

Road Analysis for the Beaverdam Project Area

INTRODUCTION

Roads analysis is an integrated ecological, social, and economical approach to transportation planning that addresses both existing and potential future roads (USFS, 1999a). This Roads 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 Beaverdam Project Area. This area encompasses approximately 22,694 acres of National Forest ownership within Compartments 42-54, and 79-86 which drain into Beaverdam Creek. This NFMA analysis defines the existing and desired conditions of the road system, and opportunities are identified to move towards the desired condition. This analysis provides a framework to identify road 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 Beaverdam Project Area.

Interdisciplinary Team members are:

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Consultants to the ID team:

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Individuals from this Interdisciplinary team were utilized for the Roads 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.

EXISTING ROAD SYSTEM

Authorized Roads (From Transportation Information System)

NFSR's

#295, 295A, 295B, 300, 3020, 322, 4052, 4052A, 53A, 6044, 60451, 6048, 6049, 6053, 6054, 6054A, 6079, 60801, 60802, 60803, 60804, 60806, 6083, 60832, 60833, 60851, 6491, 6500, 6501, 6502, 69, 69B

Public Roads 2697, CH2696, CH53, CH6, CH69, Sluder Rd., TN133, TN91 and US HWY. 421.

Unauthorized Roads

Field inventories were conducted to locate unauthorized roads in the Beaverdam Project Area. From this inventory, a grouping of the different types of unauthorized roads was made. The groupings are explained in *Attachment 1*. There are approximately (25) unauthorized roads of varying lengths to consider.

WL01- WL16 are roads being maintained as linear wildlife openings or are roads to wildlife openings which will be used for other resource management activities in the future. OUT01, OUT02 are user-created roads. OR01 - OR07 are existing roads presently being used.

Desired Condition

Goal 48 from RLRMP

Provide a transportation system that supplies safe and efficient access for forest users while protecting forest resources. Emphasize acquisitions of rights-of-way or fee simple titles appropriate to facilitate maintenance and meet access needs.

ROAD RELATED ISSUES

The following summarizes issues and concerns of specialists, managers, and the public related to the road system.

Access for resource management and protection: The road system is critical in utilizing timber harvest to meet wildlife management guidelines of early successional habitat. Roads for timber management are vital for implementing silvicultural treatments to promote forest health. Roads also provide access for fire control and insect and disease protection.

Access for Special Use permittees: There are currently 12 Special Use Permits in the Beaverdam area. Portions of the road system could potentially provide access for these permit holders. TDOT holds a permit for Highway 133.

Social and Recreational concerns: Other than vehicle use, there is no motorized recreation use in the Beaverdam Project Area. Current National Forest System Roads (NFSR's) provide access into Backbone Rock Recreation Area, Beaverdam Creek, and designated trails. There are multiple gated roads for hunting, hiking, biking and horse riding opportunities. The road system should be reviewed for possible effects from camping at primitive road side camp sites.

Watershed Concerns: The road system should be reviewed for any possible effects to the watershed, and opportunities for improvement explored.

Wildlife: Some access roads to managed wildlife openings are not currently on the system.

ASSESSMENT OF EFFECTS

To Assess the effects of roads in the analysis area, the process described in Step 4 and Appendix 1 in "Roads Analysis: informing decisions about managing the National Forest transportation system" (USFS, 1999a) was used. The ID team discussed the 75 questions for their relevance to this analysis.

ECOSYSTEM FUNCTIONS AND PROCESSES (EF)

EF1: What ecological attributes, particularly those unique to the region, would be affected by roading of currently unroaded areas?

There are no unroaded areas in this project area

EF2: To what degree do the presence, type, and location of roads increase the introduction and spread of exotic plant and animal species, insects, diseases, and parasites? What are the potential effects of such introductions to plant and animal species and ecosystem function in the area?

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

EF3-4: How does the road system affect ecological disturbance regimes in the area? To what degree does the presence, type, and location of roads contribute to the control of insects, diseases, and parasites?

