

**GEORGE WASHINGTON &
JEFFERSON NATIONAL FORESTS**

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Roanoke, Va. 24019

ROADS ANALYSIS REPORT

George Washington National Forest Forest-Scale Road Analysis (FSM 7712.13b)



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ROADS ANALYSIS REPORT

CHAPTER 1: INTRODUCTION

Abstract: Roads analysis is an integrated ecological, social, and economic science based approach to transportation planning that addresses existing and future road management options. This roads analysis reviews the existing condition of the road system on the George Washington National Forest. This analysis pertains to only Forest Roads in maintenance levels 3, 4, or 5. However maintenance level 1 and 2 roads may be used for some specific analysis or to give the reader the complete picture of the Forest Road System. Resource issues, budget concerns, and other local management problems were addressed in this analysis to determine a variety of possible opportunities to better maintain and improve the road system on the forest.

Responsible Official:

/s/ Alice Carlton
WILLIAM E. DAMON, JR.
Forest Supervisor

January 13, 2003
Date

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, responsive to public needs, affordable and efficiently managed.

On January 12, 2001, the Forest Service adopted a final policy governing the National Forest transportation system. The intended effects of this final policy, and accompanying amended 7700 Manual direction, are to ensure that decisions to construct, reconstruct, or

decommission roads will be better informed by using a roads analysis, as described in Report FS-643. Roads analysis may be completed at a variety of different scales, but generally begins with a broad forest-scale analysis to provide a context for future analyses.

Objectives of the Forest Scale Analysis

- Inventory and map all classified roads on the George Washington National Forest and display how these roads are planned to be managed.
- Identify road system opportunities and needs within the context of existing land and resource management direction for the George Washington National Forest.
- Develop guidelines (or criteria) for addressing road management issues and priorities related to construction, reconstruction, maintenance, and decommissioning.
- Identify significant social and environmental issues, concerns, and opportunities to be addressed in project-level decisions.
- Document coordination efforts with other government agencies and jurisdictions.

Information Needs

This analysis will use existing sources of information. No new information will be collected.

This Report

The product of a forest-scale roads analysis is a report with accompanying maps(s). This report, worked on by the following Forest employees, Nancy Ross, Forest Planner; Dick Patton, Forest Hydrologist; Tom Bailey, soil scientist; Dawn Kirk, Fisheries Biologist; Dave Plunkett, Forest NEPA Coordinator; and various engineering personnel including Shamina Dillard, Tom Poulin, Terry Smith, and Wayne Johnson documents the roads analysis procedure used for the George Washington National Forest. It contains the following Chapters:

1. Introduction;
2. Description of the existing transportation system;
3. Current Road Management Objectives;
4. Summary of current Forest Plan direction;
5. Identification of significant social and environmental issues, concerns, and opportunities to be addressed in project-level decisions;
6. Road system opportunities and needs within the context of existing management direction;
7. Criteria for addressing road management issues and priorities;
8. An inventory and map of all classified roads including how the Forest intends to manage these roads. The inventory and maps are located in the Supervisor's Office in Roanoke, Va.

CHAPTER 2: EXISTING TRANSPORTATION SYSTEM OVERVIEW (STEP 1)

The transportation system on the George Washington National Forest serves a variety of resource management and access needs. Most roads on the Forest were originally constructed for access purposes including recreational and timber harvesting needs. Many of these roads were built by the CCCs. Over the past 90+ years, an extensive road network has been developed and continues to serve the recreation, commercial, fire suppression and administrative purposes and provide access to private lands.

This analysis area contains 155 Federally designated Forest Highways under the Public Lands Highways Program of the Transportation Equity Act for the 21st Century (TEA21). The total number of Forest Highway miles designated on the Forest is 808.2 miles. These routes are State roads qualifying for Federal funding for improvement or enhancement. They provide access to and within the National Forest. See Appendix A for a list of these roads. Forest Highway funding can be used for planning, design, and reconstruction of these designated routes. Other work can include parking areas, such as at Crabtree Falls, interpretive signing, acquisitions of scenic easements or sites, sanitary and water facilities.

There are 1799 miles of inventoried, classified National Forest System (NFS) roads within the George Washington National Forest, including collector, and local roads (See Table 1). Of this total, 568 are Maintenance Level (ML) 3, 4, and 5 roads. **(The mileage figures in this report will change as updates are made to the transportation system and only reflect current status of the road system as of 12/31/02.)** Collector roads (about 18% of the total) are typically two-lane gravel roads connected to state roads or public highways. Local roads (about 82% of the total) connect forest facilities or activities (e.g., campgrounds, trailheads, and logging sites) with collector roads, state roads, or public highways. Except for those serving recreation sites, most local roads are built for high-clearance vehicles (e.g., pickups and trucks). To protect the public and/or the environment and to reduce maintenance costs, local roads may be closed to traffic or obliterated (decommissioned) after the principal use is completed. Decommissioned roads are tracked in the road inventory as indicated in Table 2. In addition, timber purchasers may build temporary roads to meet their needs for harvesting and removing the timber.

Table 1 - GWNF Roads by Functional Class*

FUNCTIONAL CLASS	Miles	Percent of Miles
C - Collector	332	18.45%
L - Local	1466	81.48%
Grand Total	1799	100.00%

* Figures are rounded as appropriate throughout this report.

Table 2 - Status of GWNF Roads as of Dec. 31, 2002*

ROUTE STATUS	Miles
Decommissioned	19
Existing	1799
Planned for Decommissioning	0
Grand Total	1818

Table 3 displays how the roads on the George Washington National Forest are currently maintained and shows the relationship between level of maintenance and route status. This “operational maintenance” is divided into 5 levels:

Table 3 - Operational Maintenance Level of GWNF Roads*

OPERATIONAL MAINTENANCE LEVEL	Miles	Percent of Miles
1 - Basic Custodial Care (Closed)	242	13.45%
2 - High Clearance Vehicles	989	54.97%
3 - Suitable for Passenger Cars	450	25.01%
4 - Moderate Degree of User Comfort	110	6.11%
5 - High Degree of User Comfort	8	0.45%
Grand Total	1799	100.00%

Level 1 is assigned to intermittent service roads during the time they are closed to vehicular traffic. The closure period must exceed 1 year. Basic custodial maintenance is performed to keep damage to adjacent resources to an acceptable level and to perpetuate the road to facilitate future management activities. Emphasis is normally given to maintaining drainage facilities and runoff patterns. Planned road deterioration may occur at this level. Appropriate traffic management strategies are "prohibit" and "eliminate." Roads receiving Level 1 maintenance may be of any type, class, or construction standard, and may be managed at any other maintenance level during the time they are open for traffic. However, while being maintained at level 1, they are closed to vehicular traffic, but may be open and suitable for non-motorized uses.

Following construction, and when not needed to accomplish specific objectives, new system roads are often maintained at this level in order to reduce open road densities for wildlife habitat security. Some of these roads may be considered for decommissioning in the future.

Level 2 is assigned to roads open for use by high clearance vehicles. Passenger car traffic is not a consideration. Traffic is normally minor, usually consisting of one or a combination of administrative, permitted, dispersed

recreation, or other specialized uses. Log haul may occur at this level. Appropriate traffic management strategies are either to (1) discourage or prohibit passenger cars or (2) accept or discourage high clearance vehicles.

The majority of roads on the George Washington National Forest are maintained at this level. Many of these roads are closed to the public year round and open for administrative use only. Some of these roads may be considered for decommissioning in the future.

Level 3 is assigned to roads which are open and maintained for travel by a prudent driver in a standard passenger car. User comfort and convenience are not considered priorities. Roads in this maintenance level are typically low speed, single lane with turnouts and spot surfacing. Some roads may be fully surfaced with either native or processed material. Appropriate traffic management strategies are either "encourage" or "accept." "Discourage" or "prohibit" strategies may be employed for certain classes of vehicles or users. These are the primary access roads across the forest, used by the majority of forest visitors. These roads would rarely be considered for decommissioning.

Level 4 is assigned to roads that provide a moderate degree of user comfort and convenience at moderate travel speeds. Most roads are double lane and aggregate surfaced. However, some roads may be single lane. Some roads may be paved and/or dust abated. The most appropriate traffic management strategy is "encourage." However, the "prohibit" strategy may apply to specific classes of vehicles or users at certain times. This level of maintenance accounts for only 6% of the forest's road system. These roads are often used for public access not related to the national forest and would not be considered for decommissioning.

Level 5 is assigned to roads that provide a high degree of user comfort and convenience. These roads are normally double lane, paved facilities. Some may be aggregate surfaced and dust abated. The appropriate traffic management strategy is "encourage." Level 5 roads account for less than ½ % of forest roads. They are usually associated with highly developed recreation areas and would not be considered for decommissioning.

Table 4 displays how the George Washington National Forest is planning to maintain the road system. This “objective maintenance” is divided into the same categories as described above.

Table 4 – Objective Maintenance Level of GWNF Roads*

OBJECTIVE MAINTENANCE LEVEL	Miles	Percent of Miles
1 - Basic Custodial Care (Closed)	227	12.60%
2 - High Clearance Vehicles	967	53.76%
3 - Suitable for Passenger Cars	443	24.61%
4 - Moderate Degree of User Comfort	154	8.58%
5 - High Degree of User Comfort	8	0.45%
Grand Total	1799	100.00%

Closely related to operational maintenance level are the types of surfacing found on forest roads as can be seen in Table 5. All Level 5 roads have a paved or bituminous surface, while the majority of Level 2 roads are surfaced with native materials. Level 3 roads have a variety of surfaces, but are predominately gravel roads. Table 6 shows the relationship between road surface and the level of maintenance.

Table 5 - Types of Surface on GWNF Roads*

SURFACE TYPE	Miles
AC - Asphalt	19
AGG - Crushed Aggregate or Gravel	488
BIT - Bituminous Treatment	21
CON - Concrete	.2
IMP - Improved Native Material	54
NAT - Native Material	1212
P - Paved	5
Grand Total	1799

Table 6 - Surface Type by Operational Maintenance Level*

SURFACE TYPE	OPERATIONAL MAINTENANCE LEVEL	Percent of Miles
AC – Asphalt	3 - Suitable for Passenger Cars	0.03%
	4 - Moderate Degree of User Comfort	0.72%
	5 - High Degree of User Comfort	0.3%
	AC – Asphalt Total	1.05%
AGG - Crushed Aggregate or Gravel	1 - Basic Custodial Care (Closed)	0.19%
	2 - High Clearance Vehicles	5.60%
	3 - Suitable for Passenger Cars	16.94%
	4 - Moderate Degree of User Comfort	4.42%
AGG - Crushed Aggregate or Gravel Total	27.15%	
BIT - Bituminous Treatment	3 - Suitable for Passenger Cars	0.29%
	4 - Moderate Degree of User Comfort	0.71%
	5 - High Degree of User Comfort	0.15%
BIT - Bituminous Treatment Total	1.14%	
PCC – Portland Cement Concrete	3 - Suitable for Passenger Cars	0.02%
	4 - Moderate Degree of User Comfort	0.01%
PCC – Portland Cement Concrete Total	0.03%	
IMP - Improved Native Material	1 - Basic Custodial Care (Closed)	0.36%
	2 - High Clearance Vehicles	2.06%
	3 - Suitable for Passenger Cars	0.60%
IMP - Improved Native Material Total	3.02%	
NAT - Native Material	1 - Basic Custodial Care (Closed)	12.91%
	2 - High Clearance Vehicles	47.30%
	3 - Suitable for Passenger Cars	7.14%
NAT - Native Material Total	67.35%	
P - Paved	3 - Suitable for Passenger Cars	0.02%
	4 - Moderate Degree of User Comfort	0.25%
P - Paved Total	0.27%	

SURFACE TYPE	OPERATIONAL MAINTENANCE LEVEL	Percent of Miles
Grand Total		100.00%

Another way to consider the George Washington National Forest road system is by Traffic Service Level. Traffic Service Level (TSL) describes a road's significant traffic characteristics: such as speed, travel time, traffic interruptions, freedom to maneuver, safety, driver comfort, convenience. These characteristics, in turn, influence the road's design, operating conditions, and maintenance. Traffic Service Levels are identified during transportation planning.

