

**Cherokee National Forest
Tellico Ranger District**

Travel Analysis Process Report

**Lower Citico/Tellico Lake Ecosystem
Assessment Area**

August 2012

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 Lower Citico/Tellico Lake Ecosystem Assessment Area. This area encompasses approximately 21,225 acres of National Forest ownership within the following compartments:

Assessment Area	Compartments
Lower Citico	2, 3, 5, 6, 7, 8, 10, 11, 16, 17, 402, 403, 404, 436
Tellico Lake	1, 2, 4, 9, 12, 19, 401, 434, 437 (Compartments are designated for Tapoco/no data present)

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 Lower Citico/Tellico Lake Ecosystem 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 Lower Citico/Tellico Lake Ecosystem Assessment Area (wherever analysis area is referenced in this document, it corresponds to the Lower Citico/Tellico Lake Ecosystem 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 Lower Citico/Tellico Lake Ecosystem Ecosystem EA. This analysis will be incorporated into the Forest level TAP. Unless otherwise stated, the boundary for this travel analysis will match the Lower Citico/Tellico Lake Ecosystem 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 Lower Citico/Tellico Lake Ecosystem Ecosystem EA.

Interdisciplinary Team Members and Participants

Member	Title	Role for Roads Analysis
Janan Hay	Planning Team Leader	Co-Team Leader
Eric Taylor	Silviculturist	Vegetation
Laura Morris	Wildlife Biologist	Wildlife Habitat/T&E
Jim Herring	Fisheries Biologist	Fisheries Habitat/T&E
Mark Pistrang	Botanist/Ecologist	Ecology/T&E
Gary Hubbard	Civil Engineer	Co-Team Leader/Forest Engineer

Quentin Bass/Chris Bassett	Archeologist	Cultural Resources
Allison Reddington	Hydrologist	Water/Soils
Doug Byerly	Landscape Architect	Scenery
Anita Bailey	GIS Specialist	GIS
Leslie Morgan	Other Resource Assistant	Recreation
Alex Faught	Realty Specialist	Special Uses/Minerals
Kyle Smith	South Zone FMO	Fire

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

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

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

Information Needs

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

Analysis Plan

Review of the document will occur on the Cherokee NF (Forest Service specialists); and, the report will be available for other Forests as well. Once finalized, the document will be available to the public if requested. It will be part of the administrative record for the, for much of the information and many of the opportunities identified may be carried forward in the EA. The Lower Citico/Tellico Lake Ecosystem 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 29 miles of Forest Service jurisdiction roads within the analysis area. Many of the Forest Service roads (approximately 16 miles) are gated, vegetated, and closed seasonally or throughout the year. The remaining 9.77 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.

NFS Roads With Status and Mileage	
Row Labels	Sum of Infra Miles in Watershed
Closed	16.13
Open	9.77
Seasonal	3.19
Grand Total	29.09

There are approximately 37.17 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 Lower Citico/Tellico Lake Ecosystem Assessment Area covers approximately 38,012 acres. These acres are divided into FS and Non-FS acres:

Acres of Lower Citico/Tellico Lake Ecosystem Assessment Area	Total Acres	Lower Citico	Tellico Lake
NFS Acres	21,225	11,050	10,175
Non-NFS Acres	38,745	14,816	*23,929
% Ownership	55%	75%	42%
* within proclamation boundary **Tellico Lake watershed extends outside proclamation boundary with those acres not accounted for in the above figures. The total watershed is approximately 64,200 acres.			

The NFS acreage is contained within Management Areas 3 and 6 is allocated into the following Management Prescriptions:

Lower Citico/Tellico Lake Ecosystem RX Acres

Row Labels	Description	Total NFS Acres	Rx 11 Acres	Total acres without RX 11 acres
1.B	Wilderness Study Area (Joyce Kilmer Addition)	1,947	375	1,572
8.A.1	Mixed Successional Habitats (Lower Citico)	11,300	2217	9,083
9.F	Rare Communities (Hurricane Branch)	100	16	84
9.H	Restoration (Hurricane Branch and Mt. Pleasant)	2,900	633	2,267
Tapoco Tract	Riparian (estimate includes intermittent) 111 miles perennial including *Tapoco Tract	4,978*	767	4,211
Total Acres		21,225	4,008	17,217

*Tapoco Tract not in RX

Red = suitable for timber management

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 Lower Citico/Tellico Lake Ecosystem Travel Analysis; these were data needed to adequately address the issues. Some of the data are displayed in this report, and other data was used to help answer questions in Step 4, but are located on file at the Watauga Ranger District.

- GIS layer of existing transportation system.
- GIS 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.
- 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.
- Vegetation inventory data.

STEP 3 IDENTIFYING 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 analyses

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 Lower

Citico/Tellico Lake Ecosystem Assessment Area. Roads they need for access are retained on the road system.

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

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

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

Issue 3 – Access for Vegetation Management

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

Issue 4 – Access/Use for Wildlife Management

The presence of roads, especially roads open to public traffic, can have adverse effects on wildlife. Many adverse impacts are the result of disturbance, illegal harvest, and habitat alterations caused by roads. Controlling access, by gating roads, is an important tool for mitigating adverse impacts. Gated roads also provide benefits for wildlife when these areas are managed as linear wildlife openings or provide access to spot openings. Roads also facilitate and provide access for hunting and wildlife viewing opportunities. Maintaining un-roaded areas is crucial in order to provide wildlife with large contiguous blocks of un-fragmented habitat with low levels of disturbance. Controlling access, providing wildlife openings, and maintaining un-roaded areas were identified as important road issues for wildlife in the Lower Citico/Tellico Lake Ecosystem 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 Lower Citico/Tellico Lake Ecosystem Assessment Area include: horseback & bicycle riding, fishing, hiking, camping, swimming, hunting, scenic driving, and many others. All of these recreational activities require a road system to access the recreation zones. Additionally from an administrative standpoint, roads are a necessity for emergency response and maintenance of recreational zones and campgrounds.

Equestrian/ Bicycle Use - System roads and undesignated routes in the Lower Citico/Tellico Lake Ecosystem area have become popular for equestrian users. Bicycle use is increasing. Road and trail management in the future should strive to provide multiple day-ride opportunities and minimize equestrian use on open roads. Seek opportunities to acquire land or right-of-ways for additional direct trail access and the development of the desired looped trail network.

Issue 6 – Potential Impacts to Water Quality

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

Issue 7 – Road/Trail Safety

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

Issue 8 – Illegal Road/Trail Use

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

Status of Current Data

The roads in the analysis area are in the GIS system, and their condition/status is current as of the February 2012. The road number, name, length, and other data are detailed in **Table 1** below.

