

SPECIALIST REPORT

FOR THE ROADLESS AREA CONSERVATION
DRAFT ENVIRONMENTAL IMPACT STATEMENT

Effects Analysis for the Forest Service Road System

MAY 2000

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The Forest Service Road System

Specialist Report

This Specialist Report provides the detailed background and information analysis for the affected environment and environmental consequences of the alternatives analyzed in detail for the Forest Service Roadless Area Conservation Draft Environmental Impact Statement (DEIS), May 2000. It covers the data, analytical methods, and the analysis of effects for the Forest Service transportation system that is summarized and disclosed in Chapter 3 of the DEIS.

Background and Proposal

Inventoried roadless areas comprise over 54 million acres, or 28 percent of National Forest System (NFS) lands. Areas without roads have inherent characteristics and values that are becoming scarce in an increasingly developed landscape. While the NFS inventoried roadless areas represent about two percent of the total landbase of the United States, they provide significant opportunities for dispersed recreation, sources of public drinking water, and large undisturbed landscapes that provide privacy and seclusion. In addition, these areas serve as bulwarks against the spread of invasive species and often provide important habitat for rare plant and animal species, support the diversity of native species, and provide opportunities for monitoring and research.

In order to conserve roadless areas, the United States Department of Agriculture (USDA) Forest Service is proposing to prohibit road construction and reconstruction in inventoried roadless areas within the NFS, unless they are needed for public health and safety, for reserved or outstanding rights, or for other specified reasons. This proposal also includes a set of procedures to further conserve inventoried roadless areas and other unroaded areas at the time of forest or grassland plan revision. In addition, the agency is proposing special consideration for the Tongass National Forest. On the Tongass, there would be no prohibition for road construction or reconstruction. However, as a part of the 5-year Tongass Land and Resource Management Plan (TLMP) review, the forest supervisor will evaluate and determine whether the road construction and reconstruction prohibition should be applied to any or all of the unroaded portions of the Tongass inventoried roadless areas. The procedures that apply to all other national forests and grasslands would also apply to the Tongass.

Analysis

This analysis covers the effects of Prohibition Alternatives 1-4 and Procedural Alternatives A-D. Tongass Alternatives T1-T4 are covered under the Specialist Report for the Tongass

Affected Environment

The Forest Service maintains and administers approximately 386,000 miles of roads on NFS lands. In the Eastern U.S., the Weeks Act of 1911, allowed the Forest Service to purchase lands to protect the headwaters of navigable streams, and the Clark-McNary Act of 1924 permitted the agency to purchase all types of forestlands. A substantial road

system existed on many of the lands purchased by the Forest Service in the East. Some of these roads became part of the Forest Service transportation system, some remained in private ownership, and State or county governments retained others. At the conclusion of World War II (1946), approximately one quarter of the total forest road system existing today (100,000 miles) had been constructed or acquired. Roads constructed on public lands prior to reservation were for extractive uses mostly timber harvest and mining. Roads constructed after national forest reservation and prior to World War II were constructed primarily for administrative access and fire suppression. Some timber sales did occur during this time period. The first managed timber sale was the Case No. 1 sale on the Black Hills Forest Reserve (now the Black Hills National Forest). Case No. 1 was sold in 1899 (Ball and Schaefer). Timber harvest however, was not the predominate reason for building roads on NFS lands before World War II. After 1946 and until approximately the mid to late 1980s, the rest of the 386,000 miles of Forest Service roads were constructed primarily to support timber harvest activities.

Today, the Forest Service road system serves a wide variety of forest users, and joins with county, state, and national highways to connect rural communities and urban centers with NFS lands. Recreation is the single largest use or activity supported by the Forest Service transportation system, accounting for 90% of daily traffic. Administrative use (9%) and commercial use (1%) make up the balance. Eighty percent of this use occurs on 20% of the transportation system, primarily those roads maintained for passenger cars (Coghlan and Sowa).