Traffic Service Levels reflect a number of factors including: number of lanes, turnout spacing, lane widths, type of driving surface, sight distances, design speed, clearance, horizontal and vertical alignment, curve widening, and turnarounds. Table 7 displays the mix of Traffic Service Levels across the George Washington National Forest, while Table 8 shows the relationship of TSL to functional class, and Table 9 shows the relationship of TSL to operational maintenance level.

Table 7 - Traffic Service Level for GWNF Roads*

TRAFFIC SERVICE LEVEL	Miles
A - Free Flowing Mixed Traffic	8
B - Congested During Heavy Traffic	154
C - Flow Interrupted - Use Limited	605
D - Slow Flow or May Be Blocked	1031
Grand Total	1799

Table 8 - Traffic Service Level by Functional Class*

FUNCTIONAL CLASS	TRAFFIC SERVICE LEVEL	Percent of Miles
C - Collector	A - Free Flowing Mixed Traffic	0.26%
	B - Congested During Heavy Traffic	6.01%
	C - Flow Interrupted - Use Limited	11.20%
	D - Slow Flow or May Be Blocked	1.02%
C - Collector Total		18.49%
L - Local	A - Free Flowing Mixed Traffic	0.19%
	B - Congested During Heavy Traffic	2.57%
	C - Flow Interrupted - Use Limited	22.45%
	D - Slow Flow or May Be Blocked	56.30%
L - Local Total		81.51%
Grand Total		100.00%

Table 9 - Traffic Service Level by Operational Maintenance Level*

TRAFFIC SERVICE LEVEL	OPERATIONAL MAINTENANCE LEVEL	Miles
A - Free Flowing Mixed Traffic		
	5 - High Degree of User Comfort	8
A - Free Flowing Mixed Traffic Total		8
B - Congested During Heavy Traffic		
	3 - Suitable for Passenger Cars	45
	4 - Moderate Degree of User Comfort	109
B - Congested During Heavy Traffic Total		154
C - Flow Interrupted - Use Limited		
	1 - Basic Custodial Care (Closed)	8
	2 - High Clearance Vehicles	204
	3 - Suitable for Passenger Cars	393
	4 - Moderate Degree of User Comfort	1
	5 - High Degree of User Comfort	0.04
C - Flow Interrupted - Use Limited Total		605
D - Slow Flow or May Be Blocked		
	1 - Basic Custodial Care (Closed)	235
	2 - High Clearance Vehicles	785
	3 - Suitable for Passenger Cars	12
D - Slow Flow or May Be Blocked Total		1031
Grand Total		1799

In addition to the Forest Highways and National Forest System roads there are other state roads and private roads that provide access to the George Washington National Forests for a variety of users. However no attempt was made to quantify this number in this analysis.

CHAPTER 3: ROAD MANAGEMENT OBJECTIVES

Road management objectives (RMO), such as purpose of the road, design and maintenance criteria, and road standards have been established for each road on the National Forest Road System. Following is a description of each of these objectives, which determines how we would like to manage the road in the long term. See the Appendix B for a list of roads by each Road Management Objective. Figure 1 provides the distribution of roads by Road Maintenance Objective.

ROAD MANAGEMENT OBJECTIVE - A

Intended Purpose Of Road

This road exists to provide access to the National Forest. This road is open to public traffic and a mix of users can be expected at any given time. Commercial use is allowed. This road may or may not be located adjacent to a perennial stream or may or may not be located on excessively erosive soils.

The George Washington National Forest manages 8.1 miles of road with RMO A.

Table 10 – Road Management Objective A Standards

Width	18-20 feet plus 2-4 feet of shoulder
Surfacing	Asphalt surfaced
ADT	>100
Design Speed	20 MPH
Highway Safety Act	Does Apply
Estimated Traffic Mix	Timber – 5% Recreation – 75% Administrative 20%

Design, Operation, And Maintenance Criteria

This Road Management Objective (RMO) depicts our objectives in managing roads that reflect:

- Traffic Service Level "A"
- Maintenance Level 5
- Functional Class: Collector or Arterial

This road is expected to be open to the public. Extreme weather or soil conditions may make it necessary to temporarily close this road.

Design, Operation, And Maintenance Standards

1. The road has ditches and culverts.
2. The roadside is mowed at least annually and the banks are brushed using an articulating arm bush hog to insure good sight distance as needed.
3. This road is subject to the Highway Safety Act and is signed to meet the Manual of Uniform Traffic Control Devices (MUTCD) standards. Special signing may be required for commercial and/or timber haul.
4. The pavement is patched as potholes develop to remove the hazard, to insure the investment is protected, and to assure user comfort. Ditches are cleaned using an excavator and the material loaded and hauled away for disposal. Culvert inlets are cleaned annually.
5. Safety considerations are addressed in the overall maintenance plans and hazards are dealt with as they are discovered.
6. Environmental Constraints and Physical Environmental Factors are typical for these terrain types and locations and include various soil types and the interrelationship of the road with stream courses.

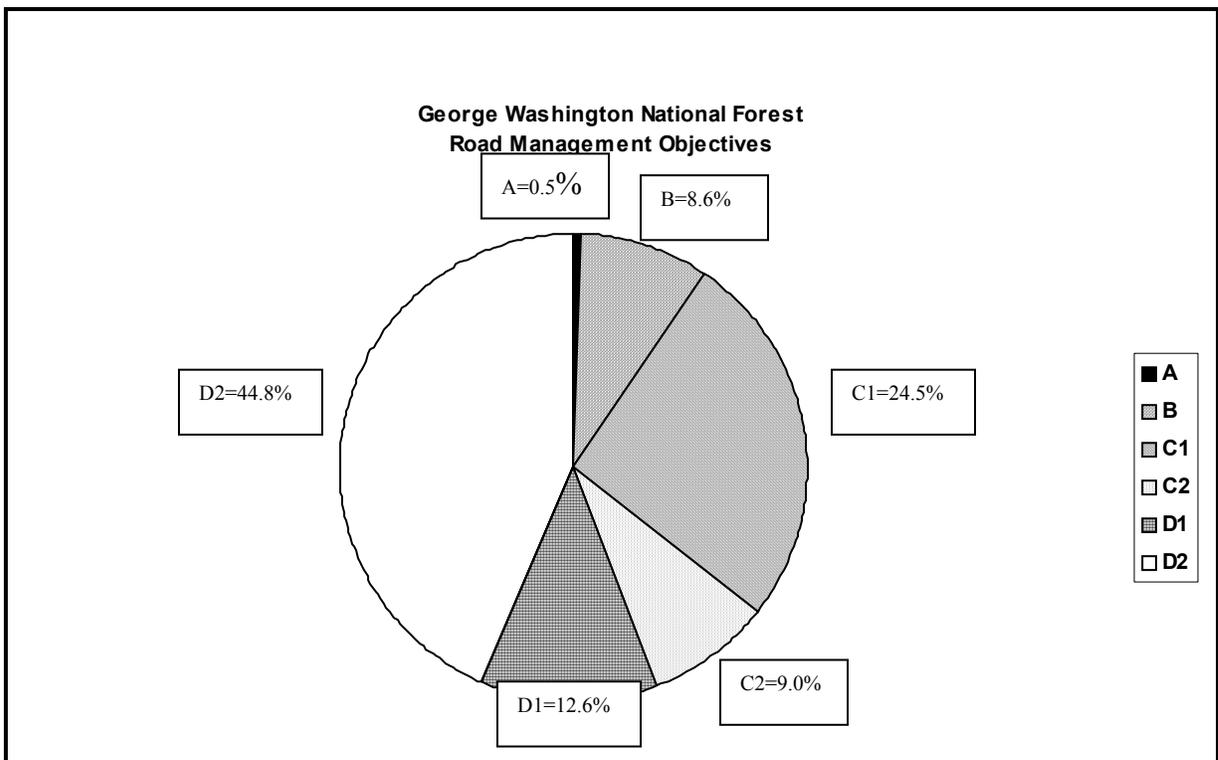


Figure 1. Distribution of Forest Roads by RMO.

ROAD MANAGEMENT OBJECTIVE - B

Intended Purpose Of Road

This road exists to provide access to the National Forest and its administrative sites. This road is open to public traffic and a mix of users can be expected at any given time. Commercial hauling may be allowed. This road may or may not be located adjacent to a perennial streams or may or may not be located on excessively erosive soils.

The George Washington National Forest manages 154.3 miles of road with RMO B.

Table 11 - Road Management Objective B Standards

Width	13-18 feet plus 2 feet of shoulder
Surfacing	Fully surfaced with graded aggregate or asphalt
ADT	20-100
Design Speed	10-15 MPH
Highway Safety Act	Does Apply
Estimated Traffic Mix	Timber – 20% Recreation – 60% Administrative 20%

Design, Operation, And Maintenance Criteria

This Road Management Objective (RMO) depicts our objectives in managing roads that reflect:

- Traffic Service Level "B"
- Maintenance Levels 3 and 4
- Functional Class: Local or Collector

This road is expected to be open to the public except for the following reasons:

1. Roads accessing recreation areas may be closed when the recreation area is closed.
2. Roads accessing administrative sites are only open to the general public during normal business hours Monday through Friday.
3. Extreme weather or soil conditions may make it necessary to temporarily close this road.

Design, Operation, And Maintenance Standards

1. The road has ditches and culverts.
2. Aggregate surfaced roads are bladed 2-3 times each year. On paved roads the pavement is patched as potholes develop to remove the hazard, to insure the investment is protected, and to assure user comfort. Ditches are either pulled annually or cleaned using an excavator and the material loaded and hauled away for disposal. Culvert inlets are cleaned annually.
3. The roadside is mowed at least annually and the roadside banks are brushed as needed using an articulating arm bush hog to insure good sight distance.
4. This road is subject to the Highway Safety Act and is signed to meet the MUTCD standards. Special signing may be required for commercial and/or timber haul.
5. Safety considerations are addressed in the overall maintenance plans and hazards are dealt with as they are discovered.
6. Environmental Constraints and Physical Environmental Factors are typical for these terrain types and locations and include various soil types and the interrelationship of the road with stream courses.

ROAD MANAGEMENT OBJECTIVE – C1

Intended Purpose Of Road

This road exists to provide access for various resource activities and access to administrative sites. This road is open to public traffic and a mix of users can be expected at any given time. Commercial hauling may be allowed. This road may or may not be located adjacent to a perennial stream or may or may not be located on excessively erosive soils.

The George Washington National Forest manages 441.4 miles of road with RMO C1.

Table 12 - Road Management Objective C1 Standards

Width	13 - 18 feet plus curve widening
Turnouts	May not all be intervisible
Surfacing	Fully surfaced with graded aggregate
ADT	5-20
Design Speed	5-10 MPH
Highway Safety Act	Does Apply
Estimated Traffic Mix	Timber – 20% Recreation – 60% Administrative 20%

Design, Operation, And Maintenance Criteria

This Road Management Objective (RMO) depicts our objectives in managing roads that reflect:

- Traffic Service Level "C"
- Maintenance Levels 3 and 4
- Functional Class: Local or Collector

This road is managed as open to the public, but may be closed for periods of time for the following reasons:

1. Roads accessing recreation areas may be closed when the recreation area is closed.
2. Roads accessing administrative sites are only open to the general public during normal business hours Monday through Friday.
3. Extreme weather or soil conditions may make it necessary to temporarily close this road.