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

EF5: What are the adverse effects of noise caused by developing, using, and maintaining roads?

This is not considered a significant issue and was not raised during scoping. Within the analysis area the majority of traffic stems from private vehicles using the open road system for recreational ventures. Heavy truck traffic is minimal and occurs mostly in conjunction with vegetation management and road maintenance. There are no communities within the analysis area that would be affected by noise from the road system.

AQUATIC, RIPARIAN ZONE, AND WATER QUALITY (AQ)

AQ1: How and where does the road system modify the surface and subsurface hydrology of the area?

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

AQ2: How and where does the road system generate surface erosion?

By their nature, all native or aggregate surfaced roads will generate some surface erosion. The amount depends on factors such as soil type, road gradient, the spacing and effectiveness of drainage structures and traffic use. Sandy textured soils in the project area are particularly prone to water erosion when exposed to disturbance on moderate to steep slopes. As mentioned in AQ1, surface erosion is a particular concern on FDR 50, 50F and 293. Steeper segments of the roads, long ditch runs and water turnouts are especially prone to surface erosion. Surface erosion will also be a concern on any constructed specified or temporary roads until the roads are stabilized and/or closed and revegetated.

AQ3: How and where does the road system affect mass wasting?

Mass wasting is generally not a problem in the analysis area. Fill slope failure is primarily related to areas where concentrated surface water is turned off of roadbeds at relief culverts and turnouts or where uncontrolled surface drainage spills over fill slopes.

AQ4: How and where do road-stream crossings influence local stream channels and water quality?

There are an estimated 89 perennial stream crossings found within the analysis area. This estimation is based partially on field survey and partially on evaluation of maps and other information. These crossings represent direct interaction of roads and streams and serve as a primary conduit for road-related erosion and storm drainage to reach streams. Road-stream crossings can physically change the alignment of stream channels for short distances. Long-term contributions of sediment into streams can result in geomorphic changes to channel alignment and substrate condition. Increases in storm runoff associated with roads can also result in channel alignment and substrate changes such as downcutting.

AQ5: How and where does the road system create potential for pollutants, such as chemical spills, oils, deicing salts, or herbicides, to enter surface waters?

A variety of road jurisdictions and surface types occur within the analysis area. These vary from native-surface woods roads to large Federal highways. Chemical pollutants such as accidental spills, oils, deicing salts and herbicides are more likely to be associated with paved county, state and federal roads than the typical aggregate surface Forest Service road. On national forest lands within this analysis area there is little concern that roads may contribute to chemical pollution of streams. This is primarily due to the nature and location of the roads. Some segments of Highway 133 are located adjacent or in close proximity to streams. Roads in these locations offer greater potential for chemical pollutants such as oil to reach streams, although oil movement from the road surfaces to nearby water is a minor concern.

AQ6: How and where is the road system “hydrologically connected” to the stream system? How do the connections affect water quality and quantity?

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

AQ7: What downstream beneficial uses of water exist in the area? What changes in uses and demand are expected over time? How are they affected or put at risk by road-derived pollutants?

The analysis area is a portion of the South Fork Holston River basin, and includes the entire Beaverdam Creek watershed located in Tennessee. Beaverdam Creek and many of the tributary streams within the analysis area are designated as “Naturally Reproducing Trout Stream (TDEC, 2004)”. Some of the tributary streams are designated as “Trout Stream”. The South Fork Holston River is designated as “Domestic Water Supply” and “Industrial Water Supply”. Fishing demand in the area can be expected to increase in the future, and it is likely the demand for industrial and domestic water supply will increase. Water supply for these uses is generally not an issue in or downstream of the analysis area, however. Accelerated sediment delivery from roads may adversely affect fish and other aquatic organisms in affected streams. Fish or other aquatic organism passage may be affected at road crossings (See AQ10).

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AQ8: How and where does the road system affect wetlands?