2/26/2013

TABLE 1. TELLICO LAKE-LOWER CITCIO CR. WATERSHED TAP - CURRENT ROAD CONDITIONS

ROAD #	ROAD NAME	APPROXIMATE MILES IN WATERSHED	APPROXIMATE MILES OF ROAD WITHIN 100' OF STREAM	% OF ROAD MILEAGE WITHIN 100' OF STREAM	STATUS (as defined by Travel Management Rule)	RMO	SURFACE TYPE	REMARKS
NATIONAL FOREST SERVICE SYSTEM ROADS (NFSR)								
2224	TOQUA CREEK	1.4	0.02	1	Closed	D2-FS	IMP	accesses W/L; move gate?
2224A	TOQUA CREEK SPUR	1.19		0	Closed	D2-FS	IMP	accesses W/L
40031	SMOKEY BRANCH	1.24	0.04	3	Closed	D2-FS	IMP	trash near creek
35-1	CITICO CREEK NORTH	5.69	2.57	45	Open	C3	AGG/BST	accesses PVT; trash dump approx. 0.5 from North end
2024	GLENN RIDGE	2.32	0.15	6	Closed	D2-FS	AGG	accesses PVT?
5010	TANK HOLLOW	0.51	0.16	31	Closed	D2-FS	NAT	accesses PVT
2404	YOUNG BRANCH	0.94	0.45	48	Closed	D2-FS	AGG/NAT	
44041	YOUNG BR. HORSE CAMP	0.14	0.04	29	Closed	C3	AGG	
2403	LITTLE CITICO	0.12	0.09	75	Open	C3	AGG	
2403	LITTLE CITICO	3.19	0.05	2	Seasonal	D2-HC	AGG	Seasonal opening; accesses W/L
2403B	LITTLE CITICO SPUR B	2.3		0	Closed	D2-FS	IMP	linear W/L
5003	BARKCAMP	0.32		0	Closed	D2-FS	IMP	
5022	BIVENS BRANCH	2.76	0.06	2	Closed	D2-FS	AGG	Seasonal opening; accesses W/L
5022B	BIVENS BRANCH SPUR B	1.83	0.14	8	Closed	D2-FS	IMP	linear W/L
440601	BLUE MOUNTAIN	0.49		0	Closed	D2-FS	IMP	
2659	DOUBLECAMP-JAKE BEST	1.31		0	Open	C3	AGG/IMP	
4691	EAST SLIDE HOLLOW	0.29		0	Closed	D2-FS	NAT	
4692	SLIDE HOLLOW	0.4		0	Closed	D2-FS	NAT	small trees in road, remove gate?
400101	PICTURE PINE KNOB	2.65		0	Open	D2-HC	IMP/NAT	
TOTALS		29.09	3.77	13				
UNAUTHORIZED ROUTES								
TL1		0.03						ATV route around gate at #2224
TL2		0.26						ATV route off #2224
TL3		0.13						road off #2224A to PVT
TL4		0.07						road off #2224A to PVT
TL5		0.02						Off Mt. Pleasant Rd near Flagpole Hill
TL6		18.59						In Tapoco tract; multiple routes ; GPS info. from Harris
TL7		2.32						In Tapoco tract; off Millgan Cr.; ATV spur
TL8		2.9						In Tapoco tract; from Blacksnake Br. to Tallassee Mtn
TL9		3.53						In Tapoco tract; from lake to Webb Gap
TL9.1		0.25						In Tapoco tract; "bypass" around washout on TL9
TL10		0.55						In Tapoco tract; Maroney Hollow
TL11		3.2						In Tapoco tract; powerline access
TL12		0.63						In Tapoco tract
TL13		0.27						In Tapoco tract
TL14		2.01						In Tapoco tract
TL19		0.8	0.8					In Tapoco tract; Stony Grave Hollow; goes up the hollow to #4001001

2/26/2013

TABLE 1. TELLICO LAKE-LOWER CITICIO CR. WATERSHED TAP - CURRENT ROAD CONDITIONS

ROAD #	ROAD NAME	APPROXIMATE MILES IN WATERSHED	APPROXIMATE MILES OF ROAD WITHIN 100' OF STREAM	% OF ROAD MILEAGE WITHIN 100' OF STREAM	STATUS (as defined by Travel Management Rule)	RMO	SURFACE TYPE	REMARKS
TL20		0.1	0.1					In Tapoco tract; East of Bunker Hill; goes up the hollow; need to verify how much is on FS
LC1		0.03						Off #35-1; 0.5 mi. from Mt Pleasant Rd
LC2		0.05						road off Dunkin Br. Rd (old county road?)
LC3		0.05						off Mt. Pleasant Rd. near Northern bridge
LC5		0.7						near end of Glenn Ridge Road, #2024; some on FS or may meander across FS & PVT
LC6		0.22						off #2403 to the North
LC7		0.3						off #2403 to the South
LC8		0.16						illegal OHV route South of Pleasant Grove Church; access via pvt &/or trail # 165-2
TOTALS		37.17						
PRIVATE & COUNTY ROADS								
150	MILLIGAN CREEK	0.86	0.6	70	N/A	N/A		Private road crosses FS
400101	PICTURE PINE KNOB	0.74		0	N/A	N/A		Private road; FS has R/W
CH455	CITICO CREEK	6.48	1.14	18	N/A	N/A		
CH458	SMOKY BRANCH	3.86	2.23	58	N/A	N/A		
CH464	MTN. SETTLEMENT	13.49	2.31	17	N/A	N/A		
CH468	COOPER ROAD	1.2	0.06	5	N/A	N/A		
CH506	BUCK HIGHWAY	2.39	0.06	3	N/A	N/A		
CH493	WHITE PLAINS	0.71	0.29	41	N/A	N/A		
CH465	DUNKIN BR.	0.5	0.5	100	N/A	N/A		near Citico Cr. Ch.; on county map
CH460	CHANCE ROAD	0.3			N/A	N/A		North of Toqua Cr. Ch.
CH467	PLEASANT GROVE	1			N/A	N/A		off Mtn Settlement Rd
TOTALS:		31.53	7.19	23				

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 Lower Citico_Tellico Lake Travel Analysis Process Step 4.

Assigned to Specialist	Question Number	Addressed in Analysis?	*Rationale For Questions Not Addressed
Mark Pistrang / Laura Morris	EF (1)	Y	
	EF (2)	Y	
	EF (3)	Y	
	EF (4)	Y	
	EF (5)	Y	
Ali Reddington	AQ (1)	Y	
	AQ (2)	Y	
	AQ (3)	Y	
	AQ (4)	Y	
	AQ (5)	Y	
	AQ (6)	Y	
	AQ (7)	Y	
	AQ (8)	Y	
	AQ (9)	Y	
Jim Herrig	AQ (10)	Y	
	AQ (11)	Y	
	AQ (12)	Y	
	AQ (13)	Y	
	AQ (14)	Y	

Table 2. Documentation for Lower Citico_Tellico Lake Travel Analysis Process Step 4.

Assigned to Specialist	Question Number	Addressed in Analysis?	*Rationale For Questions Not Addressed
Laura Morris	TW (1)	Y	
	TW (2)	Y	
	TW (3)	Y	
	TW (4)	Y	
Gary Hubbard	EC (1)	Y	
Gary Hubbard / Leslie Morgan	EC (2)	Y	
Gary Hubbard	EC (3)	Y	
Eric Taylor	TM (1)	Y	
	TM (2)	Y	
	TM (3)	Y	
Alex Faught	MM (1)	N	Addressed in Forest Tap
Alex Faught	RM (1)	N	Addressed in Forest Tap
Ali Reddington	WP (1)	Y	
	WP (2)	Y	
	WP (3)	Y	
Laura Morris / Mark Pistrang	SP (1)	Y	
Alex Faught	SU (1)	Y	
Gary Hubbard	GT (1)	Y	
	GT (2)	Y	
	GT (3)	Y	
	GT (4)	Y	
	AU (1)	N	Addressed in Forest Tap
	AU (2)	Y	
Kyle Smith	PT (1)	Y	
	PT (2)	Y	
	PT (3)	Y	
	PT (4)	Y	
Doug Byerly / Leslie Morgan	UR (1)	Y	
	UR (2)	Y	
	UR (3)	N	Addressed in Forest Tap
	UR (4)	Y	
	UR (5)	Y	
Doug Byerly/Leslie Morgan	RR (1)	Y	
	RR (2)	Y	
	RR (3)	Y	
	RR (4)	Y	
	RR (5)	Y	
Laura Morris / Mark Pistrang	PV (1)	Y	
Quentin Bass / Chris Bassett	PV (2)	Y	
	PV (3)	Y	
Doug Byerly	PV (4)	N	Addressed in Forest Tap

Table 2. Documentation for Lower Citico_Tellico Lake Travel Analysis Process Step 4.