The Forest Service road system is designed to accommodate low-clearance passenger cars and high-clearance vehicles (Figure R-1). About 76,000 miles, or 20%, of Forest Service roads are maintained for low-clearance passenger cars. These are Forest Service Maintenance Level 3 through 5 roads. Another 223,000 miles, or 57%, of Forest Service roads are designed and maintained for high-clearance vehicles. These are Forest Service Maintenance level 2 roads. The remaining 87,000 miles, or 23%, are single use roads (for example, fire access and timber sale units) that are generally closed after their initial use. These are Forest Service Maintenance Level 1 roads. (USDA Forest Service 1999a). Maintenance level one roads are closed in a variety of ways ranging from earth berms, to gates and may receive treatments to make them low maintenance or self-maintaining.

The construction or reconstruction of Forest Service roads is paid for by the user that most benefits from the initial access or are paid for using congressionally appropriated dollars. The users typically paying for roads include timber harvest, mining operations, and special use permittees. The Forest Service typically provides the planning, location, design and construction oversight while a timber sale contractor or permittee executes and funds the actual construction. Roads built using congressionally appropriated dollars include roads for recreation, administrative access, and ecosystem restoration. The Forest Service retains the long-term jurisdiction for most roads on NFS lands including maintenance and operational responsibilities. There are however numerous State, County and private roads on and crossing NFS lands.

Each new mile of road added to the Forest Service's transportation system competes for limited road maintenance funding. On average, this need is about \$1,500 per mile annually (USDA Forest Service 1999c). In fiscal year (FY) 2000, the Forest Service received less than 20% of the funding needed to maintain its existing road infrastructure.

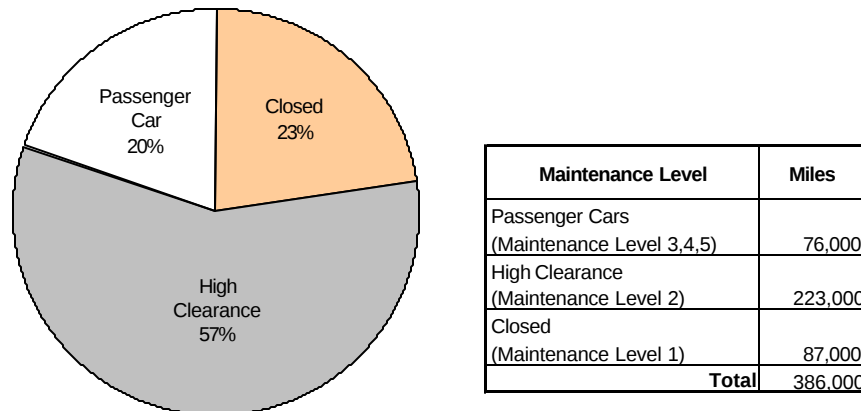


Figure R-1. Types of Vehicle Use on the Forest Service Road System. *The Forest Service road system is designed to accommodate 2 main classes of vehicles. (USDA Forest Service 1999a)*

While the Forest Service manages approximately 9,400 miles of paved roads, the majority of forest roads maintained for passenger cars are single or double lane with gravel surfacing. Of the roads maintained for high-clearance vehicles, about 190,000 miles have native material (dirt) surfacing. Figure R-2 displays the percentage of these typical road surfaces relative to the entire system. Figure R-3 illustrates a typical passenger car road encountered by forest users.