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

AQ9: How does the road system alter physical channel dynamics, including isolation of floodplains, constraints on channel migration, and the movement of large wood, fine organic matter, and sediment?

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

AQ10: How and where does the road system restrict the migration and movement of aquatic organisms? What aquatic species are affected and to what extent?

Culverts on all roads in the area may restrict the movement of rainbow trout, fantail darters, blacknose dace, and other aquatic organisms during times of low water.

AQ11: How does the road system affect shading, litterfall, and riparian plant communities?

No Concerns

AQ12: How and where does the road system contribute to fishing, poaching, or direct habitat loss for at-risk aquatic species?

Six species are considered to be game species (bluegill, rock and smallmouth bass, and brook, brown and rainbow trout). The road system contributes to the ease of public fishing for these species but also provides opportunities for poaching. Direct habitat loss from the road system is unlikely.

AQ13: How and where does the road system facilitate the introduction of nonnative aquatic species?

No concerns

AQ14: 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?

Beaverdam Creek is one of the best-known wild trout streams in Tennessee, as it supports one of the finest wild trout populations. The clear, cold waters provide a multitude of trout fishing experiences from chasing brook trout in small streams to fishing for wild trout or stocked trout in Beaverdam Creek. The lower portion of Beaverdam Creek also supports a diverse community of life, including the hellbender, a rather large salamander.

TERRESTRIAL WILDLIFE (TW)

TW1: What are the direct effects of the road system on terrestrial species habitat?

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

TW2: How does the road system facilitate human activities that affect habitat?

The road system allows access for habitat management activities (timber harvest, prescribed burning, wildlife opening maintenance). It also serves as sites for illegal activities, such as garbage dumping, take-off places for off-road driving, creating unauthorized roads, and creating new dispersed campsites.

TW3: How does the road system affect legal and illegal human activities? What are the effects on wildlife species?

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

TW4: How does the road system directly affect unique communities or special features in the area?

Road construction can directly remove or fragment rare communities and special habitat features. They may also provide necessary access for monitoring and habitat improvements. The Revised Plan provides standards to protect unique communities and their functions and processes (Prescription 9F). No additional disturbance to known mapped rare communities is expected.

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?

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.

The following table shows the amount of funding needed for annual and deferred maintenance to maintain the roads to their objective maintenance levels and the actual annual and deferred maintenance expenditures (CMRD) in the study area.

Annual and Deferred Maintenance Needs and Expenditures for Roads in Beaverdam Project Area

TAUs W-7, W-13 and part of W-8, W-12 - 2/28/2008

NOTES

1. FS roads that are shown in shaded cells are open to the public.
2. Average expenditures for FY06-07 & FY08 (projected). Costs for ML 1 & 2 roads based on random sample
3. Roads are within Project Area with termini in the area or at appropriate junctions close to the area boundary(with exceptions notes).