Assigned to Specialist	Question Number	Addressed in Analysis?	*Rationale For Questions Not Addressed
Doug Byerly	SI (1)	N	Addressed in Forest Tap
	SI (2)	N	Addressed in Forest Tap
Quentin Bass / Chris Bassett	SI (3)	Y	
	SI (4)	Y	
	SI (5)	Y	
Doug Byerly	SI (6)	Y	
	SI (7)	Y	
	SI(8)	Y	
Laura Morris / Mark Pistrang	SI (9)	Y	
Doug Byerly	SI (10)	Y	
	CR (1)	N	Addressed in Forest TAP

Ecosystem Functions and Processes (EF)

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?

All portions of the Lower Citico and Tellico Lake watersheds have been affected by roading to some extent. The largest areas of low road density fall into the areas of the Mount Pleasant Loop Road, Salt Spring Mountain and newly acquired Tapoco lands and adjacent wilderness study area. While each area is diverse in its own right, there are no ecological attributes that are unique to this area when compared to other similar areas on the Forest. Effects of additional roading in this area would be similar to effects described in the forest-wide TAP.

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?

Roads are known vectors for the spread of exotic species and it is difficult to drive a forest road without seeing the effects of these harmful species on local biodiversity. Non-native plant species are found along existing roads throughout the watershed area, but are conspicuously present in high densities within the Tapoco tract. Non-native, invasive plants can out-compete the more beneficial native plants important to wildlife habitat and forage. These species can spread rapidly and have numerous negative effects on local ecosystem functions. Effects are the same across the forest and have been described in the forest-wide TAP.

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

Roads provide an obvious function of access to areas that may be in need control efforts. The presence of the road system allows for vegetation management, including timber harvest. Harvest contributes to the overall health of the forest by reducing stand density, allowing for a more vigorous stand that can ward off attacks from insects, diseases, and parasites. In the event of a Southern Pine Beetle invasion, the presence of the road network would provide timely access to infested areas, reducing treatment response time. Effects are the same across the forest and have been described in the forest-wide TAP.

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

Some natural ecological disturbance regimes (fire) may be limited to a very local level in areas where road densities are high, while others (wind, native insect outbreaks, etc.) may not be affected by roads at all. While the existing road system may provide corridors for the movement of some animals and plant species, it also has the potential to limit the movement of other species. Roads with poorly constructed cut and fill slopes, or inadequate drainage and water passage structures may have a dramatic effect on flooding and soil movement, elevating these conditions above a natural baseline. Natural disturbance regimes are likely more influential in the areas of lower road density where the effects of roads on the landscape are minimized.

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

There could be a short-term disturbance to various species that inhabit the area until forest management activities are completed. Some species are not affected by 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?

Surface and subsurface flows are intercepted by the road when water is moving down adjacent hill slopes. Water can be concentrated either on the road surface or in adjacent ditches, and in places, is rerouted from pathways it would otherwise take if the road were not present. By intercepting surface and subsurface water flow, and diverting it into ditches and channels, roads effectively increase the density of streams on the landscape. As a result, water infiltration decreases, the timing of flood flows is quickened, and the peak of flood flows is increased. The magnitude of this effect is dependent on the density of roads, gradient of road, and its location in the watershed. These effects are particularly pronounced in association with roads located along drainages or with multiple stream crossings.

Many roads within the analysis area are ridge-top/upper side-slope road locations with reduced connectivity to surface and subsurface water. The majority of these roads are out-sloped with dips providing drainage or in-sloped with ditches and cross drains providing water drainage.

Paved portions of the following roads affect subsurface hydrology by decreasing infiltration and therefore interfering with proper functionality of riparian areas:

- FR 35-1 (Citico Creek Rd)
- LC 3 (Parking area on far side of Mt. Pleasant Rd Bridge)
- Paved roads outside of forest boundary

Recommendations – The following mitigation measures can reduce the impacts associated with the roads, including effects to surface and subsurface hydrology and erosion/sediment rates.

Implement All Lands Approach to improve drainage at multiple crossings on:

- CH 458 (Smoky Branch Rd)
- CH 464 (Mtn Settlement Rd)

Decommission/restore unnecessary paved areas/roads:

- LC 3 (Parking area on far side of Mt. Pleasant Rd Bridge) – A smaller paved area would adequately serve the need for parking at this location. The smaller parking area should be delineated with boulders/barricades. The remainder of the pavement beyond the parking area should be removed and restoration actions should be implemented to restore the functionality of the riparian zone adjacent to the critical habitat.

Retain/Increase amount of pavement on Citico Creek road. The hydrologic alteration caused by the pavement is outweighed by the benefit of reduced sedimentation as compared to a gravel road. Consider using porous pavement for new paving.

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

All native and aggregate surfaced roads 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. The extent of surface erosion occurring on road cut-banks depends on the steepness, slope length, soil type, and vegetative cover. Road ditches concentrate water flow which generates surface erosion and also increases sediment delivery to streams from road surfaces and road cut-banks.

Several roads within this watershed are located immediately adjacent to drainages including:

- FR 35-1 (Citico Creek Rd)
- FR 2403 (Little Citico Rd) – bridge/parking area only
- FR 5010 (Tank Hollow Rd)
- FR 2024 (Glenn Ridge Rd) – lower portion only
- LC 2/CH 465 (Duncan Branch Rd)
- CH 458 (Smoky Branch Rd) – note: This road is the largest contributor of sediment to the critical habitat portion of Citico Creek. Most of the sediment is generated by private land management activities. This road runs up the center of what was once the creek and is now two roadside ditches.
- TL 9 (Milligan Creek Rd)
- TL 6 (Blacksnake Branch Rd)
- TL 6 (Lower Portion of Northernmost Fork off of TL9)
- TL 18 (Farr Gap to junction with TL9)

The following roads do not run primarily along drainages, but have multiple perennial/intermittent stream crossings:

- CH 464 (Mtn Settlement Rd)
- FR 5022B (Bivens Branch Spur B)

The following road drainage locations are contributing visible sediment directly to the stream:

- CH 506 (Buck Hwy) – Junction with FR 35-1 (Citico Creek Rd)
- TL9 is an administrative road closed to public access, but receiving some illegal OHV use. Surface erosion is occurring due to an insufficient number of dips and culverts and multiple creek crossings. One particularly deep gully in the road is located downstream of the junction with TL7 and is in need of stabilization.

Recommendations –

Decommission unnecessary Forest Service roads along drainages or with multiple perennial/intermittent stream crossings:

- LC 2/CH 465 (Duncan Branch Rd) – adjacent to stream, not much buffer, may not go anywhere
- FR 5022B (Bivens Branch Spur B) – No longer needed as future management in Little Citico watershed is unlikely due to steepness of terrain and concerns associated with sedimentation and critical habitat. This road drains into Salt Spring Branch which flows into critical habitat via Little Citico Creek.

