt	Environmental Risk	Recommendation(s) to be considered
6034A	MAYS RIDGE	0.17		x		x	x		**Continue existing use. Rename to Maple Springs Gap**
6035	FORK RIDGE	0.77		x		x	x		Continue existing use
6036	FLINT RIDGE	0.89		x		x	x		Continue existing use
60361	VANDERPOOL RIDGE	0.99		x		x	x		Continue existing use
6037	ASHER BRANCH	0.10	x	x		x	x		FS. R.O.W.
6303	RAT BRANCH	0.12			x				Continue existing use
71-2	WHITE ROCK TOWER SECT II	0.49		x		x	x		Continue existing use
71-2	WHITE ROCK TOWER SECT II	0.32		x		x	x		Continue existing use
60272	New Watauga Workcenter	0.30		x	x				Add to System FSR# 60272
UNAUTHORIZED ROADS									
OR-1	Lewis Tract	0.45	x	x	x				F.S. R.O.W. Need to Add to system. FSR# 60271
OR-2	Rat Branch Loop 1	0.14			x				Need to add to system. FSR #6303A
OR-3	Rat Branch interloop	0.04			x				Need to add to system. FSR #6303B
OR-4	Fred Lowe Tract		x	x	x				P.O. R.O.W. Need to add to system . FSR #63191
OR-5	Decie Campbell Tr.	0.04		x	x	x	x		F.S. R.O.W. Need to Add to system. FSR# 60381
OR-6	Richard Campbell Tr.	0.28	x	x		x	x		F.S. R.O.W. Need to Add to system. FSR# 60382
OR-7	Old Rd.								Illegal Road Decomm.
OR-8	Old Rd.								Illegal Road Decomm.
OR-9	Old Rd.								Illegal Road Decomm.
OR-10	Old Rd.								Illegal Road Decomm.
OR-11	Old Rd.								Illegal Road Decomm.
OR-12	Whaleytown Spur A	0.49		x		x	x		Need to add to System FSR# 60301A
OR-13	Old Rd.								Illegal Road Decomm.
OR-14	Old Rd.								Illegal Road Decomm.
OR-15	Old Rd.								Illegal Road Decomm.
OR-16	Old Rd.								Illegal Road Decomm.
OR-17	Old Rd. (Linear Wildlife Road)	1.23		x		x	x		**Need to add to system. FSR #6034B Mays Ridge**

Table 4. Summary of Road Recommendations by Issues (Y or N answers)

Road #	Road Name	Mileage in Watershed	Private Access	Wildfire Suppression Use	Recreation/ Heritage Use	Wildlife Use	Vegetation Mgmt	Environmental Risk	Recommendation(s) to be considered
OR-18	Old Rd. (Linear Wildlife Road)	0.61		x		x	x		**Need to add to system. FSR #6034C Sheffield Ridge**

Recommendations

See Table 4.

NEPA Analysis Needs

Many opportunities identified in this report can be incorporated into the Pond Mountain II 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 Pond Mountain II Assessment project file.

Maps

Map #1 Watauga Workcenter Area
Map #2 Whaleytown Old Roads
Map #3 6038
Map #4 Campbell Tract Area
Map #5 Cedar Gap Area

Map #1 Watershed Boundary with RLRMP Management Prescriptions
Map #2 Transportation System
Map #3 Proposed Changes to Transportation System

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
166, 60361, 6036, 6035, 60302, 60301, 5314A

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
531901

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
6034, 6034B, 6034C, 4315, 293B, 293C

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
71-2, 293A, 6034A, 60341, 6034, 6031, 5314, 376, OR-6, OR-12

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
530101, 50D, 499, OR-1, OR-5

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

6037, 5306, 50, 39

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
292, 292A, 292B, 60272, 6303, 6030, 296, 329, 329A, 329B, 329C, 344, OR-2, OR-3

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	Lewis Tract	C3	F.S. R.O.W. Need to Add to system. FSR# 60271
OR-2	Rat Branch Loop 1	A5	Need to add to system. FSR #6303A
OR-3	Rat Branch interloop	A5	Need to add to system. FSR #6303B
OR-4	Fred Lowe Tract		P.O. R.O.W. Need to add to system . FSR #63191
OR-5	Decie Campbell Tr.	C3	F.S. R.O.W. Need to Add to system. FSR# 60381
OR-6	Richard Campbell Tr.	D2-FS	F.S. R.O.W. Need to Add to system. FSR# 60382
OR-7	Old Road		Illegal Road Decomm.
OR-8	Old Road		Illegal Road Decomm.
OR-9	Old Road		Illegal Road Decomm.
OR-10	Old Road		Illegal Road Decomm.
OR-11	Old Road		Illegal Road Decomm.
OR-12	Old Road	D2-FS	Need to Add to system. FSR# 60301A
OR-13	Old Road		Illegal Road Decomm.
OR-14	Old Road		Illegal Road Decomm.
OR-15	Old Road		Illegal Road Decomm.
OR-16	Old Road		Illegal Road Decomm.

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.