Road No.	Road Name	RMO	Length	MAINTENANCE NEEDS		AVERAGE MAINTENANCE EXPENDITURES		Comments
				ANNUAL	DEFERRED	ANNUAL	DEFERRED	
US 421	U.S. Hwy 421			\$0	\$0	\$0	\$0	Runs Thru Project area
TN91	Tennessee Hwy 91			\$0	\$0	\$0	\$0	Runs Thru Project area
TN133	Tennessee Hwy 133			\$0	\$0	\$0	\$0	Runs Thru Project area
Ch6	Cretsinger			\$0	\$0	\$0	\$0	County Hwy
CH2696	Winchester			\$0	\$0	\$0	\$0	County Hwy
CH53	Cross Mountain			\$0	\$0	\$0	\$0	County Hwy
2697	McQueen Branch			\$0	\$0	\$0	\$0	County Hwy/Private Other
53A	Blackburn Tract	D2	1.06	\$0	\$0	\$0	\$0	Private Other
295	Backbone Day Use	B4	0.40	\$3,433	\$5,075	\$664	\$0	Seasonal Closure
295A	Backbone Hiking	B4	0.10	\$858	\$1,269	\$166	\$0	Seasonal Closure
295B	Backbone Camping	B4	0.20	\$1,717	\$2,538	\$332	\$0	Seasonal Closure
69	McQueen Knob	C3	3.14	\$26,951	\$39,840	\$5,216	\$0	
4052	Robbins Hollow	D2	8.10	\$1,531	\$35,640	\$1,500	\$0	4.64 mi. seasonally open
6049	Parks Branch	D2	2.04	\$386	\$8,976	\$400	\$0	R.O.W. 0.54 mi./1.00 Seasonally Open
300	Tank Hollow/Iron Mtn	D2	3.71	\$701	\$16,324	\$0	\$0	
3020	Camp Hollow	D1	1.50	\$0	\$6,600	\$0	\$0	To be converted to Trail
322	Sutherland Trail	D2	2.42	\$457	\$10,648	\$0	\$0	4-Wheel Road
4052A	Grindstone Knob	D1	1.00	\$0	\$4,400	\$0	\$0	
6044	Neely	D1	1.70	\$0	\$7,480	\$0	\$0	
60451	Chalk Branch	D2	2.09	\$395	\$9,196	\$0	\$0	Includes 0.59 Mi.- WL-05
6048	Birch Branch	D2	1.72	\$325	\$7,568	\$0	\$0	
6053	Jim Wright Branch	D2	2.50	\$473	\$11,000	\$0	\$0	

6054	Shady Gap	D2	1.57	\$297	\$6,908	\$0	\$0	
6054	Shady Gap	D1	0.95	\$0	\$4,180	\$0	\$0	
6054A	Middle Fk Beaverdam	D1	1.35	\$0	\$5,940	\$0	\$0	
6079	Barry Tract	D2	2.73	\$516	\$12,012	\$0	\$0	
60801	Up. Heaberlin Branch	D1	0.72	\$0	\$3,168	\$0	\$0	
60802	Lr. Heaberlin Branch	D2	1.67	\$316	\$7,348	\$0	\$0	
60803	McQueen Br. Spur	D2	0.38	\$72	\$1,672	\$0	\$0	
60804	Gentry Branch	D2	1.22	\$231	\$5,368	\$0	\$0	
60806	Heaberlin A Spur	D1	0.54	\$0	\$2,376	\$0	\$0	
6083	Dark Hollow	D2	1.52	\$287	\$6,688	\$0	\$0	
60832	Dark Hollow Lt Fork	D2	0.61	\$115	\$2,684	\$0	\$0	
60833	Lower Dark Hollow	D1	0.30	\$0	\$1,320	\$0	\$0	
60851	Beaverdam	D2	1.35	\$255	\$5,940	\$0	\$0	
60851	Beaverdam	D2	1.34	\$0	\$0	\$0	\$0	Recommend Decommissioning
60852	Stillhouse Spur	D2	0.09	\$17	\$396	\$0	\$0	
6491	Parks-Birch	D2	2.74	\$518	\$12,056	\$0	\$0	
6500	Marriage Ground	D1	0.56	\$0	\$2,464	\$0	\$0	
6501	Graveyard	D1	0.52	\$0	\$2,288	\$0	\$0	
6502	Flat Springs	D2	0.20	\$38	\$880	\$0	\$0	Includes 0.10 Mi.- WL-13
69B	Marshall Branch	D2	3.34	\$631	\$14,696	\$0	\$0	
	Total FS Jurisdiction roads		54.32					
	Maintained by FS		43.84					
	Maintained by Others		1.06					
	TO BE DECOMMISSIONED		2.84	\$0	\$0	\$0	\$0	
	ML1		9.14	\$0	\$40,216	\$0	\$0	
	ML2		41.34	\$7,560	\$176,000	\$1,900	\$0	
	ML3		3.14	\$26,951	\$39,840	\$5,216	\$0	
	ML4		0.70	\$6,008	\$8,882	\$1,163	\$0	
	ML5		0.00	\$0	\$0	\$0	\$0	
			57.16	\$40,519	\$264,938	\$8,278	\$0	

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.