Pave portions of necessary roads along drainages or with multiple perennial/intermittent stream crossings:

- FR 35-1 (Citico Creek Rd)

Harden portions of necessary roads along drainages with additional gravel:

- FR 2024 (Glenn Ridge Rd) – lower portion only
- FR 5010 (Tank Hollow Rd)

Stabilize locations known to be contributing visible sediment to creeks:

- Harden ditches along CH 506 (Buck Hwy) approach to junction with FR 35-1 (Citico Creek Rd) with rip-rap or otherwise reconstruct drainage to mitigate volume of ditch sediment reaching the stream
- Install water bars or other appropriate drainage features to mitigate erosion/sedimentation issues on TL9

Evaluate continued need for roads in riparian areas as a management plan is developed for the Tapoca Tract. If roads are determined to be unnecessary, consider stream restoration opportunities on the following roads:

- TL 9 (Milligan Creek Rd)
- TL 6 (Blacksnake Branch Rd)
- TL 6 (Lower Portion of Northernmost Fork off of TL9)

- TL 18 (Farr Gap to junction with TL9)

Keep horses out of creeks and prevent creation of user-made trails through the use of barricades:

- FR 2403 (Little Citico Rd) – bridge/parking area only

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

Small slides and slumps are possible below culvert outfalls, along fill slopes where road drainage is concentrated, and on road cutbanks. Inadequately 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 pose a problem in steep areas where soils are coarse in texture, shallow, and where unstable colluvium material occurs.

TL 9 (Milligan Creek Rd) has completely washed out at the creek crossing closes to Webb Gap. The road material and native soil create steep eroding banks in need of stabilization.

Recommendation –

Decommission TL 9 between upper and lower junctions with TL 7. Lay back steeply eroding banks to a stable angle, seed/straw or otherwise vegetate. Install tank traps at junctions with TL 7 to prevent unauthorized ATV use.

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

Road-stream crossings serve as a primary conduit for road-related erosion and storm drainage to reach streams. Accelerated sediment delivery to affected streams occurs at these points, and can affect water quality and substrate condition. 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 streams by ditches that empty directly into streams at road-stream crossings.

See AQ (1) through AQ (3) for a watershed specific discussion of problematic stream crossings.

Recommendations – None

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?

Due to the nature and location of the roads within this analysis area, there is little potential for chemical pollution of streams related to Forest Service roads. If roads were used to transport chemicals such as herbicide, the greatest potential for spills affecting aquatic resources would be at stream crossings or road segments located adjacent to streams. Roads in the Lower Citico and Tellico Lake watersheds are not heavily traveled by vehicles carrying chemicals. Oil, fuel, and raw sewage carried by campers/RVs are potential water pollutants. Due to their impervious

nature paved roads have the potential to deliver more pollutants such as oils and deicing salts. Approximately 6.5 miles of paved road exist on Forest Service property – the portion of FR 35-1 (Citico Creek Rd) from Young Branch Campground to the Forest Boundary.

Recommendation –

Retain/Increase amount of pavement on Citico Creek road. The potential contaminant transport is outweighed by the benefit of reduced sedimentation as compared to a gravel road. Consider using porous pavement for new paving. Allowing road contaminants to infiltrate through the subgrade/soil would promote contaminant degradation/adsorption prior to entering groundwater or surface water.

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 in the analysis area is connected to streams primarily at stream crossings. Generally, the hydrologic connection is made where ditchlines empty into streams or drainages. Road surfacing and other eroded materials are usually deposited into streams by ditches that empty directly into streams. Without proper ditch turnouts, surface runoff enters the stream channel carrying eroded materials and pollutants. If this water moves directly to stream channels, peakflows and hydrograph timing can be somewhat altered from the condition associated with an unroaded watershed. The majority of road mileage within this analysis area is located along ridge-tops or upper/middle side-slopes. However, stream crossings can also be problematic with these roads. Hydrologic connectivity is generally reduced when roads are properly located.

See AQ (1) through AQ (3) for a watershed specific discussion of problematic stream crossings.

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?

As outlined in the Rules of Tennessee Department of Environment and Conservation, Division of Water Pollution Control Amendments, Chapter 1200-4-4, Use Classifications for Surface Waters beneficial uses of water bodies in or immediately downstream from the analysis area are as follows:

	Citico Creek (Mile 4.5-16.0)	Little Tennessee River (Mile 30.0-49.7)
Domestic Water Supply		X
Industrial Water Supply		X
Fish and Aquatic Life	X	X
Trout Stream	X	X
Naturally Reproducing Trout Stream		
Recreation	X	X
Livestock Watering and Wildlife	X	X
Irrigation	X	X
Navigation		

Use classifications are not available for streams in the Tellico Lake watershed.

Both the Lower Citico and Tellico Lake watersheds empty into the Little Tennessee River.

All waters within National Forests are Exceptional Tennessee Waters (Tennessee Department of Environment and Conservation, Division of Water Pollution Control, Chapter 1200-04-03-.06(4)) and consequently no degradation that threatens the designated uses of these waters are permitted.

The 2012 TDEC Stream/Waterbody Assessments revealed the following with respect to designated uses:

- The portion of the Little Tennessee River that is dammed to form Tellico Lake is not supporting its designated uses. The final 2010 and draft 2012 303(d) lists indicate that Tellico Reservoir is impaired by PCBs in leaching from contaminated sediment and mercury from atmospheric deposition.
- The portion of the Little Tennessee River that is dammed to form Chilhowee Lake is supporting its designated uses with the exception of a 1.1 mile section below Calderwood Reservoir around which flow is diverted. The cause of the impairment to this section is listed on the final 2010 and draft 2012 303(d) lists as habitat loss due to stream flow alteration. The impact is not caused by a pollutant.
- Citico Creek is supporting its designated uses.
- Streams in the Tellico Lake Watershed were not assessed.

Over time, excessive sedimentation could compromise the storage capacity of reservoirs along the Little Tennessee River. However, the relative contribution of sediment originating from Forest Service roads is extremely small compared to the contribution of sediment originating from privately managed lands. The impact of this small amount of sediment on downstream designated uses is negligible and is likely to remain so.

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

Road systems may affect wetland hydrology by altering surface and subsurface drainage patterns. This change has the potential to modify the wetland moisture regime. Roads crossing at wetlands may restrict natural water flow quantity, timing, and routing. Sediment from roads can fill in wetlands over time. There are no known wetland areas within the analysis area.

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. embedment). Stream crossings can retard or prohibit the movement of large woody debris, fine organic matter, and sediment. Refer to AQ (4) for stream crossings.

Recommendation – Determine road crossings where culverts could be replaced by bridges or bottomless culverts.

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?

Restrictions to migration for aquatic species primarily occur at stream crossings. There are 32 perennial stream crossings along the road system in this project area; 5 are bridges, and 25 are culverts; and 2 are fords. All of the culverts are potential barriers to fish, amphibians, or macroinvertebrates.

Twenty-three of thirty-three stream reaches capable of supporting fish in the analysis area have been surveyed. The unsurveyed stream reaches are unlikely to support any new or rare species.

Sixty-five species of fish have been documented in these streams including: two endangered; two threatened; two sensitive; and no locally rare fish.

The twenty-five culverts are not migration barriers for the endangered, threatened, or one of the sensitive species because these species normally do not occur in steep gradient channels. The culverts could pose migration barriers to the Sensitive Tennessee dace and the native creek chubs and western blacknose dace.

Recommendation – When culverts are scheduled for replacement, they should be designed to provide aquatic organism passage. Bottomless-arched culverts should be used on FSR 35-1.