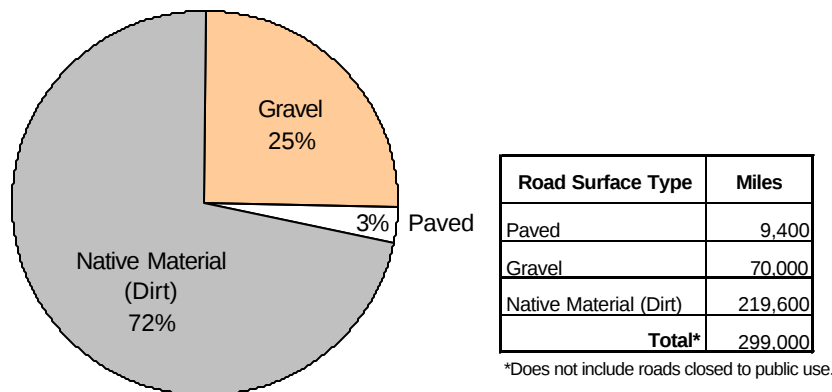


Figure R-2. Surface Types of Roads Open for Public Use. *Most Forest Service roads are surfaced with on-site material; less than 10,000 miles have asphalt paving. (USDA Forest Service 1999a)*

Road construction on all NFS lands has declined by 85% over the past decade, from a high of 1,315 miles in 1991 to a low of 192 miles in 1999. The majority of these roads were built to support timber harvest. During the same time period, about 2,660 miles of

road were decommissioned each year.¹ (USDA, Forest Service 1991 - 1998b) Beginning in the early 1990s, many planning decisions, such as the Northwest Forest Plan, identified the need to enhance watershed health.

As a result of these planning efforts and national policy efforts, such as the Clean Water Action Plan and Natural Resource Agenda, the Forest Service increased its effort to decommission roads when they were no longer needed and as funding allowed.



Figure R-3. Typical Forest Service Passenger Car Road. *Many national forest visitors travel gravel-surfaced roads that are maintained for low clearance passenger vehicles. (Forest Service Engineering Files 1999)*

All management activities associated with the Forest Service road system are required to comply with relevant State and Federal statutes such as the Clean Water Act, National Environmental Policy Act, Endangered Species Act, and the Highway Safety Act. In addition, it is the agency's policy to use the best available scientific information and best management practices for planning, locating, designing, constructing, and maintaining roads (36 CFR 212) regardless of where the road is located. Implementation of these policies can minimize, but not entirely eliminate, adverse environmental effects.

The criteria used during RARE I and II allowed the presence of roads in areas that would later be considered for Wilderness designation (Forest Service Hand Book 1909.12, 7). Subsequent inventories have used the same criteria. The estimated 8% (acres) of the

¹ Decommissioning includes activities that remove or obliterate a road, and hence, the need to maintain it. This is an average based on accomplishment reports from 1995 through 1999. (Report of the FS)

inventoried roadless areas where roads currently exist contain about 9,660 miles of roads. Some of these roads predate the inventories, while others have been constructed where forest plans have allowed development.

Alternative 1 and Alternative A – No Action

Under the No Action Alternative, new road construction would likely average about 200 miles per year across NFS lands for the next few years, with a continued downward trend of about 5% to 10% per year in the coming decade (Figure R-4). Table R-1 shows the annual construction, reconstruction and decommissioning for 1991 through 1999. Approximately 1444 miles of road construction and reconstruction, including temporary roads, are planned in inventoried roadless areas over the next five years, or about 300 miles per year when combined. The national estimate is based on historical figures for 1997 through 1999. The estimates for inventoried roadless areas comes from field data collected for this DEIS. It is anticipated in the foreseeable future that the need for road decommissioning will continue to increase nationwide unless more funding is made available to maintain forest roads to safety and environmental standards. Like road maintenance the actual amount of decommissioning is dependant on the amount of funding made available to the Agency. (USDA, Forest Service 1991 to 1998b).