Design, Operation, And Maintenance Standards

1. It is normally fully surfaced, but may have sections of spot surfacing.
2. The road has ditches and culverts, but occasionally may have sections that are outsloped and dipped.
3. The road is bladed 1-2 times annually to insure drainage patterns are maintained and the investment is protected. Ditches are pulled and culvert inlets cleaned annually.
4. This road is brushed using an articulating arm bush hog to insure good sight distance every two years or more often as needed.
5. This road is subject to the Highway Safety Act and is signed to meet the Manual of Uniform Traffic Control Devices (MUTCD) standards. Special signage may be required for commercial and/or timber haul.
6. Safety considerations are addressed in the overall maintenance plans and hazards are dealt with as they are discovered.
7. Environmental Constraints and Physical Environmental Factors are typical for these terrain types and locations and include various soil types and the interrelationship of the road with stream courses.

ROAD MANAGEMENT OBJECTIVE – C2

Intended Purpose Of Road

This road exists to provide access to the National Forest via High Clearance Vehicles (HCVs). It is generally open to the public but may be seasonally closed for resource protection. This road may or may not be located adjacent to perennial stream(s) or may or may not be located on erosive soils.

The George Washington National Forest manages 161.3 miles of road with RMO C2.

Table 13 - Road Management Objective C2 Standards

Width	13 feet plus curve widening
Turnouts	Not intervisible
Surfacing	Normally native but may be spot surfaced
ADT	<1
Design Speed	0-5 MPH
Highway Safety Act	Does Not Apply
Estimated Traffic Mix	Timber – 0% Recreation – 99% Administrative 1%

Design, Operation, And Maintenance Criteria

This Road Management Objective (RMO) depicts our objectives in managing our lowest standard road. They reflect:

- Traffic Service Level "C"
- Maintenance Level 2
- Functional Class: Local

Design, Operation, And Maintenance Standards

1. Road is normally outsloped with dips with very few or no ditches existing. Culverts are normally only used at stream crossings. These are inspected annually to assure debris is not blocking or limiting flow.
2. Silt traps are employed to assure protection of water quality.
3. The road is maintained by use of a crawler tractor and/or backhoe. Maintenance is done with recreation funds and/or by user groups.
4. The travelway is rough and irregular with exposed rock and water filled holes occurring often.
5. The travelway is signed and may have entrance features to alert the public of the nature of the road conditions they will encounter.
6. Safety considerations are minimal and those expected by HCV users.

ROAD MANAGEMENT OBJECTIVE - D1

(Closed To Vehicular Traffic By Physical Barrier)

Intended Purpose Of Road

This road exists to provide access for various resource activities. It currently has no on-going intense management activities or uses and its entrance is physically blocked with large boulders and/or a trench/berm. This road is being allowed to revegetate with no current plans to remove the trees growing in the roadbed. This road is closed to vehicular traffic except for extreme circumstances such as assess for forest fire or emergency evacuation. This road may or may not be located adjacent to perennial stream(s) or may or may not be located on erosive soils.

The George Washington National Forest manages 226.6 miles of road with RMO D1.

Table 14 - Road Management Objective D1 Standards

Width	13 feet plus curve widening
Turnouts	Not intervisible
Surfacing	May once have been spot surfaced, currently grassed
ADT	0
Design Speed	5 MPH
Highway Safety Act	Does Not Apply
Estimated Traffic Mix	Timber – 0% Recreation – 0% Administrative 0%

Design, Operation, And Maintenance Criteria

This Road Management Objective (RMO) depicts our objectives in managing our lowest standard road. They reflect:

- Traffic Service Level "D"
- Maintenance Level 1
- Functional Class: Local

When resource activities require the use of this road, its RMO will change to D2 while the activity is occurring. Some reconstruction is expected to provide resource access such as removing trees in the roadbed, opening drainages, removing slide material, and adding surfacing.

Design, Operation, And Maintenance Standards

1. The road is physically blocked at its entrance using large rocks and/or excavated trench(es) and berms.
2. Even though this road is physically blocked, the roadbed was dressed (bladed) and the drainage patterns and grass cover established prior to closure.
3. It typically has remnants of some spot surfacing covered with a mix of native and planted grasses and often has trees growing in the roadbed.
4. Road is normally outsloped with dips with very few or no ditches existing. Culverts are normally only used at stream crossings. These are inspected annually to assure debris is not blocking or limiting flow.
5. Small slides that do not affect water quality and only have minimal effect on drainage patterns are acceptable and are allowed to remain in place. This may make the road impassable, but is not doing any damage to adjacent resources.
6. Safety considerations are minimal and include what is necessary to protect Forest Service personnel and/or contractors while conducting condition surveys and/or maintenance activities.
7. Environmental Constraints and Physical Environmental Factors are typical for these terrain types and locations and include various soils types and the interrelationship of the road with stream courses.

ROAD MANAGEMENT OBJECTIVE - D2

(Closed To Vehicular Traffic By Gate)

Intended Purpose Of Road

This road exists to provide access for various resource activities. It currently has on-going intense management activities or use. This road is normally closed to vehicular use to the public, by a gate or similar device and traffic is limited to administrative needs and use by contractor/purchaser(s). Note: This road may be opened to allow seasonal use by hunters, wood gatherers, etc. This road may or may not be located adjacent to perennial stream(s) or may or may not be located on erosive soils.

The George Washington National Forest manages 807.3 miles of road with RMO D2.

Table 15 - Road Management Objective D2 Standards

Width	13 feet plus curve widening
Turnouts	Not intervisible
Surfacing	Spot surfaced

ADT	0-5
Design Speed	5 MPH
Highway Safety Act	Does Not Apply
Estimated Traffic Mix	Timber – 70% Recreation – 15% Administrative 15%

Design, Operation, And Maintenance Criteria

This Road Management Objective (RMO) depicts our objectives in managing one of our lowest standard road. They reflect:

- Traffic Service Level "D"
- Maintenance Level 2
- Functional Class: Local

When resource activities are complete, its RMO will change to D1 unless seasonal use is allowed. Some closure activities may be accomplished such as seeding the roadbed prior to closure.

Design, Operation, And Maintenance Standards

1. Road is normally outsloped with dips with very few or no ditches existing. Culverts are normally only used at stream crossings. These are inspected annually to assure debris is not blocking or limiting flow.
2. Safety considerations are minimal and include what is necessary to protect Forest Service personnel and/or contractors while doing resource activities, conducting condition surveys and/or maintenance activities.
3. Environmental Constraints and Physical Environmental Factors are typical for these terrain types and locations and include various soils types and the interrelationship of the road with stream courses.

CHAPTER 4: CURRENT FOREST PLAN DIRECTION (STEP 2)

The current George Washington Land and Resource Management Plan was signed in 1993. This Chapter summarizes those standards and desired future condition statements that are related to roads and access. The following Chapter summarizes issues from the Plan related to roads and access.

Forest-wide Desired Future for Roads and Travel Management

Roads are designed to the lowest standard necessary to meet management objectives. The indicator of this desired future is roads built or reconstructed in Management Areas 7, 11, 13, 14, 15, 16, and 17. Monitoring answers whether road construction and reconstruction coefficients, based on acres harvested, used in FORPLAN are accurate.

A road system will be maintained that serves the public, meets management needs, and protects resources in a cost-effective manner. Monitoring answers:

- Have existing closed roads been opened to public use?
- Have existing roads currently open to public use been closed?
- Is the existing compliment of open roads adequate to meet the experience desired by the motorized recreation user on the forest?

Selected Forest-wide Standards

160. Low standard roads and travelways may be used to augment horse, mountain bike, Off Highway Vehicles (OHV) and general hiking demands.
165. Motorized use of the trail system is permissible for administrative purposes, emergencies, at road crossings, when the trail is specifically designated for motorized use, or when the trail is on an existing open public road.
174. When feasible to do so, and consistent with other management activities, trailhead parking is provided where roads open to public vehicular travel intersect system trails. Trail/road intersections are adequately signed.
178. OHV/ATV stream crossings are prohibited except at designated crossings where bridged or where approaches are graveled a minimum of 50 feet from edge of stream.
179. OHV use is available on roads open for public use and on routes specifically designated as open to OHV use. OHV use on open public roads is limited to vehicles and operators that are in compliance with motor vehicle laws of the state. For additional direction on OHV use, see Management Area 11 standards.
180. Right-of-way grants for arterial/collector roads are, to the extent practicable, confined to existing designated corridors.
181. The Forest Supervisor may establish additional designated corridors on a case-by-case basis based on site-specific analysis and disclosure.

182. Management requirements for permittee access roads, where roads are included in the authorization, are specified in the designated use permit.
183. Maintenance, reconstruction, and relocation of an existing road are allowed to reduce environmental damage and to improve user safety.
184. Construction of parking areas along heavily traveled roads is emphasized to improve safety and minimize environmental impacts.
185. Permanent vegetation, preferably native to the mid-Appalachian area, is established and maintained on roadbeds of intermittent service roads when they are closed. Cut and fill slopes of all roads have permanent vegetation established.
186. Closed system roads are managed on a case-by-case basis for linear wildlife strips, foot travel, horseback, mountain bike or other non-motorized use.
187. Closed roads are revegetated with non-invasive vegetation, preferably native to the mid-Appalachian area for erosion control and wildlife habitat. Fescue is not used unless it is critical for erosion control.
188. Roads are designed and constructed to the lowest standard necessary to meet management area objectives.
218. Roads are located outside riparian areas unless no alternative exists. Stream-crossings are allowed at designated crossings only.
219. Fords associated with new road construction are not used in any trout streams without site-specific environmental analysis. When fords are used, at least 50 feet of graveled approaches are provided. Erosion stone or larger rock is used to increase the road bearing strength at the water/land interface.
220. To prevent erosion, fill around road crossings and culverts is stabilized by riprap, plantings, mats, etc. Revegetation measures are implemented on fill slopes over culverts as soon as possible after completion. Artificial sediment trap buffers are created, by installing barriers, fences, etc. as required.
221. Construction of permanent crossings is completed on all streams as soon as possible after work has started on the crossing. Portions of roads on either side of stream crossings that would potentially contribute sediment to the stream are graveled. Special precautions are taken on Hayesville soils.
222. Generally, permanent structures or temporary stringer bridges on permanent abutments are provided when crossing wild trout streams.
227. Filter strips are left between areas of severe soil disturbance (roads, landings, and bladed skid trails) and all lakes, wetlands and perennial streams (Table 16).
231. Filter strips are left between areas of soil disturbance (roads, landings, and bladed skid trails) and all intermittent streams (Table 17).

Table 16. Streamside Management Zones

Widths (in feet) required from each bank or edge of lakes, wetlands, and perennial streams] for Vehicle Exclusion Zones (VZ), Filter Strips (FS) and Shade Strips (SS).

Slope	0-10%	11-20%	21-45%	45%+
VZ	66	66	66	66
FS	66	66	100	200
SS	66	66	66	66

Table 17. Streamside Management Zones

Widths (in feet) required from each bank of intermittent streams] for Vehicle Exclusion Zones (VZ), Filter Strips (FS) and Shade Strips (SS).