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), 10% Roads and Trails for States Fund (TRTR), 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:

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 classified 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 they 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 cost.

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

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 and/or closing roads may be necessary to meet budget and funding constraints or to prevent resource damage, but may diminish access to areas that are important to certain users of forest resources. People with a strong attachment to a place, activity, or road may consider it a loss in value unless they are willing and able to find, and adapt, to substitute experiences.

The road users that contribute the most significant economic benefits are those who visit the area for recreation-related activities such as:

Driving for pleasure

Roads US 421, TN91, TN133, CH53 and NFSR #69 form a network of roads that is popular for sightseers.

Camping

Road TN133 provides access to Backbone Campground and Day use.
Road TN133 provides access to numerous dispersed camping sites.

Hunting

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

Hiking/ Mountain Biking

Roads US421, TN91, TN133, CH53, and #69 provide access to trails #1, #54, #53, and proposed Camp Hollow Trail #3020 and foot travel is permitted on many closed roads.

Fishing

Road TN133 provides access to Beaverdam Creek and its tributaries.

Wildlife viewing

The open roads listed above are used by visitors for this activity

Special use areas

Road US421 access Underground phone line Special Use permit.
Roads #69 provides access for apiary Special use.

Visiting historical sites/areas?

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

Priced:

- Sale of commodities such as timber
- 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 road 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 costs 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 Johnson and Sullivan Counties of Tn. and Washington County Va., cities of Bristol, Mountain City and the community of Shady Valley in Tn., and in Va. the town of Damascus. 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
 - 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 road, #69 is a compliment to the state and county road system.

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

COMMODITY PRODUCTION (TM, MM, RM)

Timber Management

TM 1,2,3: How does the road spacing and location affect logging system feasibility? How does the road system affect managing the suitable timber base and other lands? How does the road system affect access to timber stands needing silvicultural treatment?

Transportation planning has been a key component of timber sale planning in this area. Most of the transportation network has been built for and through timber sales so the system serves the timber resource well. Planning has considered future needs as well as immediate sale needs. Timber sales may require the construction of roads, and/or the addition of existing roads, or sections of roads, to the Forest Road System. Overall, there should be no net increase in open road densities.

Minerals Management

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

There are no locatable, leaseable, or salable mineral claims in the analysis area.

Range Management

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

The Watauga Grazing Allotment Plan proposes two pastures in the analysis area: Osborne Farm and Scott/Booher Farm. An Environmental Analysis is being prepared for this. Existing roads are adequate to provide access to these allotments, but these roads are not currently on the Road System

WATER PRODUCTION (WP)

WP1-3: How does the road system affect access, constructing, maintaining, monitoring, and operating water diversions, impoundments, and distribution canals or pipes, municipal watersheds, or hydroelectric projects?

N/A

SPECIAL FOREST PRODUCTS (SP)

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

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

SPECIAL USE PERMITS (SU)

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

N/A

GENERAL PUBLIC TRANSPORTATION (GT)

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

Primary accesses into and out of the analysis area for recreation, F.S. administration, commodity production, and access for private land owners is provided by State Highway 133. This road is open year-round and designed for both passenger cars and trucks. The primary purpose for the Notional Forest System Roads in the analysis area is to provide access for resource management and recreation.

GT(2): How does the road system connect large blocks of land in other ownership to public roads?

The Forest Service Road system in the analysis area has no effect on the connecting lands in other ownership.

GT(3): How does the road system affect managing roads with shared ownership or with limited jurisdiction? (RS2477, cost share, prescriptive rights, FLPMA easements, FRTA easements, DOT easements)

N/A

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

The Notional Forest System Roads in the analysis area are maintained and signed in accordance with their maintenance and traffic service levels and are considered adequate for use under normal operating conditions. Any management activity, which increases use or considerably alters normal traffic use, should be mitigated. Additional road maintenance may be required to safely accommodate heavier volume.