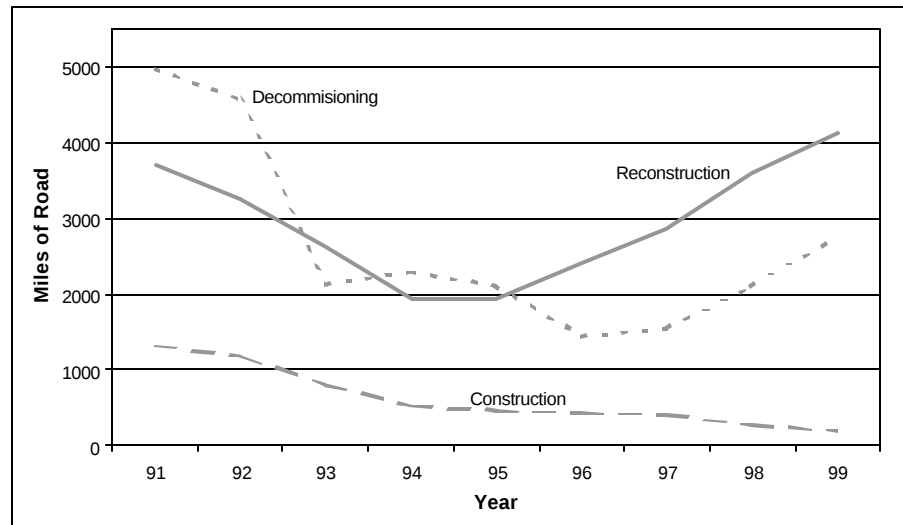


Figure R-4. Trends in road construction, reconstruction, and decommissioning. Road construction is expected to continue to decline in the coming decade. (USDA Forest Service 1999b)

Table R-1. Historic trends in road construction, reconstruction, and decommissioning. Road construction is expected to continue to decline in the coming decade while decommissioning will likely increase (USDA Forest Service 1999b)

Road Category	Year								
	1991	1992	1993	1994	1995	1996	1997	1998	1999
Construction	1315	1181	816	520	465	436	405	276	192
Reconstruction	3708	3258	2625	1933	1932	2400	2847	3588	4120
Decommission	4980	4570	2130	2290	2120	1440	1538	2100	2762

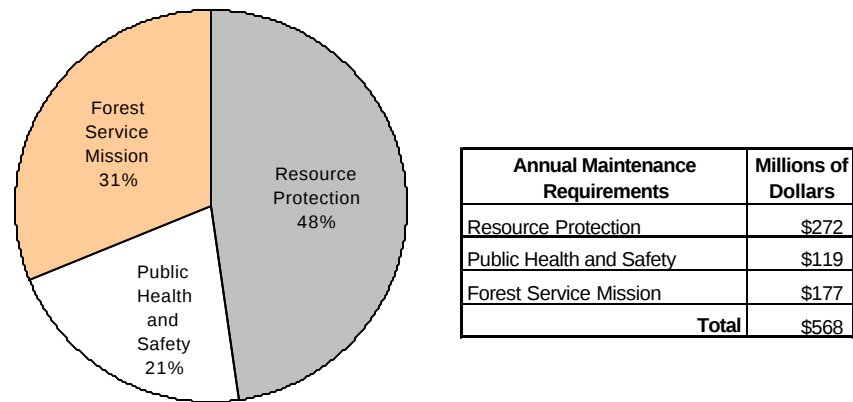


Figure R-5. Annual Road Maintenance Costs. Nearly 70% of the agency's road maintenance activities are focused on resource protection and public health and safety considerations. Mission related activities include general and administrative access, non-safety maintenance for user comfort, and ease of travel. (USDA Forest Service 1999c)

A 1998 survey of road maintenance and capital improvement needs within the agency showed an annual maintenance requirement of \$568 million, and a combined capital improvement and maintenance backlog of \$8.4 billion. Presently 66%, or \$5.5 billion, is the result of prior year deferred maintenance. Figure R-5 illustrates that about 50% of the annual road maintenance needs, \$284 million per year, is associated with activities that help meet environmental and water quality objectives.² The total FY 2000 budget

² Annual maintenance needs along with capital improvement and deferred maintenance figures for roads come from the agency's March 1999 report to Congress titled "Supporting Documentation on Maintenance and Improvement Needs." As stated in the report, estimates of needs were based on a "random field sampling of at least 2% of each national forest's roads." In FY 1999, the Forest Service began a 5-year

for road maintenance is \$111 million, an increase of 11 million dollars over FY1999, which will meet less than 20% of the agency's annual needs. Each year's unmet maintenance needs increase the backlog as roads deteriorate and the cost of repairs increases over time.