Slope	0-10%	11-20%	21-45%	45%+
VZ	33	33	33	33
FS	33	33	50	100
SS	33	33	33	33

- 288. Temporary roads and skid trails are revegetated after silvicultural activities are completed.
- 294. Closed roads and wildlife habitat improvements are revegetated with non-invasive vegetation (preferably native to the mid-Appalachian area) for erosion control and wildlife habitat. Fescue is not used unless as a last resort in erosion control.
- 301. The road density goals for wildlife management areas are calculated as follows:
 - a. Calculate the total area for the individual management area in question.
 - b. Divide the total acres by the number of miles of open Forest Service system roads that penetrate the area. Boundary roads are not used in the calculation.
 - c. Open roads are defined as any system road that is open for the general public to use anytime during the year. Roads temporarily opened to meet resource objectives, such as fuel wood gathering after a timber sale, are not defined as roads open to the general public.

Selected Standards and Desired Conditions by Management Area

MANAGEMENT AREA 4

Standards for SIAs-Biologic:

- 4-9. Motorized public travel is restricted to open system roads. New road construction is normally prohibited.

Standards for SIAs-Geologic:

- 4-37. No road construction is permitted in this management area.

Standards for Shenandoah Crest:

- 4-51. Motorized public travel is restricted to current open system roads and designated routes within the Rocky Run ATV/OHV area.
- 4-52. New road construction is normally prohibited.

Standards for RNAs:

- 4-73. Roads that do not contribute to the objective of preserving the natural ecosystem and not needed for administrative purposes are closed. Normally, natural revegetation will obliterate closed roads. Other measures, such as seeding or planting, may be used if conditions warrant.
- 4-74. Road construction is not normally permitted inside the area.

MANAGEMENT AREA 5

Standards for Massanutten Mountain Sensitive Viewshed:

- 5-10. Any access roads through this management area are designed and constructed to meet the visual quality objective of retention.
- 5-11. Motorized public access is restricted to open system roads.

MANAGEMENT AREA 6

Standards for The Appalachian Trail:

- 6-22. Access by vehicle to trail shelters is limited to access for administrative purposes only. Open roads within 1/2 mile of shelters are minimized.
- 6-26. No motorized travel is permitted except where the AT is on an open road or where an open road crosses the AT. Vehicular use is otherwise limited to emergency purposes.
- 6-33. Parallel and crossing roads are not compatible with trail values. Hold to a minimum the number of system roads within 1/2 mile of the AT.
- 6-34. All roads crossing or paralleling the AT within 1/2 mile are analyzed for their potential undesirable impacts on the hiker and documented as appropriate. Road locations are allowed that are the only feasible and prudent alternative and after all impacts have been minimized. (See FSM 2353.4-3(e), R-8 Supplement No. 42, 9/83).

MANAGEMENT AREA 7

Standards for Scenic Corridors:

- 7-10. Access roads through this management area are designed and constructed to minimize visual impacts and meet the retention VQO.

Standards for THE HIGHLANDS SCENIC TOUR:

- 7-18. Other than the Tour route itself, only Traffic Service Level (TSL) D roads may be constructed, which are closed to public use.

MANAGEMENT AREA 9

Desired Future for Remote Highlands

Recreation: Opportunities are provided for primitive, dispersed recreation experiences that emphasize solitude and challenge. Indicated by semi-primitive recreation opportunities requiring primarily unmodified environment with a high degree of challenge and risk while traveling cross-country or on trails is provided. Monitoring answers whether opportunities for primitive recreation and solitude are being provided.

Standards for Remote Highlands:

- 9-9. No new road construction is permitted except: (1) to access approved mineral activities; (2) where the new road is the only prudent alternative to serve resource needs in adjacent management areas and it will minimally impact this management area; (3) to relocate existing roads; (4) to provide access to trailheads or (5) to provide access to private land if no other route is feasible. Reconstruction and relocation are limited to protection of resource values. Existing system roads, or those routes to access wildlife openings may continue to be used.

MANAGEMENT AREA 10

Standards for Scenic Rivers & Recreational Rivers:

- 10-7. Proposed facilities (roads, campgrounds, buildings) are located outside floodplain boundaries for the 100-year flood (Executive Order 11988), unless no practical alternative location exists. Where present and future facilities cannot be located out of the 100-year floodplain, structural mitigation (deflection structures, riprap, etc.) is used.

- 10-12. OHV use is allowed only on open system roads.

Desired Future for SCENIC RIVERS:

Access to scenic river segments is provided at select locations.

Standards for SCENIC RIVERS:

- 10-27. Access for recreation development and wildlife and fisheries habitat development is allowed in selected locations within the river corridor.

Desired Future for RECREATION RIVERS:

The river is readily accessible by road or railroad.

Standards for RECREATION RIVERS:

- 10-34. Access for recreation use is provided to accommodate a large number of users.
- 10-38. Newly constructed roads can parallel the river on both sides and may cross at designated locations.
- 10-39. Long-term impacts of road construction on soil/water resources are reduced and the road investment is protected.

MANAGEMENT AREA 11

Desired Future for All-Terrain/ Off-Highway Vehicle Routes:

Identified routes provide a variety of motorized recreation opportunities in this management area. ATV and motorcycle users enjoy designated routes within four areas on the Forest. Larger OHVs such as four-wheel drive vehicles use existing featured roads, which provide challenge and are suitable for high clearance vehicles. In addition to routes within this management area, there are a number of roads throughout the Forest available for use by larger, licensed four-wheel drive vehicles. Physical impacts are confined to the immediate trail or road profile and do not spread beyond.

Maintenance is performed to protect the routes and minimize effects to soil and water resources. Routes may be closed during inclement weather. New routes are not developed until there is a demonstrated interest and a developed partnership with user groups.

The management emphasis of OHV recreation occurs only on designated routes. Other recreation opportunities such as hunting, fishing, and berry picking occur within the management area adjacent to the designated route corridors. Small, created openings in the forest canopy may be apparent and visitors may see evidence of resource management activities. However, treatments blend well with the natural landscape and vegetation diversity is enhanced over time. Roads used or constructed to facilitate vegetation treatment are managed to provide non-conflicting access for both timber harvest and motorized recreation uses.

Recreationists enjoy traveling routes through a variety of landscapes. Along many of the routes the views are restricted to the immediate foreground by vegetation and natural landforms, but occasional openings reveal middle-ground or distant background vistas.

Within the four ATV/OHV areas routes vary from approximately 10 to 25 miles. Trail difficulty levels vary to accommodate a variety of desires and abilities. Users are adequately advised of trail difficulty levels and hazards. Constructed trails blend well with the natural environment. Though physical impacts from OHV use are confined to the immediate road or trail environment, sounds of motorized vehicles may be audible in other sections of the management area. The ATV/OHV areas are served by well designed, located, and maintained trailheads.

Off-route and other unauthorized OHV use is not allowed. When such use occurs, the route is closed permanently or until the situation is corrected.

Indicators of Desired Future for All-Terrain/ Off-Highway Vehicle Routes

Maintenance is performed to protect the routes and minimize effects to soil and water resources. Monitoring answers whether OHV routes are being maintained in a manner that minimizes the effects of OHV use.

Existing featured roads provide challenge and are suitable for high clearance vehicles. Monitoring answers whether identified OHV roads are meeting the needs of users.

ATV routes are constructed so as to provide an interesting and enjoyable ride for ATV and motorcycle users. Monitoring answers whether the constructed routes provide an interesting and challenging ride.

Standards for All-Terrain/ Off-Highway Vehicle Routes:

- 11-5. Lands in this management area are managed under the roaded natural recreation opportunity class. See the Transportation Network and Recreational Opportunities Map accompanying the Revised Plan.
- 11-6. Trail and road systems are constructed that include both single-track, narrow trails for the motorcycle and ATV user as well as roads that may be used for removing timber and for larger four-wheel drive vehicles.
- 11-7. Through trail design, layout and signing, minimize user conflicts and safety hazards that may exist with other recreation users and between full size four-wheel drive vehicle users and ATV and motorcycle users.
- 11-8. Through trail design, layout, and management, adverse effects on the land and resources are minimized. Damage to soil, watershed, vegetation, wildlife habitat, or other natural, heritage, and historical resources, and disturbance of wildlife on the public lands are minimized.
- 11-9. Routes are closed to ATV/OHV use when unacceptable adverse effects occur or are likely to occur. The routes or trails remain closed until the adverse effects are eliminated and until measures are implemented to prevent recurrence.
- 11-13. Existing routes located in or adjacent to sensitive areas are relocated or closed. Unneeded old routes are restored to their natural profile and revegetated.
- 11-14. Trail system designs with a series of loops are encouraged. This results in a more compact trail system that confines impacts to a smaller area.
- 11-15. The trail network is located in an area which limits the ability of users to illegally access areas off the designated routes. Full advantage is taken of natural and man-made features to use as physical barriers to illegal use.
- 11-16. Old roads are converted to authorized routes to the extent possible and practical.
- 11-17. Within ATV/OHV areas public information is provided that, as a minimum, includes maps describing the routes where use is permitted, prohibited, or restricted and the conditions of such use.
- 11-18. Proposals for routes in this management area are evaluated during project level analysis based on direction and criteria found in Executive Orders 11644 and 11989, 36 CFR 295, FSH 2355 and the publication Management Direction for Off-Road Vehicle Use in the Appalachian Mountain National Forests. In addition, the following key factors are to be considered in the project level analysis.
 - a. Demand for new routes in this management area is determined and documented. In measuring demand, the following factors are normally included: the commitment of a club for assistance with construction, maintenance, patrolling and monitoring; significant number of requests by users or other publics to provide facilities; demonstrated conflicts with other Forest users; and existing uncontrolled use.
 - b. Routes are preferred that can provide a minimum two-hour riding experience, generally 10 to 15 miles in length, and that have looping characteristics or are a

part of a larger transportation system. Routes that provide access for disabled visitors or seasonal hunters may be exceptions.

- c. Candidate roads and trails are eliminated or mitigating measures are planned where soil movement cannot be kept within acceptable standards.
 - d. Routes are selected that avoid sensitive areas including, but are not limited to, threatened, endangered, and sensitive species areas, and native brook trout streams.
- 11-19. Design criteria in the Trails Management Handbook (FSH 2309.18), the Road Preconstruction Handbook (FSH 7709.56) and the Guide to Off-Road Motorcycle Trail Design and Construction are used to provide a safe motorized road or trail.
- 11-20. Routes are located outside riparian areas except at designated stream crossings. At stream crossings, use bridges or culverts where possible. When fords are used, provide at least 50 feet of graveled approaches. Use erosion stone or larger rock to increase the road bearing strength at the water/land interface.
- 11-21. Designated roads remain open to public use unless unacceptable resource damage occurs.
- 11-22. Repair, reconstruction, and relocation of portions of routes receiving unacceptable resource damage are favored over closing the entire route. When chronic problems occur the entire route may be need to be closed.
- 11-23. Roads for timber removal are planned concurrently with possible ATV/OHV route locations and opportunities.

MANAGEMENT AREA 12

Standards for Developed Recreation:

- 12-18. Traffic Service Level A, B, or C roads are constructed to provide visitor access.
- 12-19. Motor vehicles are allowed in designated areas only.

Standards for Dispersed Recreation Areas:

- 13-17. Roads to access recreation facilities are constructed to the standard necessary to support the level and type of use occurring.
- 13-18. Construction of new roads is minimized and new roads outside of developed areas are constructed to TSL D.
- 13-19. Motorized public access is restricted to open system roads.

MANAGEMENT AREA 14

Desired Future for Remote Habitat For Wildlife:

Wildlife: Motorized vehicle access is controlled between management activities and limited to ensure that habitat for disturbance-sensitive species is maintained. The Forest objective is to limit open road densities to no more than ¼ mile of open road per 1,000 acres. In cases where stated open road density exceeds ¼ mile per 1,000 acre, Forest will strive to reduce the

open road densities to the desired standard. Monitoring answers whether open roads in excess of stated density objective are closed to public use.