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

Of the 57.6 miles of roads in this project area, 10.5 (18%) are within the riparian corridor; all of which are administered by the Forest Service. Shading, litterfall and riparian plant communities are minimally impacted by these roads because the canopy remains closed. Three road segments contribute sediment to the watershed and are of no apparent use:

No.	Name	Miles
5022B	Biven Br. Spur B	1.95
CH465	Dunkin Br.	0.34
CH460	Chance Road	0.48

Recommendation – Decommission approximately 2.77 miles of roads listed above

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

Fishing and poaching could occur for spotted, largemouth, smallmouth and rock bass, rainbow and brown trout, green sunfish, and bluegill in this analysis area. The “at-risk” species (TESLR) are not subject to fishing or poaching. Direct habitat loss from the road system is unlikely because the riparian corridor will be protected.

Recommendation – Protect the riparian corridor.

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

Not relevant to this analysis area – see Forest Wide discussion

Recommendation – None

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?

Citico Creek has 61 species of fish; Jakes Creek supports 20; Caney Creek has 18; Bivens Branch (near Caney Creek) has 13; and Smoky Branch has 12. All of the TES fish species are located in the lower Citico Creek except three populations of Tennessee dace (Sensitive) which occur in Caney Branch, Duncan Branch (near Smoky Branch), and Smoky Branch. The close proximity of the Citico Creek road to Citico Creek could pose a threat from an accidental chemical or fuel spill.

Recommendation – None

Terrestrial Wildlife (TW)

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

Effects are dependent upon the type of road and amount of traffic. Roads can be barriers to movement and dispersal of species including small mammals, amphibians and reptiles. Roads can also provide dispersal corridors for larger mammals. Vegetation along roads can provide nesting areas and forage. However, open road use may disturb animals during breeding and/or nesting season. Road systems fragment habitat; particularly detrimental for interior stand species or wide-ranging isolationist species. The road system in this area is not expected to contribute significantly to habitat fragmentation or invasion of nest parasites such as the brown-headed cowbird due to the large expanse of forested habitat within the Cherokee National Forest. The only large terrestrial animal within the analysis areas that may be sensitive to road density is the black bear. Roads can also provide habitat and mechanisms for the spread of some non-native, invasive plant species. Non-native, invasive plants can out-compete the more beneficial native plants important to wildlife habitat and forage. Effects are the same across the forest.

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

Roads may facilitate human activities that result in habitat disturbances. Disturbances may include loss of habitat or habitat removal in the forms of direct loss (from trampling in campgrounds and other direct disturbances), loss to fire (from increased incidence of human – caused ignitions), removal of forest products, or removing structures (reduction in density of snags and logs due to removal near roads). Roads near adjacent private land owners may allow for illegal OHV user created trails to private property and therefore, potentially affecting habitat.

The road system facilitates management activities such as timber harvest and wildlife habitat improvement. These activities may positively or negatively affect habitat depending on the wildlife species in question.

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?

The road system provides access and opportunity for wildlife viewing, camping, hiking, and hunting. These activities may temporarily disturb wildlife. Disturbance during nesting or early rearing periods may result in nest failure or abandonment of young. Access provides opportunities for illegal activities such as dumping, poaching, collection of live animals for human use, and increased road mortality. Access also provides for the dispersal of exotics and pests that impact wildlife populations.

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

Current road systems may be beneficial in accessing unique communities in order to restore them to desirable conditions.

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.

- **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 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.

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 to 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 have 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.
- Maintain some or all of the maintenance level 3 or 4 roads as maintenance level 2 roads. There are no maintenance level 4 roads in this area. The maintenance level 3 roads in this area are:
 - Doublecamp-Jake Best, #2659
 - Young Br. Horse Camp, #44041
 - Little Citico, #35-1
 - Little Citico, #2403 (M.P. 0.00 – 0.12)

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 plant or animal). They are also features valued for preservation (cultural resources and historic sites).

Decommissioning, closing, or changing the maintenance level of 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:

Roads #2659 & #35-1 are part of a network of roads that is very popular with sightseers.

Camping:

Roads #2659 and #35-1 provide access to several dispersed camping areas. Road #35-1 provides access to Jake Best Campground & Young Br. Horse Camp

Hunting:

The open roads provide access and closed roads make game retrieval easier.

Fishing: Roads #2659 & #35-1 provide access to Citico Creek, Doublecamp Creek, & Jake Best Cr.

Hiking:

Roads #2659 & #35-1 provide access to the following trails:

- #165-1
- #165-2
- #165-3

Foot ravel is permitted on many roads closed to the public for motor vehicle use.

Wildlife viewing:

The open roads are used by visitors for this activity.

Other:

Portions of roads #35-1, #5010, #2404, & #2403 are in riparian areas which could be considered a net cost to society because of the roads impact on water quality.

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 Blount, McMinn, and Monroe Counties and the communities of Etowah, Athens, Madisonville, Sweetwater, Vonore, and Tellico Plains in Tennessee and Graham County, North Carolina. 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 #35-1 is part of a road network that includes the state and county road systems.

As 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?

Road access is one of the deciding factors whether or not areas are managed for vegetation. If there is no existing access to an area needing vegetation management the area must produce a value worth creating an access or be included with other areas that will combine to offset the cost of creating an access. Likewise, if an area is not immediately accessible (access adjacent to the area) then the closer the access the less cost to actively manage that area. If an access is available the next issue to consider is its ability for use. An access that can be used anytime of the year is more beneficial than a road that is limited in its usage due to weather. The factor most effecting the time, or season, of the year that it can be used is its ability to drain water. Roads with proper drainage construction, and on or along ridges, and on south or west facing slopes are best suited for year-around usage, and therefore, are most beneficial for vegetation management.

Other factors contributing to access availability are the following: a road system that has the least amount of erosion control issues, a grade, or steepness, that can be maneuvered by heavy loads, and one with as few as possible sharp turns for vehicles longer and wider than a car or pickup truck.

A well planned and maintained road system is essential for an effective land management program to be successful.

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

A well planned and maintained road system affects the managing of suitable lands by allowing better access for a wider variety of vehicle types and in a wider variety of weather conditions. If areas can be accessed at all times of the year then the ability to manage an area for a variety of purposes is possible, and contributes greatly to maintaining a successful land management program.

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

Stands in need of silvicultural treatment that are well accessed are more likely to be effectively managed and monitored throughout the different stages of growth and development of the vegetation. To describe an area as “well accessed” it should be available by as many different types of vehicles as possible, i.e., 4-wheel drive, high clearance, 2-wheel drive, and/or even passenger car. This not only aids in the type of equipment that can be used to access the area but also does not limit the time of year it can be accessed. Therefore, a well-planned and

maintained road system greatly contributes to the success of the vegetation management of an area.

Commodity Production - Minerals Management (MM)

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

Addressed in Forest TAP.

Commodity Production - Range Management (RM)

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

Addressed in Forest TAP.

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?

There are no known water diversions, impoundments, or distribution canals in this watershed.

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

See question AQ(7) in previous section, about how roads in this watershed may affect water quality for municipal water source.

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

There are no hydroelectric power generation dams within this analysis area.

Commodity Production - Special Forest Products (SP)

SP (1): How does the road system affect access for collecting special forest products? Roads across the Forest are used to access sites for the collection of a variety of special forest products. With increased road access, there is increased collection pressure. There is nothing unique in regards to this relative to these two watersheds. Effects would be the same as those analyzed in the forest-wide TAP.

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)?