Following a period of sustained decline in Forest Service road maintenance budgets, the past 3 fiscal years beginning with 1998 have recorded an upward trend of about 10% per year. Although this trend is expected to continue, it still falls short of identified annual needs.

Table R-2 shows the miles of new road construction and reconstruction in inventoried roadless areas, including temporary roads, required to support the timber offer volume projected for the next 5 years. The estimated percentage of classified road miles that would be closed after planned use is also displayed (39% on average, 70% if Region 10 is excluded from the calculation). Most roads that are managed for a single purpose are closed to traffic between uses or are decommissioned. These roads are closed in a variety of ways, ranging from earth berms to gates and may receive treatments to reduce maintenance costs or make them self-maintaining. Public Law 93-378, the Forest and Rangeland Renewable Resources Planning Act of 1974, requires that temporary roads must be closed and re-vegetated after use.

Table R-2. Timber Related Road Construction Activities in Inventoried Roadless Areas by Forest Service Region During Fiscal Years 2000 to 2004. (USDA Forest Service 2000)

Region	Construction Miles (Classified)	Reconstruction Miles (Classified)	Temporary Road Miles	Total Road Miles	Estimated Classified Road Closures	Estimated % of Classified Roads Closed
Northern (1)	12	33	7	52	26	57.8
Rocky Mountain (2)	12	19	14	45	24	75.7
Southwestern (3)	0	0	3	3	0	0.0
Intermountain (4)	43	16	28	87	33	77.3
Pacific Southwest (5)	4	3	4	11	4	50.4
Pacific Northwest (6)	16	1	2	19	17	100.0
Southern (8)	5	14	4	23	16	83.8
Eastern (9)	8	18	28	54	23	90.5
Alaska (10)	435	0	77	512	65	15
Total	535	104	167	806	208	38.7

Table R-3 summarizes by Forest Service region the 638 miles of road construction and reconstruction, including temporary roads planned over the next 5 years in inventoried roadless areas and not associated with timber harvest. Approximately 368 miles would qualify under the exceptions for existing rights, primarily mining claims and special uses,

initiative to inventory and conduct condition surveys on 100% of its 386,000-mile road system. Results from the first year of the initiative indicate that both the annual maintenance and deferred maintenance estimates in the March 1999 report are low and will increase as better data is collected and validated.

and would not be prohibited by any of the alternatives. An estimated 270 miles of road may be prohibited, including 200 miles of new construction, 54 miles of reconstruction and 16 miles of temporary roads.

Alternatives 2 Through 4

Some of the projected road construction and reconstruction may be allowed under the alternatives prohibiting road construction if it occurs within the previously developed portions of the inventoried roadless areas. While not mapped at this time, this area is estimated to be about 8% of the acres in inventoried roadless areas. The determination of what areas qualify as the unroaded portions of inventoried roadless areas will be made by the responsible official at the project level or during forest plan revisions.

The direct effect of implementing the national prohibitions outlined in all 3 of these alternatives is an immediate end to most road construction in the unroaded portions of inventoried roadless areas. Following a relatively sharp first year drop of approximately 100 to 140 miles, due to prohibiting road construction in the unroaded portions of inventoried roadless areas, nationally, road construction should then continue to decline at the historical rate of 5% to 10% per year through the end of the decade. This decline in construction of new roads would have the effect of limiting the growth of the Forest Service road system, which in turn would reduce the miles of road competing for limited road maintenance funding.