ADMINISTRATIVE USE (AU)

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

The current road system was checked during this inventory and found to be more than adequate for these uses. Also, it has recently been utilized for bird, bat, salamander, butterfly, snail and botanical surveys.

AU2: How does the road system affect investigative or enforcement activities?

The road provides opportunities for road blocks, drop-off points, surveillance activities, and patrolling. The existence of the road creates the need for more law enforcement.

PROTECTION (PT)

PT 1-3: How does the road system affect fuels managements? How does the road system affect the capacity of the Forest Service and cooperators to suppress wildfires? How does the road system affect risk to firefighters and to public safety?

Roads, both classified and unauthorized are often used as firebreaks and control lines for prescribed burns and wildfire control. Roads can also be used by arsonists to set fires. Most roads are adequate for firefighting equipment to travel on. Closed and gated classified roads may need minimal dozer work to be utilized for equipment movement.

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

Beaverdam Project Area roads and other open roads do get dusty, but traffic is generally light enough for it not to be a major visibility hazard

RECREATION (UR, RR)

Unroaded Recreation (UR)

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

These are Forest level Questions.

Road-Related Recreation (RR)

RR 1, 3-5: Is there now or will there be in the future excess supply or excess demand for roaded recreation opportunities? What are the adverse effects of noise and other disturbances caused by constructing, using, and maintaining roads on the quantity, quality, or type of roaded recreation opportunities? Who participates in roaded recreation in the areas affected by road construction, changes in road maintenance, or road decommissioning? What are these participants' attachments to the area, how strong are their feelings, and are alternative opportunities and locations available?

These are Forest level Questions.

RR2: Is developing new roads into unroaded areas, decommissioning of existing roads, or changing maintenance of existing roads causing substantial changes in the quantity, quality, or type of roaded recreation opportunities?

Adding new roads, or sections of roads, to the existing system can increase both the quantity and quality of recreation opportunities in the Beaverdam Project Area.

PASSIVE USE VALUE, SOCIAL ISSUES, CIVIL RIGHTS, AND ENVIRONMENTAL JUSTICE (PV, SI, CR)

PV 1-4, SI 1-10, and CR1: 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?

The primary social demand for roads in the analysis area is access for hunting and dispersed campsites adjacent to the road system.

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

ROAD RELATED OPPORTUNITIES

Opportunities for Road Management				
TAUs W-7, W-13 and part of W-8, W-12				
Road No.	Road Name	Proposed RMO	Length	Comments
3020	Camp Hollow		1.50	Decommission- convert to trail #3020
WL-15	Robbins Hollow Sp. B	D2	0.14	New NFSR #4052B
WL-14	Robbins Hollow Sp. C	D2	0.47	New NFSR #4052C
WL-12	Robbins Hollow Sp. D	D2	0.06	New NFSR #4052D
WL-05	Chalk Branch	D2	2.09	Add 0.59 Mi. to - #60451
OR-01	Knob Road	D2	0.10	New NFSR #6046
WL-06	Birch Br. Spur A	D2	0.04	New NFSR #6048A
WL-07	Birch Br. Spur B	D2	0.17	New NFSR #6048B
WL-08	Birch Br. Spur C	D2	0.16	New NFSR #6048C
WL-09	Birch Br. Spur D	D2	0.14	New NFSR #6048D
WL-10	Birch Br. Spur E	D2	0.05	New NFSR #6048E
WL-11	Parks Branch Spur A	D2	0.34	New NFSR #6049A
OR-06	Osborne Farm	D2	0.77	New NFSR #60792
OR-07	Osborne Cabin	D2	0.46	New NFSR #60793
OR-04	Maple Springs Gap	D2	0.94	New NFSR #60805
OR-05	Scott Booher	D2	0.45	New NFSR #60807
WL-02	Marshall Br. N. Spur	D2	0.55	New NFSR #6081
WL-03	Marshall Br. S. Spur	D2	0.27	New NFSR #60812
60851	Beaverdam		1.34	Decommission from W.O. to Deadend
WL-13	Flat Springs	D2	0.20	Add 0.20 Mi.- #6052
WL-01				Wildlife Opening
WL-04				Wildlife Opening
OUT1			0.13	Decommission
OUT2			0.13	Decommission
OR-02			0.39	Decommission
OR-3			0.18	Decommission