Standards for Remote Habitat For Wildlife:

- 14-7. The Forest objective is to limit open interior road densities to no more than one-quarter mile of open road per 1,000 acres. In cases where interior open road density exceeds one-quarter mile of open road per 1,000 acres, Forest strives to reduce the open interior road densities to the desired standard. Road to area ratios are determined on acres and miles of individual management areas.
- 14-8. TSL D roads may be constructed in conjunction with resource management activities. They are available for foot travel, but are closed to all vehicles except for administrative use.

MANAGEMENT AREA 15

Desired Future for Mosaics of Wildlife Habitat:

Wildlife: Motorized vehicle access and management activities are limited in order to provide freedom from continual disturbance during nesting and brood-rearing seasons to species such as wild turkey. The Forest objective is to limit open road densities to no more than 1 mile of open road per 1,000 acres. In cases where stated open road density exceeds 1 mile per 1,000 acre, Forest will strive to reduce the open road densities to the desired standard. Monitoring answers whether open roads are in excess of stated density objective.

Standards for Mosaics of Wildlife Habitat

- 15-5. The Forest objective is to limit open interior road densities to no more than one mile of open road per 1,000 acres. In cases where open road density exceeds one mile of open interior road per 1,000 acres, Forest officers strive to reduce the open road densities to the desired standard. Road to area ratio are based on acreage of the individual management area.
- 15-6. Roads are designed to the lowest standard necessary to meet management area objectives (either TSL C or D).
- 15-7. Public motorized travel may be seasonally allowed (September through March).

MANAGEMENT AREA 16

Standards for Early Successional Forested Habitats for Wildlife

- 16-7. Roads are designed to the lowest standard necessary to meet management area objectives (either TSL C or D).

MANAGEMENT AREA 17

Standards for Timber Production

- 17-6. Roads constructed for timber harvesting may either be left open, closed, or closed seasonally, but in a manner that protects soil and water or meets the management objectives of the area.

- 17-7. Roads are designed to the lowest standard necessary to remove the timber. Connecting routes between timber roads may be designed and constructed to jointly meet needs of OHV and timber forwarding equipment.
- 17-8. Road locations and densities should meet timber access needs and provide opportunities for OHV use in some areas.

MANAGEMENT AREA 18

Riparian Areas (Streams and Lake Shorelines) See Forest-wide standards.

MANAGEMENT AREA 20

Standards for Administration, Utilities, Communications

- 20-25. Public off-road vehicle use is prohibited, except at designated crossings.
- 20-41. Management requirements for permittee access roads are specified in the designated use permit.

MANAGEMENT AREA 21

Standards for Mount Pleasant National Scenic Area

- 21-12a. In the Mount Pleasant National Scenic Area, no new permanent roads shall be constructed, except that this prohibition shall not be construed to deny access to private lands or interests therein in the Scenic Area.
- 21-12b. Motorized travel in the Scenic Area shall be allowed on State Route 635 and Forest Development Road 51. Except as listed above, motorized travel shall not be permitted within or on the boundary of the Scenic Area except as necessary for administrative use in furtherance of the purposes of the George Washington National Forest Mount Pleasant Scenic Area Act of August 26, 1994 (PL 103-314).
- 21-12c. In Laurel Fork, Big Schloss, and Little River Special Management Areas, no new road construction is permitted except (1) to access approved mineral activities and (2) where the new road is the only prudent alternative to serve resource needs in other management areas and will minimally impact this management area and (3) relocation of existing roads and (4) provide access to trailheads and (5) provide access to private land if no other route is feasible. Reconstruction is limited to protection of resource values. Existing system roads or those routes to access wildlife openings may continue to be used.

CHAPTER 5: IDENTIFICATION OF SIGNIFICANT SOCIAL AND ENVIRONMENTAL ISSUES, AND CONCERNS, TO BE ADDRESSED IN PROJECT-LEVEL DECISIONS (STEPS 3 & 4)

Issues were generated from public response during the Revision of the George Washington National Forest Plan, local knowledge of the roads analysis ID team, public response to a variety of project proposals, and discussion with other public agencies like the Federal Highway Administration and the Virginia Dept. of Transportation.

Current Forest Plan Issue Summary

ISSUE 1 BIODIVERSITY:

Fragmentation – Almost every acre of the Forest was heavily impacted by humans, through timber harvesting, mining, charcoal and tanbark production, grazing, and recurrent burning, prior to federal acquisition. Additionally, ecosystems within the Forest were severely affected by natural events (such as chestnut blight). Since acquisition that began in 1911, the Forest has recovered from these past activities and now provides large blocks of unfragmented habitat.

Changes to the ecosystems of the Forest from management practices need to be viewed within the context of natural changes that are already occurring to forest vegetation from both natural disturbances and plant succession. Many of the plant communities contain forest vegetation with advancing age structures approaching physical maturity. These plant communities are currently relatively stable or advancing toward climax conditions.

Forest vegetation is again facing a major disturbance - gypsy moth and oak decline. Significant oak mortality will occur. Disturbance of normal ecological process will inhibit adequate oak regeneration and promote considerable species shift to non-susceptible species. An abundance of dead over-story trees with no seasonal foliage promotes a biological response to find a new ecological site equilibrium.

Our approach to fragmentation takes into account that all ecosystems on the Forest will be dynamically affected by these forces, and that no natural community or habitat condition is considered never changing.

Forest fragmentation is a function of patch size, isolation of patches, total reserve area, and linkages among patches. Patch size and age requirements vary by species. Many species tolerate or prefer a mixture of forest age classes, but some species are restricted to young (early successional) or mature (late successional) forest communities only. The Revised Plan will provide large, unfragmented blocks of forested land, mostly in later successional stages. These areas are allocated primarily to Management Areas 4, 5, 6, 8, 9, 18, 21 and portions of Management Areas 13, 14 and 15 that are unsuitable for timber production. These forested and riparian areas are located in a manner that provides opportunities for the movement of plants and animals resulting in long-term viability of species. Although the Revised Plan

permits vehicles on existing roads, wildlife habitat improvements, and timber salvaging operations in the immediate vicinity of system roads, these activities are located on the periphery of the unfragmented areas and will not significantly cause additional fragmentation.

Fragmentation of late successional habitats are usually caused by openings in the forest canopy. Edge effects occur when distinct habitat boundaries are created by timber harvest or other activities. These effects may be permanent or temporary depending on whether the disturbed area is allowed to proceed through vegetative succession. Species composition and community structure may change in areas where light and wind can extend into the exposed forest edge. This creates habitat suitable for some species and unsuitable for others.

Habitat for species benefiting from early successional vegetation is provided to a lesser extent in the Revised Plan. Early successional habitat is provided in Management Areas 12, 16, 17, 20, 22 and portions of Management Areas 7, 11, 13, 14 and 15 which are suitable for timber production. This habitat will, primarily be located in timber harvest units (0-10 age class), wildlife clearings, utility rights-of-way, and along closed system roads and in prescribed burn areas.

Unique Natural Communities The Forest contains a number of unique natural communities. Many of these unique communities were designated as Special Interest Areas in the 1986 Plan. Since publication of that document, additional areas have been identified.

The Revised Plan allocates 70,000 acres to Management Area 4 (Special Interest Areas or SIAs) to manage and protect 38 Biological SIAs, two Geological SIAs, 12 Historic SIAs, one research natural area and the Shenandoah Mountain Crest SIA, containing special habitat for the Cow Knob Salamander. Additional habitat for the Cow Knob Salamander is located in the Little River Special Management Area (Management Area 21). See the map of the Little River Special Management Area on the following page. These areas have been identified by the Forest, state natural heritage programs and wildlife agencies, and the USDI Fish & Wildlife Service as deserving special protection and appropriate management.

Six of these areas (Big Levels, Laurel Run, Maple Flats, Shale Barren Complex, Skidmore, and Slabcamp/Bearwallow) are recommended for further study and possible classification as Research Natural Areas. Designation of the area as a SIA or its possible future designation as a RNA will not affect traditional uses (such as hunting, berry-picking, hiking, or fishing) as they now occur. These designations also will not affect access as it is now allowed. Non-motorized travel will be allowed and by motorized vehicle on open roads through the area.

ISSUE 3: FOREST ACCESS

The lands acquired for the national forest contained a spider-web of old charcoal, tanbark, logging, and wagon roads that generally followed the stream bottoms along the path of least resistance. Over the years, roads have been closed or restored by the Forest Service to prevent resource damage, to lower maintenance costs, and to meet management objectives.

Districts have discussed road closures with State agencies such as the WV Dept. of Natural Resources(WVDNR). In addition Districts have discussed issues such as limiting public access, through road closures during various hunting seasons with the WVDNR and Va. Dept. of Game and Inland Fisheries (VDGIF). Districts have also answered Congressionals

and coordinated with Congressman, concerning road management, such as the opening of roads on the dry River District from September through the end of January. (See 1500 Letter to Congressman Goodlatte 9/14/01)

At the present time, the Forest varies from highly roaded with road densities exceeding 3 miles per 1,000 acres to unroaded areas with less than 1/4 mile of "improved" road per 1,000 acres.

The Revised Plan recognizes that the desire for motorized access to the Forest must be balanced against conflicting goals of providing for certain types of wildlife habitat and non-motorized recreation use.

System Roads - The Forest Transportation System contains approximately 1,760 miles of Forest Development Roads administered by the Forest Service. Approximately 610 miles are open to the public year-round; an additional 440 miles are open seasonally; 710 miles are closed to public vehicles year-round. The latest, updated existing road system and road management status is shown on a map that accompanies the Revised Plan.¹

Under the Revised Plan, a road system will be maintained to serve the public, meet management needs, and protect resources in a cost-effective manner. New roads will be constructed as needed and to the standard to meet the desired future condition identified in each management area.

Generally, it is not the intent of the Revised Plan to change the management of existing roads. Rather, it is to establish direction for management areas which will dictate access requirements.

The amount of road construction needed to accomplish the timber management and wildlife habitat needs on suitable acres in the Revised Plan is estimated to be 5 to 8 miles of system roads every year during the 10 to 15 year period that the Revised Plan is in effect. This does not include reconstruction or maintenance of existing roads. Additional roads may be needed for a variety of reasons including access to new developed recreation sites, general forest access, and access to wildlife improvements.

Most of the future road management practices will consist of the maintenance, reconstruction and, where appropriate, relocation of existing roads.

The decision to construct any additional roads will be made when projects are selected and supported by appropriate site-specific analysis and documentation. The Revised Plan assumes that any road construction in Management Areas 4, 5, 6, 9 and 21 will be limited to short spur roads leading to parking areas.

The Revised Plan estimates that 90% of new system roads constructed to support the timber and wildlife needs will not be open to public vehicular use. They will, however, be open to non-motorized use, such as horseback riding, mountain biking, and foot travel.

The Revised Plan continues the existing management direction of identifying and evaluating open roads. Roads that serve a legitimate access need, are consistent with the management area direction and meet standards in the Revised Plan remain open to public use. When they

¹These figures are directly out of the 1993 George Washington National Forest Plan. See Step 2, existing road and access system description for the latest information.

do not meet these requirements, these routes will be permanently closed or improved, as funding permits.