Table R-3. Miles of Planned Road Construction for Non-Timber Related Activities in Inventoried Roadless Areas for 2000 to 2004 by Forest Service Region. (USDA Forest Service 2000)

Region	Projected Road Construction and Reconstruction That May be Prohibited by the Rule	Projected Road Construction and Reconstruction Qualifying Under Exceptions and Not Prohibited by the Rule	Total Non-Timber Road Construction and Reconstruction Projected in Inventoried Roadless Areas
Northern (1)	19	96	115
Rocky Mountain (2)	43	33	76
Southwestern (3)	5	10	15
Intermountain (4)	73	79	152
Pacific Southwest (5)	24	33	57
Pacific Northwest (6)	4	45	50
Southern (8)	10	17	27
Eastern (9)	12	2	14
Alaska (10)	80	53	132
Total	270	368	638

Any appropriated funds for road construction or reconstruction not spent in inventoried roadless areas as a result of the national prohibitions would be shifted to other high priority roads to meet access, safety, and environmental protection needs. The prohibitions would not limit the agency's ability to perform road maintenance on its transportation system.

There are no other foreseeable effects on the Forest Service road system resulting from the added prohibition on timber harvest as a result of Alternatives 3 and 4. This is because most of the planned timber harvest requiring road access would not likely take place if road construction and reconstruction were prohibited. As a result the additional prohibition on some or all timber harvest would likely have no additional effects on road management.

The issue of increased law enforcement costs, both to the Forest Service and to cooperating state and local law enforcement organizations, was identified during the scoping process. No closure orders would be issued as a result of the prohibitions outlined in Alternatives 2 through 4. There would be no additional time requirements or economic burdens placed on agency law enforcement beyond what already exists as a result of current regulation at CFR 36, Part 261—Prohibitions.

Road related hazardous substance releases on FS lands.

Currently no data on hazardous substance releases is collected at the national level within the Forest Service. The EPA (phone call by DEIS Team Hydrologist) has a national database but it has little information about NFS lands (seven spills all at air tanker bases). Individual national forests and State DEQ's may collect and store this information but it is not collected and aggregated by the Forest Service at the regional or national level.

While some of the literature (USDA, Forest Service, In Press) suggests an increase in potential risk as more roads are constructed, professional experience and judgment (DEIS Team Hydrologist, DEIS Team Engineer & Forest Service Chief Environmental Engineer) suggests that they are random occurrences that are difficult to predict. Experience also suggests that there are two categories: "spills" associated with commercial activities such as permittees, timber sale operators, and commercial transportation of hazardous substances through NFS lands to private property and rural communities; and illegal dumping. In general spills are more likely to occur on State, County and high standard Forest Service roads and are dependent on road condition, design standard, traffic type, traffic speed and traffic volume along with other variables. Illegal dumping is more likely to occur in secluded areas on Forest Service lands located close to urban, or other heavily populated areas.

Because of the unpredictable nature of these events and the small chance of their occurrence on roads in inventoried roadless areas, hazardous substance releases is not a reliable measure of differences between action alternatives and was not included in the effects analysis in the DEIS.

Environmental Engineering

The Comprehensive Environmental Response Compensation, and Liability Act of 1980, CERCLA (P.L. 96-510, stat. 2767; 42 U.S.C. 9601, 9603, 9607, 9620,) encompass emergency response, site remediation and spill prevention. The USDA Forest Service has enforcement authority through Executive Order 12580, sec. 2(j). The act is comprehensive in coverage covering both prevention and response to uncontrolled hazardous substance releases. CERCLA deals with environmental response, providing mechanisms for reacting to emergency situations and to prevent and remedy problems. Under the Department of Agriculture's Environmental Initiative, the Forest Service has

instituted these actions under the Environmental Compliance and Protection Program. The majority of the work performed addresses cleanup and natural resources restoration at abandoned/inactive mine and landfills sites. CERCLA actions are exempted from this rule. CERCLA is discussed as part of the minerals section in the DEIS.

Alternatives B Through D

With road construction on National Forest lands having declined 10% per year over the last decade, national procedures emphasizing conservation of roadless characteristics will likely result in this declining trend continuing or accelerating through the end of this decade.

They ensure that the character and associated values of inventoried roadless and other unroaded areas would receive consideration over the largest number of areas and acres, but do not eliminate the possibility of future road construction and related activities or uses.

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