NFSR2024 & 5010 – Forest Road Easement (Authorization ID#TELHIW261) issued to Paul Cleveland Tedford. Right-of-Way (ROW) width is 8 ft. on each side of centerline (16 ft. wide).

CH460 Chance Road - Monroe County road, easement application was applied for, but no record of easement being issued.

Existing Monroe County road easements include CH637, 508, 465, 455, 525, and 76. (I am unsure if any of these roads are in the project area.)

Other Monroe County roads are managed in accordance with the Forest Development Road Cooperative Agreement dated 8/2/79 and 5/21/80. The most recent revision to the schedule of designated roads for this agreement appears to be dated March 2008. (I am unsure if any of these roads are in the project area.)

One communication site exists at Cold Springs. The TN Earthquake Information Center (University of Memphis) operates seismic equipment there.

Fort Loudon Electric Cooperative maintains powerlines in the TAP area.

I do not anticipate the proposed road system would affect the known special use areas. The proposed road system could affect future special use requests, however, each request is analyzed on its own merits and alternatives could be negotiated in the event the road system became inadequate.

Although no outstanding rights to public roads are known to exist in the area, care should be taken to ensure that such rights, if applicable, are identified and extinguished prior to closing any old open road that accesses or abuts private land, particularly if the road appears to be well travelled and the agency cannot determine the origin of the road.

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 Tellico Plains and Vonore. 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:

<u>Road No.</u>	<u>Road Name</u>
2659	Doublecamp-Jake Best
35-1	Citico Creek North
2403	Little Citico
5022	Bivens Branch

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:

<u>Road No.</u>	<u>Road Name</u>
35-1	Citico Creek North

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

<u>Road No.</u>	<u>Road Name</u>
2024	Glen Ridge

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 Monroe 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?

Addressed in Forest TAP.

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

All the roads in the area provide access for investigative and enforcement activities. Citico Creek North Road, #35-1 and 2659, Doublecamp-Jake Best are open to the public, so they have the highest use.

The roads that are closed to the public do not add to the need for investigative and enforcement activities.

The construction of new roads or adding unauthorized roads to the transportation system would not adversely affect these activities if the roads are adequately closed to public motor vehicle use.

Protection (PT)

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

From a fire management standpoint these roads are utilized as access roads and as control lines as needed for prescribed and wildland fire operations.

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

These roads systems are utilized as travel corridors to gain the nearest access for wildland fire suppression to try and keep fires as small as possible.

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

Some system roads are narrow for larger fire equipment and we have to take our time while traveling these system roads to be safe for not only firefighter safety but for the general public as well.

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

During dry conditions the road systems may become dusty and visibility may be restricted. Within fire management health concerns have not been an issue except for the possible of accidents due to visibility limitations during dusty conditions. This has been mitigated to reduce this risk.

Recreation – Unroaded Recreation (UR)

UR (1): Is there now or will there be in the future excess supply or excess demand for unroaded recreation opportunities?

Yes- especially in the Little Tennessee watershed

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

No

UR (3): 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?

Addressed in Forest TAP

UR (4): Who participates in unroaded recreation in the areas affected by building, maintaining, and decommissioning roads?

Adjacent private landowners, hunters, equestrians, hikers, anglers, bicyclists, sightseers, general recreationists

UR (5): What are these participants' attachments to the area, how strong are their feelings, and are alternative opportunities and locations available?

Many have strong feelings to the local area. Alternatives opportunities are limited in the area.

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?

Not likely to be excess supply or demand for roaded rec opportunities in the Lower Citico Watershed given the rec management and zoning strategy. However, depending upon the forest prescription for the Tellico Lake watershed there maybe an excess supply of roaded rec opportunities given the amount of old roads currently on the landscape.

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?

No

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?

Potential user conflicts between equestrians/hikers/bicyclists and motorized vehicles.

RR (4): Who participates in road-related recreation in the areas affected by road building, changes in road maintenance, or road decommissioning?

Adjacent private landowners, hunters, equestrians, hikers, anglers, bicyclists, sightseers, general recreationists

RR (5): What are these participants attachments to the area, how strong are their feelings, and are alternative opportunities and locations available?

Many have strong feelings to the local area. Alternatives opportunities are limited in the area.

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?

Detailed surveys have not been conducted within all portions of the watershed. If areas planned for road entry, closure, or decommissioning do have unique features then they will be considered during the planning process. The endangered Indiana bat may be present in areas planned for road entry, closure, or decommissioning. Effects to this species will be considered in the project analysis.

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?

See discussion in Forest RAP

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?

See discussion in Forest RAP

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?

See discussion in Forest RAP

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

Virtually all the historic Overhill Cherokee sites (middle 17th to early 19th century) are located in the Tellico Lake assessment area (Little Tennessee River basin) as well as many other heavily visited sites such as Fort Loudoun, Tellico Blockhouse and the Sequoyah Museum. None of these sites, or other known sites, are directly accessed by Forest Service roads.

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?

A preserved section of the Unicoi Turnpike runs along Toqua Creek but it should not be affected by existing road management.

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

In addition to the SI (6) discussion in the Forest RAP, the National Forest System Roads within the affected watersheds provide access to Citico Creek. This road was important enough to reconstruct and relocate segments affected by the flood event in the 1990s. Fishing is the primary recreation activity associated with Citico Creek and it requires the purchase of a state fishing license. Local businesses sell the permits, tackle and other outdoor recreation related supplies.

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?

In addition to the SI (7) discussion in the Forest RAP, the business community is not marketing the consumption of the unroaded areas such as Citico Wilderness or the proposed Joyce Kilmer/Slickrock Addition. There are no active special use permits related to the unroaded areas.

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

In addition to the SI (8) discussion in the Forest RAP, the National Forest System Roads that provide visitor access to designated and proposed Wilderness areas should be maintained at a primitive level to enhance the remote backcountry recreation setting, i.e. graveled versus paved. Graveled or native surface roads also provide suitable access for equestrian use, hunting and other dispersed recreational activities.

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

Ramps have been traditionally collected in the southern Appalachians for generations though the watershed area doesn't include habitats at the higher elevations that would typically be inhabited by this species. Numerous other plant species are likely collected throughout the two watersheds though locations would be varied and not easily disclosed. Typical species sought by collectors include ginseng, flowering or decorative plants for transplant, and numerous species of medicinal herbs. Traditional hunting for deer, turkey, bear, and small game occur within the analysis area.

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

In addition to the SI (10) discussion in the Forest RAP, the primary access road affecting people's sense of place would be NFSR 35-1, Citico Creek Road. This primarily graveled, narrow road provides access to Citico Creek for fishing and dispersed recreation. The use of asphalt pavement or bituminous surface treatments should be minimized to avoid attracting a higher volume of traffic. Paved surfacing on the road would invite thru traffic for passenger vehicles and motorcycles which could easily change the remote, primitive sense of place.

The potential congressional designation of the Joyce Kilmer/Slickrock Wilderness Addition would further promote a "wilderness" sense of place. As defined by the Wilderness Act, "A wilderness, in contrast with those areas where man and his works dominate the landscape, is hereby recognized as an area where the earth and its community of life are untrammelled by man, where man himself is a visitor who does not remain...is further defined to mean in this Act an area of undeveloped Federal land retaining its primeval character and influence, without permanent improvements or human habitation, which is protected and managed so as to preserve its natural conditions...has outstanding opportunities for solitude or a primitive and unconfined type of recreation..."

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)?

Addressed in Forest TAP.