Uninventoried roads:

Any other roads revealed, especially coming into National Forest lands from private lands will most likely be Outlaw roads (OUT) and should be closed and obliterated as found.

CONCLUSION

The existing classified road system in the Beaverdam Project Area plays a vital role in the facilitation of forest management and providing access for public needs. The key opportunities identified in this analysis include improving the overall situation by removing current roads that provide no benefit to the public or the Forest Service and adding sections of road that can be an advantage to both.

REFERENCES

Gucinski, Hermann; Furniss, Michael J.; Ziemer, Robert R.; Brookes, Martha H. 2001. Forest roads: a synthesis of scientific information. Gen. Tech. Rep. PNWGTR-509. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. 103 p.

USFS 1999a: Roads Analysis: informing decisions about managing the National Forest Transportation System. USDA Forest Service Washington Office FS-643, August 1999.

USDA Forest Service. 2004. Revised Land and Resource Management Plan for the Cherokee National Forest. Cleveland, Tennessee.

Cherokee National Forest Roads Analysis Report (CNF RAP) December 2002.

Attachments

- 1 Road Grouping
- 2 Road Classifications
- 3 Road Management Objective (RMO)

Beaverdam Road Grouping

Authorized Roads:

#295, 295A, 295B, 300, 3020, 322, 4052, 4052A, 53A, 6044, 60451, 6048, 6049, 6053, 6054
6054A, 6079, 60801, 60802, 60803, 60804, 60806, 6083, 60832, 60833, 60851, 6491, 6500 6501
6502, 69, 69B

Unauthorized Roads:

OR01, OR02, OR03, OR04, OR05, OR06, OR07
OUT01, OUT02
WL01, WL02, WL03, WL04, WL05, WL06, WL07,
WL08, WL09, WL10, WL11, WL12, WL13, WL14, WL15

Uninventoried roads coming from private land:

These roads will be classified as outlaw unplanned roads and dealt with on a case-by-case basis as they are discovered

Inventoried roads that require no further consideration:

Unauthorized Roads Legend:

OR: Old Road, Used
OUT: Outlaw Unplanned Road
WL: To Wildlife Opening

Road Classifications in Current Use

Functional Class	Traffic Service Level	Maintenance Level
<p>Arterial: Provides service to large land areas. Connects with other arterials or public highways.</p> <p>Collector: Serves smaller land areas than arterials. Connects arterials to local roads or terminal facilities.</p> <p>Local: Single purpose road. Connects terminal facilities with collectors or arterials.</p>	<p>A: Free flowing, mixed traffic; stable, smooth surface; provides safe service to all traffic.</p> <p>B: Congested during heavy traffic, slower speeds and periodic dust; accommodates any legal-size load or vehicle.</p> <p>C: Interrupted traffic flow, limited passing facilities, may not accommodate some vehicles. Low design speeds. Unstable surface under certain traffic or weather.</p> <p>D: Traffic flow is slow and may be blocked by management activities. Two-way traffic is difficult, backing may be required. Rough and irregular surface. Accommodates high clearance vehicles. Single purpose facility.</p>	<p>Level 1 Closed more than 1 year.</p> <p>Level 2 High-clearance vehicles.</p> <p>Level 3 Passenger vehicles— surface not smooth.</p> <p>Level 4 Passenger vehicles— smooth surface.</p> <p>Level 5 Passenger vehicles—dust free; possibly paved.</p>

Road Management Objectives are to:

- Establish the specific intended purpose of a road based on management needs as determined through land and resource management planning;
- Contain operation and maintenance criteria for existing roads; and
- Contain design criteria and operation and maintenance criteria for new roads.