Decisions that determine whether individual roads are open or closed to public vehicular use are made on a case-by-case (road by road) basis. Existing roads may be closed under one of the following conditions:

1. The road will not be needed again. It will be closed permanently and removed from the Forest Transportation System. These roads will be revegetated, and no further maintenance required.
2. The road will not be needed for several years except possibly for emergencies such as firefighting access. It will be closed to all public traffic by placing a physical barrier at the entrance. These roads will be revegetated.
3. The road is only needed for administrative purposes and closing it will contribute to the desired future condition of the management area. It will have a locked gate at the entrance.
4. The road is seasonally closed because of weather conditions, because of the need for resource protection in cases of unacceptable or unsafe conditions, or to meet open road densities in Management Areas 15 or 16. It will have a locked gate at the entrance.

Licensed OHV Use The ID Team worked with District personnel to identify approximately 160 miles of system roads, which are currently designed to a standard that could offer opportunities for 4-wheel drive and other licensed OHVs without causing unacceptable resource impacts. In addition, there are more than 60 miles of system roads open at least seasonally which offer a degree of interest to users of licensed OHV vehicles.

As discussed in Chapter 3 of the FEIS, it is estimated that an additional 187 miles of 4-wheel drive and other licensed off-highway vehicle roads are needed to meet the anticipated demand for such opportunities by the year 2000.

Under the Revised Plan, all open system roads on the Forest are available for vehicles licensed for public roads. The intent of the Revised Plan is to continue to offer year round use on those system roads where year round use has traditionally been offered, and to continue to offer seasonal use on those system roads where seasonal use has traditionally been offered.

The map which accompanies this Revised Plan shows the routes which offer opportunities for licensed OHV users. Persons interested in OHV experiences should contact the appropriate Ranger District to learn the status and specifics on the location of these OHV routes.

Access for Persons With Disabilities The Revised Plan encourages the continued exploration of methods to provide access to persons with disabilities in accordance with the Americans with Disabilities Act and other applicable legislation. The Forest Service intends to continue to seek such opportunities as the Revised Plan is implemented. Access for disabled persons is also provided in developed recreation facilities as discussed under Issue 13 - The Mix Of Goods And Services.

Currently, two motorized routes are provided for hunting access to physically disabled hunters. The two mile Neal Run Trail on the Warm Springs Ranger District is open for ATVs or motorcycles. The Fore Mountain Road on the James River Ranger District is opened for licensed OHVs.

Most Ranger Districts provide hunting access to physically disabled hunters who possess a valid Virginia or West Virginia permit. Additional information is available from the Ranger District and state agencies.

ISSUE 4 ALL-TERRAIN VEHICLE (ATV) USE

Under current management direction, the Forest has developed three all-terrain vehicle systems on the Forest:

1. The Taskers Gap/Peters Mill Run System on the Lee Ranger District contains approximately 20 miles of routes. There is potential for additional route mileage within this particular management area.
2. The Rocky Run System on the Dry River Ranger District contains 15 miles of routes. There is potential for additional route mileage within this management area.
3. The South Pedlar System on the Pedlar Ranger District contains approximately 25 miles of routes.

The Revised Plan calls for one additional system to be established on the Deerfield Ranger District if there is interest on the part of an organization to sponsor the construction and maintenance of this system. The length of this potential system is estimated to be 15 miles.

As discussed in Chapter 3 of the FEIS, the ID Team anticipates that an additional 331 miles of routes would be needed to meet the anticipated demand for ATV opportunities by the year 2000.

Forest officials worked with representatives of ATV organizations to identify sixteen other potential areas where ATV systems could be developed. If all of these systems were developed, an estimated 375 miles of ATV routes would be available for public use.

The number of ATV trail systems offered under the Revised Plan is based on the amount of use deemed appropriate under the overriding theme of managing the Forest to provide a wider array of uses, service, products and conditions than in the past, and under the assumption that all-terrain vehicle use is incompatible with the objectives and desired future condition of most of the management areas. The process paper "Incorporation of the NFMA Requirements for Off-Road Vehicle Use into the Revision of the Land and Resource Management Plan for the George Washington National Forest" contains an analysis of the fifteen trails routes not selected in the preferred alternative.

The four ATV systems are located in Management Area 11. Licensed OHVs are allowed if the trail is designated for such a vehicle by a Supervisor's Order. More detailed information on their management is contained in Chapter 3 of this document under the discussion for Management Area 11.

Under the Revised Plan, as under current management direction, the remainder of the Forest is closed to vehicles which are not licensed by the state.

ISSUE 5 ROADLESS AREA MANAGEMENT

The Forest contains an identified 27 areas that qualify as "roadless" under national policy. These roadless areas contain more than 260,000 acres. Appendix C of the Final Environmental Impact Statement contains an evaluation report on each of the roadless areas.

Federal legislation is needed to establish wilderness. The Revised Plan recommends three roadless areas for wilderness study (Management Area 8): St. Marys Addition, the Priest and Three Ridges. These roadless areas would be valuable additions to the National Wilderness Preservation System. This recommendation is a preliminary administrative recommendation that will receive further review and possible modification.

Table 18 displays how the Revised Plan allocates the 260,000 acres of roadless areas to different management areas.

Big Schloss, Laurel Fork, and Little River have been allocated to Management Area 21 ("Special Management Areas"). Mount Pleasant is allocated to Management Area 21 as a "National Scenic Area" as a result of the George Washington National Forest Mount Pleasant Scenic Area Act of 1994 (PL 103-314). The majority of the remaining roadless area acreage is allocated to Management Area 4 ("Special Interest Areas") and Management Area 9 ("Remote Highlands").

Table 18 -- Allocation of Roadless Area Acreage to Management Areas

Management Area	Thousands of Acres
4	32
6	1
7	0 ¹
8	12
9	121
10	1
13	9
14	11
15	7
17	0 ¹
18	4
21	60
22	0 ¹

¹Less than 500 acres, rounded to zero.

5% of the roadless area acreage is allocated to Management Area 8 and recommended for wilderness study. 84% of the acreage is allocated to Management Areas 4, 6, 9, 10, 18 and 21 where the roadless nature of these areas will not be substantially changed. On the remaining 11%, projects may be scheduled that might substantially change the roadless nature of these areas.

Before any project is scheduled in a roadless area, site-specific analysis and appropriate disclosure will be completed. This site-specific disclosure will include discussion of the effects of the project on the roadless nature of the particular area as described in Appendix C of the FEIS.

ISSUE 13 - THE MIX OF GOODS AND SERVICES:

Special Uses Necessary easements for state and federal road projects that provide public benefits are granted when environmental effects can be mitigated to an acceptable level. Adequate access for meeting resource management needs is pursued through rights-of-way acquisitions.

New Issues since 1993

ISSUE 1 – ROAD MAINTENANCE FUNDING IS NOT ADEQUATE TO MAINTAIN ROADS TO STANDARD.

One of the objectives of the Road Analysis process is to identify the minimum road system needed for public access and land management purposes. Congressionally appropriated road maintenance funding is approximately 35% of what is needed for the current system.

With limited funding, we need to focus on high priority areas such as, acquiring rights-of-way, performing road maintenance including restoration, and conducting project or watershed scale roads analysis to identify unneeded roads and maintenance opportunities.

ISSUE 2 – PUBLIC INVOLVEMENT

The public was concerned that decisions about reducing or changing the Forest's transportation system might be made without the benefit of public involvement. Forest roads are an integral part of the entire public road system. People rely on them to drive to their jobs, recreation areas, favorite hunting and fishing areas, hiking trailheads, and other dispersed areas on the Forest. Decisions that will change the existing system or how it is managed will occur through public involvement and a site-specific analysis that considers effects on any roads on the system now or proposed in the future.

ISSUE 3 – LEGAL PUBLIC ACCESS

Many National Forest Roads that provide access to National Forest Lands cross private land. The Forest Service does not have legal rights-of-way on some of these roads. Therefore, access to National Forest Lands may be unavailable to individuals who do not have permission to travel on the portions of these roads that cross private land. Even if the public does have permission to use these roads, the Forest Service has no right to reconstruct them if needed. So rights-of-way should be obtained on all National Forest Roads, on a willing seller basis.

CHAPTER 6: ROAD SYSTEM OPPORTUNITIES AND NEEDS WITHIN THE CONTEXT OF EXISTING DIRECTION & ISSUES (STEP 5)

Transportation Analysis Procedure

A transportation analysis procedure for the George Washington National Forest began in 1979 and was completed in 1995. District sportsman's maps with contours were used to divide each district into transportation analysis units (TAU's) of approximately 10,000 acres. Each TAU was then drawn on a 4"=1 mile quad sheet along with the following overlays:

- Land unsuitable for timber management;
- Critical soils;
- Cultural resources;
- Group selection defined areas;
- Logging plans with ground skidder and cable landings marked.

Districts worked together on the overlays along with the forest transportation planner, forest timber section, and zone, logging engineer. The zone logging engineer had final review and approval for the completed TAU maps with overlays. An engineering technician took the finished maps and physically checked the present condition of all existing system roads. A report was prepared for each TAU with the following resource information was included:

- Soils information including any technical data provided by the forest soil scientist;
- Water and fisheries information from maps kept by the forest fisheries biologist;
- Wildlife featured species information maintained by district wildlife biologists;
- Visual information obtained from the forest landscape architect;
- Recreation information from narratives written by district personnel;
- Timber information from compartment prescriptions and the timber section;
- Other resource information from narratives written by district personnel.

The final step in the procedure entailed developing alternative road locations to meet future access needs. The District Ranger was consulted during this step. Each alternative was examined for costs, road lengths, and number of rights-of-way required. The final document was edited by the transportation engineer and approved by the Forest Engineer.

The resulting Transportation Analysis Reports for each TAU fulfill many of the same intentions as the forest-wide Roads Analysis Report, with the caveat that the Transportation Analysis was designed primarily to access timber. The alternatives presented in each Report coupled with the resource information and issues identified through the NEPA analysis are still used by Ranger District personnel today as a beginning point for locating, surveying, and designing roads. This information constitutes new road system opportunities and needs.

Monitoring and Evaluation of Existing Road System

An analysis of Management Areas with road density standards was conducted in Fiscal Year 1993 and revised for this Report. In Management Area 14, eleven of twenty-three (48%) areas exceeded Plan standard 14-7 in 1993. In 2001, nine of twenty-three (39%) areas exceed the standard. In Management Area 15, fifteen of forty-seven (32%) areas exceeded Plan standard 15-5 in 1993. Thirteen of forty-seven (28%) did in 2001. Table 19 and Table 21 show a summary of roads in these areas. Table 20 shows a summary of areas that exceeded Plan Standards for Management Area 14 in 1993, but not 2001. None of the polygons in Management Area 15 have been reduced to less than 1 mile of road per 1,000 acres.

Table 22 and Table 23 display a list of all classified roads under Forest Service jurisdiction within the polygons that exceeded the road density standards in 1993. Some of the D Level roads shown may represent opportunities for closure or decommissioning, however this would require a site-specific NEPA analysis. Many of these roads have a demonstrated need for continuation as part of the forest transportation system, for example to provide public access to a trailhead. Where these are known they've been indicated.

Table 19 and Table 20 also show the miles of roads with a Management Objective of A, B, and C as a separate column. These roads would seldom, if ever, be decommissioned. Therefore, there is an open road density threshold below which it would be very difficult to go. As these Tables show, six Management Area 14 polygons and nine Management Area 15 polygons will probably never meet the forest plan standard set for them. What this analysis doesn't take into account is adjoining roadless or unroaded areas, which when considered together with these polygons may provide a total open road density within the desired standard.