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 the Tellico Lake Lower Citico Final TAP map. 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 Lower Citico/Tellico Lake Ecosystem 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

ROAD #	ROAD NAME	LENGTH	ANNUAL COSTS	DEFERRED COSTS	RMO	MACHINE GRADE	GRAVEL	DITCH	PAVE	BRUSH	BRIDGE MAINT.	CULVERTS	REMARKS
2024	GLENN RIDGE	2.32	\$436	\$10,394	D2-FS								
2403	LITTLE CITICO	0.12	\$827	\$1,159	C3	X	X	X			X	X	
2403	LITTLE CITICO	3.19	\$600	\$14,291	D2-HC							X	
2403B	LITTLE CITICO SPUR B	2.3	\$432	\$10,304	D2-FS							X	
2404	YOUNG BRANCH	0.94	\$177	\$4,211	D2-FS							X	
35-1	CITICO CREEK NORTH	5.69	\$39,227	\$54,937	C3	X	X	X	X	X	X	X	
400101	PICTURE PINE KNOB	2.65	\$498	\$11,872	D2-HC							X	
40031	SMOKEY BRANCH	1.24	\$233	\$5,555	D2-FS							X	
44041	YOUNG BR. HORSE CAMP	0.14	\$965	\$1,352	C3		X					X	
440601	BLUE MOUNTAIN	0.49	\$92	\$2,195	D2-FS								
4691	EAST SLIDE HOLLOW	0.29	\$55	\$1,299	D2-FS								
4692	SLIDE HOLLOW	0.4	\$75	\$1,792	D2-FS								
5003	BARKCAMP	0.32	\$60	\$1,434	D2-FS							X	
5010	TANK HOLLOW	0.51	\$96	\$2,285	D2-FS							X	
5022	BIVENS BRANCH	2.76	\$519	\$12,365	D2-FS						X	X	
5022B	BIVENS BRANCH SPUR B	1.83	\$344	\$8,198	D2-FS							X	
2224	TOQUA CREEK	1.4	\$263	\$6,272	D2-FS								
2224A	TOQUA CREEK SPUR	1.19	\$224	\$5,331	D2-FS								
2659	DOUBLECAMP-JAKE BEST	1.31	\$9,031	\$12,648	C3	X	X	X		X		X	

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.

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

ROAD #	ROAD NAME	APPROX. MILES IN WATERSHED	Private Access	WildFire Suppression Use	Recreation/Heritage Use	Wildlife Use	Vegetation Management	Impact to streams*	Environmental Risk	Recommendations to be considered
NFSR ROADS										
2224	TOQUA CREEK	1.4	n	y, pb line first part	n	part lwo	y	1	IB, 9.f	decommission after wildlife opening (approx. 0.1 mi.)
2224A	TOQUA CREEK SPUR	1.19	n	y	unicoi tumpike to east	part lwo	y	1	IB, 9.F	decommission after wildlife opening (approx. 0.4 mi.)
40031	SMOKEY BRANCH	1.24	y for powerline	y	n	n	y?	1	only road in Smokey Br. watershed, which is most sediment to Citicr Cr.; coming from pvt?	revisit if need for veg mgt purposes; find out if access to tedford powerline; dump site to clean up
35-1	CITICO CREEK NORTH	5.69	y	y	y	y	y	3	portions adj to creek, critical habitat	manage as is; leave open- pave remaining sections closest to creek have been paved
2024	GLENN RIDGE	2.32	y first portion	y	n	n	y	3 first portion remaining 1	typical closed road	manage as is; tedord sup access to 5010 first portion to 5010 needs work gravel at least
5010	TANK HOLLOW	0.51	y	y	n	n	y	3		rutting no drainage but not in flood plain; needs gravel tedord sup; manage as is
2404	YOUNG BRANCH	0.94	n	y	y	n	y	2	typical closed road	first portion adj to creek, but not the rest; manage as is
44041	YOUNG BR. HORSE CAMP	0.14	n	n	y	n	n	1	campground	
2403	LITTLE CITICO	0.12	n	y	y	y	y	4		bridge/parking lot; manage as is
2403	LITTLE CITICO	3.19	n	y	y	y	y	2		1 for non adj stream portions; manage as is
2403B	LITTLE CITICO SPUR B	2.3	n	y	y	y	y	1		manage as is determine true length/location
5003	BARKCAMP	0.32								manage as is within middle citico ws
5022	BIVENS BRANCH	2.76	n	y	y	y	y	2	typical closed road	manage as is; in Middle Citico, portion is poor shape
5022B	BIVENS BRANCH SPUR B	1.83	n	y	y	y	y	2	typical closed road	manage as is
440601	BLUE MOUNTAIN	0.49	n	n	y	y	y	2	typical closed road	manage as is
2659	DOUBLECAMP-JAKE BEST	1.31	n	y	y	y	y	1		manage as is
4691	EAST SLIDE HOLLOW	0.29	n	y	n	n	y	1	typical closed road	manage as is
4692	SLIDE HOLLOW	0.4	n	y	n	n	y	1	typical closed road	manage as is
400101	PICTURE PINE KNOB	2.65	y	y		n	y	unknown 2?		alex faught review private access routes-gate at end of first pvt? further review for unauth use? Do have easement for south portion on pvt in right location?

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

ROAD #	ROAD NAME	APPROX. MILES IN WATERSHED	Private Access	WildFire Suppression Use	Recreation/Heritage Use	Wildlife Use	Vegetation Management	Impact to streams*	Environmental Risk	Recommendations to be considered
UNAUTHORIZED ROUTES										
TL1		0.03	n	n	parking at gate	n	n	1	ohv access	parking spot route around gate; decommission
TL2		0.26	n	y	accessing camp spot	n	temp?	1	IB, UT	decommission ; continue to use as walking route for research
TL3		0.13	y legal?	n	n	n	n	1	IB	decommission
TL4		0.07	y legal?	n	n	n	n	1	IB	already fenced; decommission
TL5		0.02	n	n	y	n	n	1	dispersed campsite	decommission
TL7		2.3	some pvt not access	y	n	y	y		good shape; atv trail, illegal use; has two very steep sections	gate at TL9 at webb gap; need easement to access from Milligan Cr. Rd to Webb Gap. decommission
TL9		3.5	need ROW across pvt	y	n	y	y	4	atv use/culvert issues	maintain to make drivable and fix damage; gate @ webb gap/ add at least portions to system only admin use; need easement from Milligan Cr. Rd to Webb Gap
TL9.1		0.25	n	n	n	n	n	2		used as bypass around washout on TL9; decommission
TL10		0.55	n	y	n	n	n	4	rough	maintain if possible to prevent further damage; use as temporary road for nnis treat.; decommission after nnis treatment; do not put on system
TL11		3.2	powerline access	y	n	n			follows topo	leave open for powerline maint work; add to system
TL12		0.63	n	y	n	n	n	1	paved	maintain to make passable nnis trtmnt etc. Add to system? : TBD
TL13		0.27	n	n	n	n	n	1	paved	maintain to make passable; use as temporary road for nnis treat.; decommission after nnis treatment/cr survey. do not put on system
TL14	off TL9 at Milligan Cr. to Tallassee Mtn	2.01	n	y	n		y		fairly stable	some road some trail? TBD after field recon access to tallassee mtn.; decommission
TL19	Stony Grave Hollow	0.8	y					4		Goes up the hollow; decommission at FS property
TL20	East of Bunker Hill	0.1	y					4		Goes up the hollow; decommission at FS property; need to verify prop. line location
LC1		0.03	n	n	n	n	n	2		already decommissioned dump site to be cleaned up? 2-3 truck loads near LC1 no road just dump
LC3		0.05	n	n	y	n	n	2	parking spot	old county road/paved already tank trapped at one end; decommissioned but leave 20-30 feet for parking spot, rip up blacktop wait on flood assessment to determine
LC2		0.05	n	n	n	n	n	2unknown	no obvious signs of use essentially closed road	decommission
LC5		0.7	mostly on pvt?	y	n	n	y	1		near end of #2024; need to verify property line location; if all on FS, decommission ; if meanders, need R/Ws
LC6	off of 2403 to north	0.22	n	y	y	y	y	1	mudholes needs drainage work	add to system ;
LC7	off of 2403 to south	0.3	n	y	n	y	y	1		add to system ;
LC8	South of Pleasant Grove Ch	0.16	n	n	n	n	n			decommission