Road Management Objectives (RMO's)

Road Management Objective
Cherokee National Forest
D1

#4052A, 6044, 6054, 6054A, 60801, 60806, 60833, 6500, 6501

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: G. Watson	Date: 2/29/2008
Approved: _____ Ranger	District _____ Date: _____

Road Management Objective
Cherokee National Forest
D2-HC
#322

Intended Purpose of Road	
The purpose of this road is to provide access for the recreation use of 4WD and high clearance vehicles.	
Design, Operation and Maintenance Criteria	
Traffic Service Level	D
Maintenance Level	2
Functional Classification	Local
Traffic Volume	Low
Traffic Classification	Timber 0%, Recreation 100%, Administrative 0%
Traffic Management	Limited to 4WD/high clearance vehicles
Environmental Consideration	May or may not be adjacent to streams and/or have erosive soils
Design Vehicle	
<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"> •N/A •Same •Same •Same •Same
Critical Vehicle	N/A
Subject to Highway Safety Act	No
Design, Operation and Maintenance Standards	
Width	10-15 feet
Turnouts	Not necessarily intervisible
Surfacing	May have been spot surfaced; currently probably native
ADT	Low
Design Speed	5 mph
Highway Safety Act	Does not apply
Maintenance Level 2 requirements	<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: G.Watson	Date: 2/29/2008
Approved: _____ Ranger	District _____ Date: _____

**Road Management Objective
Cherokee National Forest
D2-WL**

4052, 4052B, 4052C, 4052D, 60451, 6048, 6048A, 6048B, 6048C, 6048D, 6048E, 6049, 6049A, 6052, 6053, 60802, 60804, 6081, 60812, 6083, 60832, 60851, 60852, 6491, 69B

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: G. Watson	Date: 2/29/2008	
Approved: Ranger	District Date:	

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Road Management Objective

Cherokee National Forest

D2-FS

300, 4052, 6049, 6054, 6079, 60802, 60803, 60804, 60807, 6083, 60851, 6491, 69B

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

Design, Operation and Maintenance Standards	
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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: G.Watson	Date: 2/29/2008
Approved: _____	District Ranger _____ Date: _____

ROAD MANAGEMENT OBJECTIVE
Cherokee National Forest
C3
#69

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"> •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

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: G.Watson	Date: 2/29/2008
Approved: _____	District Ranger Date: _____

ROAD MANAGEMENT OBJECTIVE
Cherokee National Forest
B4
295, 295A, 295B

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
Critical Vehicle	Low boy
Subject to Highway Safety Act	Yes

Design, Operation and Maintenance Standards

Width	Generally 16 - 18 feet plus curve widening
Turnouts	Intervisible, if needed
Surfacing	Fully surfaced - approximately 6 inches crushed aggregate (or paved)
ADT	Moderate - High
Design Speed	10 - 15 mph
Highway Safety Act	Signed to meet MUTCD
Maintenance Level 4 requirements	<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: G.Watson	Date: 2/29/2008
Approved: _____ District Ranger	Date: _____

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"> •Generally tractor trailer •Same •Same •Same •Pickup/SUV
<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:	Date:
Approved: Ranger	District Date:

Road Management Objective (RMO)

Beaverdam Project

#	NAME	Traffic Service Level/Mtc. Level.	Comments
2697	McQueen Branch		Private Other
CH2696	Winchester		County
CH53	Cross Mountain		County
CH6	Cretsinger		County
	Sluder Road		County
TN133	Tennessee Hwy 133		State
TN91	Tennessee Hwy 91		State
US421	United States Hwy 421		US