Table 19 – Summary of Management Area 14 Polygons where Existing Open Road Densities Exceed Forest Plan Standard 14-7 of ¼ mile per 1,000 acres.
July 2001

Polygon ID	Total USFS Open Roads (Miles)	USFS Open A, B and C Level Roads (Miles)	USFS Ownership (Acres)	Current USFS Open Road Density (Miles per 1,000 acres)	Lowest Potential USFS Open Road Density* (Miles per 1,000 acres)
4	2.715	2.216	4,840.000	0.561	.458
8	10.495	10.495	18,098.000	0.580	.580
9	4.771	1.478	10,092.000	0.473	.146
24	8.645	4.909	7,906.000	1.093	.621
56	5.235	2.772	10,171.000	0.515	.273
59	13.780	7.094	6,365.000	2.3165	1.115
60	4.101	2.135	5,316.000	0.771	.402
77	6.659	6.659	7,756.000	0.859	.859

Bold rows represent reductions due to road closures since 1993.

* It is very unlikely that Level A, B, or C roads would be closed since these represent our primary public access roads (See Road Management Objectives), therefore the lowest potential USFS open road density assumes these roads remain open.

Table 20 –Management Area 14 Polygons where Existing Open Road Densities NO LONGER Exceed Forest Plan Standard 14-7 of ¼ mile per 1,000 acres.
July 2001

Polygon ID	Total USFS Open Roads (Miles)	USFS Open A, B and C Level Roads (Miles)	USFS Ownership (Acres)	Current USFS Open Road Density (Miles per 1,000 acres)	Lowest Potential USFS Open Road Density (Miles per 1,000 acres)
43	.630	0	4,115.000	0.153	0
74	.465	.410	3,051.000	0.152	.134
85	0	0	2094.000	0	0

Table 21 – Summary of Management Area 15 Polygons where Existing Open Road Densities Exceed Forest Plan Standards 15-5 of 1 mile per 1,000 acres.
July 2001

Polygon ID	USFS Open Roads (Miles)	USFS Open A, B and C Level Roads (Miles)	USFS Ownership (Acres)	Current USFS Open Road Density (Miles per 1,000 acres)	Lowest Potential USFS Open Road Density (Miles per 1,000 acres)
11	46.42	24.493	36,150.000	1.284	.678
20	4.65	4.65	4552.000	1.02	1.02
22	7.652	7.094	4,937.000	1.550	1.437
36	22.33	19.90	7,606.000	2.936	2.616
44	7.768	7.768	3,666.000	2.119	2.119
45	3.000	2.200	2,765.000	1.085	.796
54	53.182	31.039	46,242.000	1.150	.671
62	3.876	5.807	3,136.000	1.236	1.852
65	2.657	2.657	2,002.000	1.327	1.327
78	8.713	8.713	7,492.000	1.163	1.163
79	2.575	2.575	2,299.000	1.120	1.120
80	0.85	0.85	702.000	1.214	1.214
81	4.852	3.052	2,787.000	1.741	1.095
83	6.416	6.416	3,201.000	2.004	2.004
84	3.933	3.933	1,340.000	2.935	2.935

Bold rows represent reductions due to road closures since 1993.

* It is very unlikely that Level A, B, or C roads would be closed since these represent our primary public access roads (See Road Management Objectives), therefore the lowest potential USFS open road density assumes these roads remain open.

**Table 22 – List of Roads within Management Area 14 Polygons that Exceed
Plan Standard 14-7 of ¼ mile per 1,000 acres.
July 2001**

Management Area	Polygon ID	USFS Road Number	Miles	Road Management Objective and Comments (July 2001)
14	4	375 65	2.712 0.004	D2/C1 B
14	8	258 258A	8.099 2.396	C1 C1
14	9	1587 173 396 396D	0.580 1.478 3.104 0.189	D1 (No longer counted. See Table 16) C1 D2 D2
14	24	129 362 6021	4.909 3.567 0.169	B C1 C1
14	43	351B 351C	0.926 0.630	D1 (No longer counted. See Table 17) D2
14	56	232 232A 235 731	2.772 0.267 1.521 0.675	C2 D2 D2 D2
14	59	240 240C 240D 72	6.679 1.168 2.286 4.815	C1/ D2 D1 (No longer counted. See Table 16) D2 C1
14	60	547 549 549A 72C	2.116 0.019 0.497 1.469	C2 C2 D2 D2
14	74	358	1.065	C1/D1 (.6 miles no longer counted. See Table 17)
14	77	125 364	5.477 1.182	B C1
14	85	1154 164 510	1.836 0.099 1.835	D2 – Closed to the public year round. D2 – Closed to the public year round D2 – Closed to the public year round (See Table 17)

The highlighted roads are potential opportunities for closure or decommissioning to reduce open road density.

Table 23 - List of Roads within Management Area 15 Polygons that Exceed Plan Standard 15-5 of 1 mile per 1,000 acres.

July 2001

Management Area	Polygon ID	USFS Road Number	Miles	Comments
15	11		0.928	
		1576	1.272	D2
		173	4.004	C1
		255	4.146	C1/D2
		255A	0.929	D2
		381	5.423	C1
		387	6.378	D2
		391	3.085	D2
		393	1.684	D2/D1 (1.6 miles no longer counted. See Table 18.)
		398	0.002	C1
		399	1.147	D2
		399B	4.981	C1/D2
		468	0.975	D2
		61	9.785	C1
		81	1.149	D2
	82	2.133	C1	
15	20	1823	2.250	C2 Seasonally closed from Jan 1-April 1
		512	2.030	C2 Seasonally closed from Jan 1-Oct 1.
			0.370	C1
15	22	1147	0.993	C2
		129	0.035	B
		328	3.652	C1
		328A	2.224	C3
		362	0.190	C3
		624	0.556	D2
15	36	1167	6.010	C2 Seasonally closed from Jan 1-April 1
		1176A	0.519	D2
		1286	4.900	C2 Road open to the public
		246	2.714	C1
		246B	0.421	D2 - Open year-round for public access.
		48	2.149	C2 Seasonally closed from Jan 1-April 1
		513	1.493	D2
		63	4.124	C1
15	44	WV347	2.919	Open year-round for public access
		WV347A	0.395	Open year-round for public access

Management Area	Polygon ID	USFS Road Number	Miles	Comments
		WV502	3.393	Open year-round for public access
		WV539	1.061	Open year-round for public access
15	45	1725	1.603	C1/D2
		1857	1.397	C1

15	54	1117	4.016	C2
		1117A	1.526	C2/D1 (.5 miles no longer counted)
		1117B	1.036	C2
		1124	0.837	D1 (No longer counted. See Table 18)
		1134	0.617	
		1280	0.789	D2
		152	7.280	D2
		152D	0.225	D2
		153	0.608	D2
		232	3.282	C2
		232B	3.242	C2
		235	0.088	D2
		240	4.893	D2
		240A	1.104	C2
		240C	2.081	D1 (No longer counted. See Table 18)
		302	7.032	C1
		302A	2.179	C1
		423	6.038	C1/D2
		423A	0.367	D2
		423B	1.477	D2
		424	0.413	C1
		439	4.718	C1/C2
		526	0.141	C1
		555	0.516	C1
		87	2.096	C1
15	62	225	3.150	C1
		225C	0.726	D2
15	65	95A	2.657	C1
15	78	125	2.888	B
		125A	0.624	D1 (No longer counted. See Table 18)
		125S	0.229	D1 (No longer counted. See Table 18)
		194	5.825	B
15	79	617	2.575	C2
15	80	1171	0.850	C1 Seasonally closed from Jan 1-April 1
15	81	1246	0.310	D1
		1246A	0.980	D1
		1876	0.112	C1
		1876A	0.010	D2 - Open year-round for public access

Management Area	Polygon ID	USFS Road Number	Miles	Comments
		1877	0.030	C1
		1879	0.020	C1
		494	0.534	C2 Seasonally closed from Jan 1-April 1
		76	2.356	C2 - Open year-round for public access
		521	0.500	D2 Open year-round for public access
15	83	311	1.395	C1
		315	4.485	C1
		315C	0.536	C1
15	84	39	3.933	C1

The highlighted roads are potential opportunities for closure or decommissioning to reduce open road density.

Additional monitoring items are discussed in the Fiscal Year 1999 and 2000 Monitoring and Evaluation Report, dated March 2001. No changes to plan direction related to the transportation system or travel management were recommended as a result of forest-wide monitoring in this report.

GUIDELINES

Decommissioning

Road decommissioning, as stated above in the discussion of open road density, results in the elimination of all vehicle use on that particular road. The road is still carried on the inventory but as “Decommissioned”. The impacts of the road on the environment are eliminated or reduced to an acceptable level. To accomplish this, a number of techniques can be used, such as posting the road closed and installing waterbars, posting and installing barriers and barricades, ripping the roadbed and seeding it, converting the road to a trail, and full reclamation by restoring the original topography. There is a different cost associated with each of these techniques and their effectiveness for deterring unauthorized motorized used also varies.

Decommissioning maintenance level (ML) 1 and 2 roads can consist of removing the few culverts, ripping the roadbed and seeding it, posting with closed signs, and installing waterbars to discourage unauthorized motorized vehicle use and provide for proper drainage.

Decommissioning maintenance level 3,4, and 5 roads are usually more expensive to decommission than ML 1 and 2 roads, because they have more culverts, are ditched, have larger cuts and fills, and are usually wider. Given the cost, it may be cheaper to maintain ML 3, 4, and 5 roads than to decommission them. However, future maintenance costs may not be the only factor to consider; other resource considerations may outweigh the costs.

Guidelines

Balance cost with the resource risk and effectiveness of the treatment when selecting methods for decommissioning.

Convert roads to trails as a decommissioning method when analysis of recreation demand indicates a need to expand, connect or improve the existing trail system in the area. Provide adequate trailhead parking as part of this treatment method.

Capital Improvement

This analysis does show there is a need to reconstruct existing roads to correct deferred maintenance work items or to improve some roads to meet the increasing use and traffic requirements. Funding limitations require prioritization of reconstructing work. The following guidelines are to be used when selecting, prioritizing and implementing road reconstruction and construction projects.

Guidelines

Conduct road location reviews prior to all new construction and road relocations. Assure the location meets public and agency needs while mitigating environmental impacts identified in the analysis. Line officers, resource specialists and engineering specialists should participate in the review.

Establish a traffic counting program to identify high use roads and traffic patterns.

Use motor vehicle accident safety investigations and reports to help identify road safety hazards.

Use the following categories to prioritize road investments planned to reduce deferred maintenance backlog on roads: 1) Critical Health and Safety, 2) Critical Resource Protection, 3) Critical Forest Mission. Data for these work items can be found in the INFRA database.

Road Management

Guidelines

If a roads condition has deteriorated to the point it needs to be restored, consider the need for the road and the historic use.

Consider reducing the maintenance level on low value, low use ML 3, 4, and 5 roads being analyzed in project or watershed scale roads analysis.

It is important for travelers to have the information necessary to make a decision about the road on which they are traveling. When appropriate, utilize entrance, information, and warning signs, route markers, and information bulletin boards to advise travelers of conditions ahead.

Do not post speed limit and other regulatory signs on roads under Forest Service jurisdiction without a Forest Supervisor's order.

To reduce annual maintenance costs, implement seasonal travel restrictions on roads susceptible to damage during wet or freeze/thaw conditions.

Collect road maintenance deposits as appropriate on all road use permits and special use permits.

Rights-of Way

Many National Forest Roads that provide access to National Forest Lands cross private land. The Forest Service does not have legal rights-of-way on some of these roads. Therefore, access to National Forest Lands may be unavailable to individuals who do not have permission to travel on the portions of these roads that cross private land. Even if the public does have permission to use these roads, the Forest Service has no right to reconstruct them if needed. So rights-of-way should be obtained on all National Forest Roads, on a willing seller basis.