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

ROAD #	ROAD NAME	APPROX. MILES IN WATERSHED	Private Access	WildFire Suppression Use	Recreation/Heritage Use	Wildlife Use	Vegetation Management	Impact to streams*	Environmental Risk	Recommendations to be considered
PRIVATE & COUNTY ROADS										
150	MILLIGAN CREEK	0.86	Y							
400101	PICTURE PINE KNOB	0.74	Y	y	y	n	y	1		private road to fs boundary
CH455	CITICO CREEK	6.48	Y	y	y	n	y	3		paved add portion of road to database
CH458	SMOKY BRANCH	3.86	Y	y	n	n	y	4		paved
CH464	MTN. SETTLEMENT	13.49	Y	y	y	n	y	3		all maintained by cty
CH468	COOPER ROAD	1.2	Y	y	y	n	y	2/3		chip and seal adj to stream at first
CH506	BUCK HIGHWAY	2.39	Y	y	y	n	y	4	ditch lines	further review by ali to decide on redesign possibilities some paved
CH493	WHITE PLAINS	0.71	Y							all on pvt
CH460	CHANCE ROAD	0.5	Y	y	n	n	y	1		
CH465	DUNKIN BR.	0.3	y	y	n	n	n	3	adj to stream not much buffer	
CH467	PLEASANT GROVE	1.0								

*1 = LOW, 2 =MEDIUM, 3 = HIGH, 4 = VERY HIGH

<u>Miles of system routes to be considered for decommissioning:</u>	
Roads:	0.50
Trails:	0.00
Total	0.50

<u>Miles of unauthorized routes to be considered for decommissioning:</u>
7.70

<u>Total miles of all routes to be considered for decommissioning:</u>
8.20

<u>Unauthorized routes to consider adding to system:</u>	
Roads:	7.35
Trails:	0.00
Total	7.35

<u>Net change to system transportation system mileage</u>	
Roads:	6.85
Trails:	0.00
Total	6.85

Recommendations

Actions To Be Considered:

-Add TL9 to the system and acquire easement(s) for the sections of Milligan Cr. Road, #150, which cross private land. Reconstruct TL9 to provide administrative access to the Tapoco tract for resource management.

-Add following unauthorized routes to the transportation system:

- TL11
- TL12
- LC6
- LC7

-Decommission the following unauthorized routes:

- TL1
- TL2
- TL3
- TL4
- TL5
- TL7
- TL9.1
- TL10
- TL13
- TL14
- TL19
- TL21
- LC2
- LC3
- LC5 (if entirely on FS)
- LC8

-Decommission the following system roads:

- #2224: approx. 0.1 miles beginning just beyond the last wildlife opening
- #2224A: approx. 0.4 miles beginning just beyond the last wildlife opening

Recommendations

See Table 4.

NEPA Analysis Needs

Many opportunities identified in this report can be incorporated into the Lower Citico/Tellico Lake Ecosystem 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 Lower Citico/Tellico Lake Ecosystem Assessment project file.

Maps

Tellico Lake Lower Citico Final TAP map

Attachment 3

Road Management Objectives (RMO's)

RECOMMENDED BY: Gary Hubbard

Date: February 2013

ROAD MANAGEMENT OBJECTIVE
Cherokee National Forest
D1

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	<ul style="list-style-type: none"> •For curve widening •For surfacing •For grade •For travel way width •For sight distance
	<ul style="list-style-type: none"> •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	<ul style="list-style-type: none"> •Do annual inspection (condition survey) •Repair only where damage is occurring to adjacent resources •Allow grass, brush to grow up

Recommended: Gary Watson Date: January 2011

Approved: District Ranger Date:

ROAD MANAGEMENT OBJECTIVE
Cherokee National Forest
D2-HC
2403, 400101

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 high clearance vehicles (highway-legal vehicles designed for operation on rough terrain). Road may be closed seasonally or for periods of freeze-thaw conditions.

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	•N/A
•For surfacing	•Same
•For grade	•Same
•For travel way width	•Same
•For sight distance	•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	<ul style="list-style-type: none"> •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: Gary Hubbard Date: August 2012

Approved: _____ District Date: _____
Ranger

ROAD MANAGEMENT OBJECTIVE
Cherokee National Forest
D2-WL

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	
<ul style="list-style-type: none"> •For curve widening •For surfacing •For grade •For travel way width •For sight distance 	<ul style="list-style-type: none"> •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	<ul style="list-style-type: none"> •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: Gary Hubbard	Date: August 2012
Approved: Ranger	District Date:

ROAD MANAGEMENT OBJECTIVE
Cherokee National Forest
D2-FS

2224, 2224A, 40031, 2024, 5010, 2404, 2403B, 5003, 5022, 5022B, 440601, 4691, 4692

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	<ul style="list-style-type: none"> •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
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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	<ul style="list-style-type: none"> •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: Gary Hubbard	Date: August 2012
Approved: Ranger	District Date:

ROAD MANAGEMENT OBJECTIVE

Cherokee National Forest

C3

35-1, 44041, 2403, 2659

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	<ul style="list-style-type: none"> •Generally tractor trailer
•For curve widening	•Same
•For surfacing	•Same
•For grade	•Same
•For travel way width	•Same
•For sight distance	•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	<ul style="list-style-type: none"> •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: Gary Hubbard	
Date: August 2012	
Approved: Ranger	District
	Date:

ROAD MANAGEMENT OBJECTIVE

Cherokee National Forest

B4

Intended Purpose of Road

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

Design, Operation and Maintenance Criteria

Traffic Service Level	B	
Maintenance Level	4 (or 5)	
Functional Classification	Collector (or local)	
Traffic Volume	Moderate - High	
Traffic Classification	Timber Low%, Recreation high%, Administrative low%	
Traffic Management	Open to all legal traffic (commercial traffic by permit only)	
Environmental Consideration	May or may not be adjacent to streams and/or have erosive soils	
Design Vehicle	<ul style="list-style-type: none"> •For curve widening •For surfacing •For grade •For travel way width •For sight distance 	<ul style="list-style-type: none"> •Generally tractor trailer •Same •Same •Same •Pickup/SUV
Critical Vehicle	Low boy	
Subject to Highway Safety Act	Yes	

Design, Operation and Maintenance Standards
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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	<ul style="list-style-type: none"> •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: Gary Hubbard	Date: August 2012
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Approved: Ranger	District	Date:
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ROAD MANAGEMENT OBJECTIVE
Cherokee National Forest
A5

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	<ul style="list-style-type: none"> •For curve widening •For surfacing •For grade •For travel way width •For sight distance
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	<ul style="list-style-type: none"> •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: Gary Hubbard	Date: August 2012
Approved: Ranger	District Date:

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.