Guidelines

1. See FSM 5460.3 for direction.
2. Acquire rights-of-way easements except in those cases where the landowner will only sell in fee.
3. When applicable, consider State road right-of-way width requirements to facilitate future assignment to the State DOT.
4. Rights-of-way priorities: a.) Acquire rights-of-way on existing roads where existing easement language does not cover road location or needed width or length; or no evidence exists that an easement was ever acquired. b.) acquire easements for planned roads.

Identification and Treatment of Unroaded Areas in 1993 Forest Plan

Unroaded areas are defined in the 2000 Planning Regulations (65 Federal Register, November 9, 2000, 67581) as “any area, without the presence of a classified road, of a size and configuration to protect the inherent characteristics associated with its roadless condition”. 1993 George Washington Forest Plan addressed “unroaded” areas

Since an important aspect of this definition is “protecting the inherent characteristics associated with its roadless condition,” it is important to define these characteristics. The 1993 GWNF Forest Plan identified five sub-issues related to roadless area management. All but one, wilderness area designation, is also assumed to define inherent characteristics of unroaded areas. These characteristics are:

- Unique Values Not Found on Private Lands;
- Protection of Roadless Areas as Special Management Areas;
- Remote Recreation Experience;
- Wildlife Species Requiring Remote Habitat.

The IDT for the GWNF Forest Plan considered not only inventoried roadless areas, which met the criteria in Chapter 7 of Forest Service Handbook 1909.12 when addressing these sub-issues or “unroaded characteristics.” The Addressing Issues Process Paper, April 1992, page

127, states: “Those portions of the GWNF qualifying as semi-primitive non-motorized recreation opportunity spectrum are presently “unroaded” and form “core areas” where the greatest opportunities for such unique values can now be found”. They also considered areas not currently unroaded as described in the Addressing Issues Process Paper, April 1992, page 127: “Interested citizens provided a map and description of a wilderness/corridor complex that could be applied to the GWNF. Such management, in addition to providing the most unfragmented habitat in terms of landscape diversity, would also provide the most unroaded areas by closing all of the forest development roads within the jurisdiction of the Forest Supervisor”.

Management Area 4 in the current GWNF Forest Plan contains lands that are managed to maintain and protect significant biological, historical, and geological values. About two-thirds of these areas are unroaded. New road construction is normally prohibited within the thirty-eight Special Interest Areas-Biologic. Within the twelve Special Interest Areas-Historic, road construction is not permitted unless linked to the protection of interpretation of the site. No road construction is permitted within the two Special Interest Areas-Geologic. Together these areas account for about 70,000 acres or 7% of the George Washington National Forest.

Management Area 9, Remote Highlands, in the current GWNF Forest Plan contains many of the more remote areas of the Forest. These includes both roadless and unroaded areas. Remote Highlands are managed to provide older vegetation in remote and isolated areas where recreationists can obtain a degree of solitude and the environment can be maintained in a near-natural state where only light-on-the-land management activities occur. No new road construction is permitted except: 1) to access approved mineral activities; 2) where the new road is the only prudent alternative to serve resource needs in adjacent management areas and it will minimally impact this management area; 3) to relocate existing roads; 4) to provide access to trailheads; or 5) to provide access to private land if no other route is feasible. This management area is about 141,000 acres and accounts for 13% of the George Washington National Forest.

Management Area 14 contains portions of the forest that are managed to maintain or enhance habitats for wildlife species that favor a mature forest environment that provides a continuous supply of hard and soft mast; large high value timber products; areas of dense vegetation cover; and freedom from continued disturbance. Traffic Service Level D roads may be constructed in conjunction with resource management activities, but are closed to public vehicle use to limit the open road density to less than ¼ mile per 1,000 acres. This management area is about 133,000 acres and accounts for 13% of the George Washington National Forest.

The Forest Plan also designated four Special Management Areas: Big Schloss, Laurel Fork, Little River, and the Mount Pleasant National Scenic Area. Each of these areas was inventoried as a roadless area during the forest planning process and therefore contain less than ½ mile of road per 1,000 acres. New road construction in these areas is limited to some very specific instances for increased recreation access as identified in the Plan.

In summary, “unroaded” characteristics important to the public were recognized and taken into account in the George Washington Forest Plan. Areas that contained these “unroaded” characteristics within the George Washington National Forest are largely protected through

Wilderness/Wilderness Study (4% of the forest), Remote Highlands (13% of the forest), Special Interest and Research Natural Areas (7% of the forest), Special Management Areas (6% of the forest), and remote habitat for wildlife (13% of the forest). This constitutes roughly 43% of the forest. Due to the recognition and protection afforded these areas, further analysis of unroaded areas in site-specific analyses, which are tiered to and consistent with the 1993 Revised Forest Plan, is not necessary.

Funding Levels

Road funding levels for both the George Washington and Jefferson National Forests, including maintenance, reconstruction, and construction dollars have decreased and then risen over the last 5 years. Projections are that the funding for roads will increase slightly with the possibility that a new program, Public Forest Service Roads, could be started as part of the next Highway Bill. This program if passed by Congress as part of the next Highway Bill in 2003, could mean up to an additional \$1.0MM dollars on the Forest to restore and improve our more important maintenance level 3, 4 and 5 roads. The Forest submitted a list of approximately 375 miles of these ML 3-5 roads to be included in the Public Forest Service Road program. Included in that list of Public Forest Service Roads were 19 projects totaling about \$37.0MM. These will be prioritized Regionally and funded based on direction and language of the 2003 Highway Bill.

In addition, we have funded one project with the Forest Highway Program, which has been part of the Highway Bill since the late 1950's. The project funded was Crabtree Falls parking area, bridge, and accessible trail on the Glenwood/Pedlar District. Preliminary work has begun on Base Access road on the Lee District for reconstruction and also Pelton Road on the Lee is another project identified for the near future. Forest roads that we improve using Forest Highway funds are to be turned over to the State, and they then assume maintenance responsibility for them. The only exception to this, on the above projects, is Crabtree Falls Recreation area access.

We also work with Federal Highway and the Virginia Dept. of Transportation on the Forest Highway program that deals with State Secondary roads. There are 808.2 miles of State Secondary roads on the George Washington National Forest that are on the Forest Highway inventory. See Appendix C for the minutes from our last meeting with VDOT and Federal highway administration. Appendix D contains minutes from the last meeting with WVDOH and FHWA. Projects planned for funding over the next four years by this program include:

<i>Forest Highway</i>	<i>St Route</i>	<i>County</i>	<i>Project</i>	<i>Cost</i>
FH 14	614	Highland	Bridge	\$1.3MM
FH 306	613	Warren	Bridge	4.0MM
FH 74	617/615	Allegheny	Rd Reconst.	1.3MM
FH 167	56	Rockbridge	Guardrail	.3MM
FH 206/207	678/730	Shenandoah	Culverts	.4MM
FH 161/162	666/827	Amherst	Bridges(2)	.8MM
FH 259	817	Rockingham	Bridge	.4MM

Funding of road maintenance, reconstruction and construction on the GW/Jeff over the last 5 years is as follows:

FY 98	\$2,117,000
FY 99	2,032,000
FY 00	1,757,000
FY 01	2,088,000
FY 02	2,269,000

From 1999 through 2002 the forest conducted road condition surveys to determine the actual dollar needs of maintaining the National Forest System roads to standard. Work items were recorded to determine the cost of road maintenance work deferred in previous years due to lack of funding. Finally, road restoration work necessary to bring the roads to the desired objective was identified and documented. Upon analysis of the data collected, it became obvious that the Forest is substantially under funded for the size of the road system it manages. The forest typically receives about 35% of the needs for annual road maintenance. Funding does not begin to meet backlog of deferred maintenance needed to restore the system to the desired objective maintenance level. Approximately 60% of the total road system is on the George Washington National Forest.

Funding Alternatives and Effects of the Current Funding Situation

1. Current funding is not adequate to maintain the existing road system nor address the existing backlog of deferred maintenance.
2. Decommissioning of Level 1 and Level 2 roads to reduce the inventory would not save a significant amount of money as very little road maintenance money is currently expended on roads that are not open to the public.
3. There does not appear to be a significant amount of support to close roads that are currently open to the public. This is true for permanent and seasonally open roads.
4. With State budget shortfalls, the Virginia Department of Transportation will likely be more hesitant to assume maintenance responsibility of roads, even if the roads are upgraded to State road standards. Current State standards are expensive to meet and limited funding is available to reconstruct roads to this standard.

5. The forthcoming public transportation bill could provide some Forest Service funding for higher maintenance level roads and alleviate a portion of the existing deferred maintenance backlog.
6. Roads will continue to deteriorate causing fewer roads to be traversable by passenger car.

***Summary of Needed Funds for Road Maintenance**

Maintenance Level	Total Miles	Annual Maintenance per Mile	Annual Maintenance Total	Deferred Maintenance per Mile	Deferred Maintenance Total	Capital Improvements per Mile	Capital Improvements Total
1	338	\$803	\$271,414	\$2,252	\$761,176	\$1,401	\$473,538
2	1696	\$556	\$942,976	\$2,711	\$4,597,856	\$2,601	\$4,411,296
3	817	\$3,861	\$3,154,437	\$10,536	\$8,607,912	\$3,196	\$2,611,132
4	141	\$4,594	\$647,754	\$12,815	\$1,806,915	\$6,450	\$909,450
5	9	\$229	\$2,061	\$6,696	\$60,264	\$8,639	\$77,751
Totals	3001		\$5,018,642		\$15,834,123		\$8,483,167

*George Washington & Jefferson NF's Combined

THE ABOVE FIGURES DO NOT INCLUDE \$ 1,422,751 FOR THE BACKLOG OF DEFERRED MAINTENANCE ON FOREST BRIDGES AND MAJOR CULVERTS.

Management Recommendations

1. Review the current operational and objective road maintenance levels of OML 3-5 roads and compare with condition survey results to determine the approximate level of degradation. Associated with this analysis, determine whether any additional OML 3-5 roads can be managed and maintained as OML 2 roads. This could be accomplished through watershed analyses or through project level roads analyses as appropriate.
2. Develop a prioritized list of roads where full rights-of-way do not exist and initiate acquisition of these rights-of-way as funding allows.
3. Develop road maintenance objectives based on current and anticipated funding. The decision on these objectives would be informed by priority analysis. High priority areas should include public safety, reduction of resource damage, and acquisition of rights-of-way.

CHAPTER 7: CRITERIA FOR ADDRESSING ROAD MANAGEMENT ISSUES AND PRIORITIES (STEP 6)

Introduction

Roads analysis below the forest-scale is not automatically required, but may be undertaken at the discretion of the Responsible Official (FSM 7712.13c). The objective of this Chapter is to provide criteria for when a watershed or project scale roads analysis will be needed.

Previous Chapters described our current transportation system, summarized how our roads are currently managed, Forest Plan direction regarding access and transportation needs, and issues related to these subjects. Chapter 6 identified road system opportunities and needs within the context of existing management direction, as well as a discussion regarding the identification and treatment of unroaded areas in the 1993 George Washington Forest Plan.

Criteria

Based on the information as presented in this report, consider the need for a watershed or project scale roads analysis within watersheds where classified road construction or reconstruction is proposed when one or more of the following exists:

- Within watersheds where impaired or water quality limited streams exist two miles downstream of the proposal and the source of the problem has been identified as non-point source sediment or other factors which, may be influenced by roads.
- Within watersheds where threatened, endangered or proposed aquatic organisms are known to reside within two miles of National Forest System lands.
- Within Management Area 14 and 15 polygons where open road density exceeds forest plan standards and improvements are possible as displayed in Table and Table .
- Within Management Areas 4, 9, or 21.