

Effects of the Prohibition Alternatives

National Forest System Roads

The following discussion should help readers understand NFS roads, and how they relate to the physical, biological, social, and economic factors discussed in later sections.

Affected Environment

The Forest Service maintains and administers approximately 386,000 miles of roads on NFS lands. In the Eastern United States, the Weeks Act of 1911 (Public Law 61-435) 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. Many roads already existed on the lands purchased by the Forest Service in the East. Roads also existed on lands reserved as national forests in the 19th and early 20th Century in the West.

Before World War II, roads were constructed on NFS lands primarily for fire and conservation activities. From 1944 until the mid to late 1980s, the majority of the roads on NFS lands were constructed to support timber harvest activities. Figure 3-8 shows that in 1944, the Forest Service estimated there were 100,000 miles of roads under its jurisdiction and that there has been a steady increase in road miles since that time. Through the 1990s, the net increase in road miles is largely due to inventorying and classifying existing NFS roads.

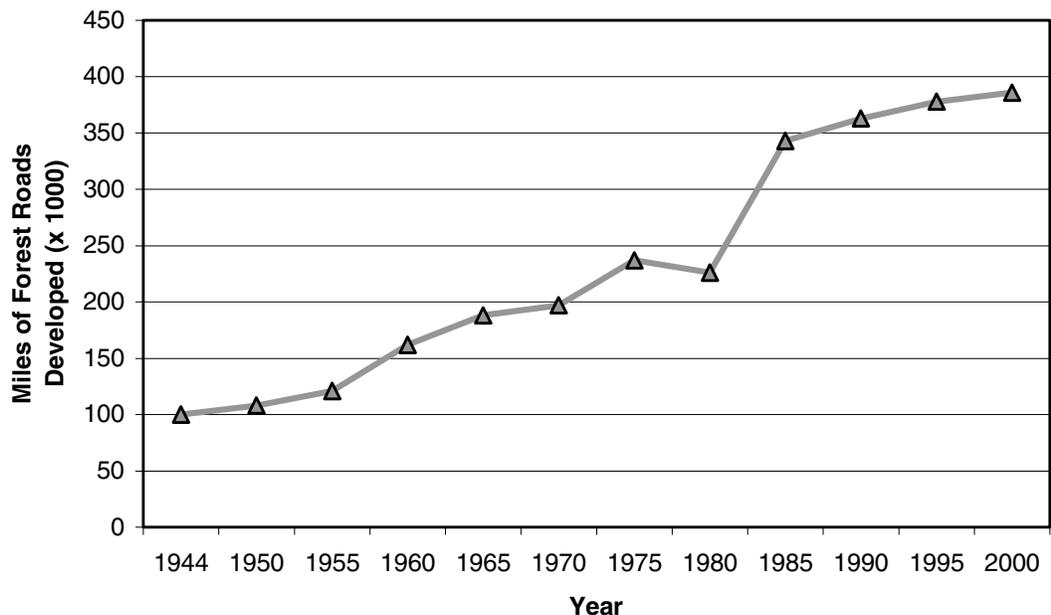


Figure 3-8. Miles of forest roads constructed from 1944 to the late 1990s.

Today, NFS roads serve a wide variety of forest users and join 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 NFS roads, accounting for approximately 90% of the daily traffic. Administrative use (9%) and commercial use (1%) make up the balance. Eighty percent of recreation use occurs on 20% of NFS roads, primarily those roads maintained for passenger cars (Coghlan and Sowa 1998).

Road Maintenance – NFS roads are maintained to accommodate low-clearance passenger cars and high-clearance vehicles such as sport-utility vehicles, pickups, and jeeps (Figure 3-9). About 76,000 miles, or 20%, of NFS roads are maintained for low-clearance passenger cars. Another 223,000 miles, or 57%, of NFS roads are designed and maintained for high-clearance vehicles. The remaining 87,000 miles, or 23%, are single-use roads (for example, fire access) that are generally closed after their initial use and kept closed between uses (USDA Forest Service 1999h).

The construction or reconstruction of NFS roads is typically paid for by the use that most benefits from the initial access. Examples include timber harvest by timber purchasers, mining operations by mining claimants, and special use permit access by permittees. However, some roads are built using congressionally appropriated dollars such as roads for recreation, administrative access, and ecosystem restoration. The Forest Service is responsible for planning, design, and construction oversight and often retains long-term jurisdiction, including maintenance and operational responsibilities, for roads constructed on NFS lands. Each new mile of road competes for limited **road maintenance** funding. Annual maintenance on new roads costs, on average, approximately \$1,500 per mile. In fiscal year 2000, the Forest Service received less than 20% of the estimated funding needed to maintain its existing road infrastructure (USDA Forest Service 1999h).

Sixty-nine percent of the Agency's road maintenance activities are focused on resource protection and public health and safety considerations. Mission related activities account for the other 31% and include general and administrative access, non-safety maintenance for user comfort, and ease of travel (Figure 3-10). A 1998 survey of road maintenance and capital **improvement** needs within the Forest Service showed an annual maintenance budget requirement of \$568 million and a combined capital improvement and deferred maintenance backlog of \$8.4 billion. The deferred maintenance backlog alone was \$5.5 billion or 66% of the total backlog. Figure 3-10 illustrates that 48% of the annual road maintenance costs, \$272 million per year, is associated with resource protection activities. The total fiscal year 2000 road maintenance budget of \$111 million, (an \$11 million increase over fiscal year 1999) will meet less than 20% of the Agency's annual needs and less than 50% of identified critical needs. Each year's unmet maintenance increases the backlog as roads deteriorate and the cost of repairs continues to rise.

Following a period of sustained decline, NFS road-maintenance budgets have increased approximately 5% to 10% per year for the past four fiscal years (beginning in fiscal year 1998). Although this trend is expected to continue, the budget still falls short of identified annual needs.

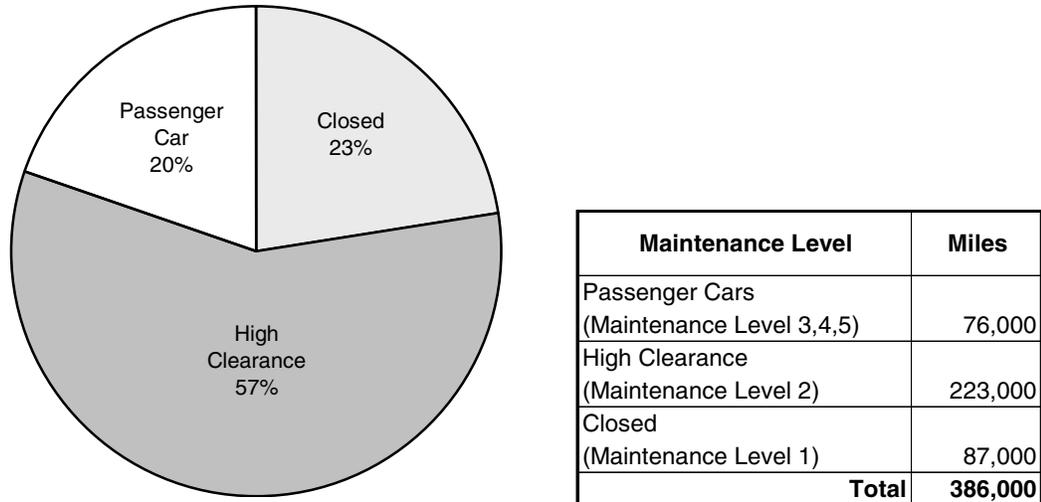


Figure 3-9. Types of vehicle use on National Forest System roads.

(USDA Forest Service 1999h)

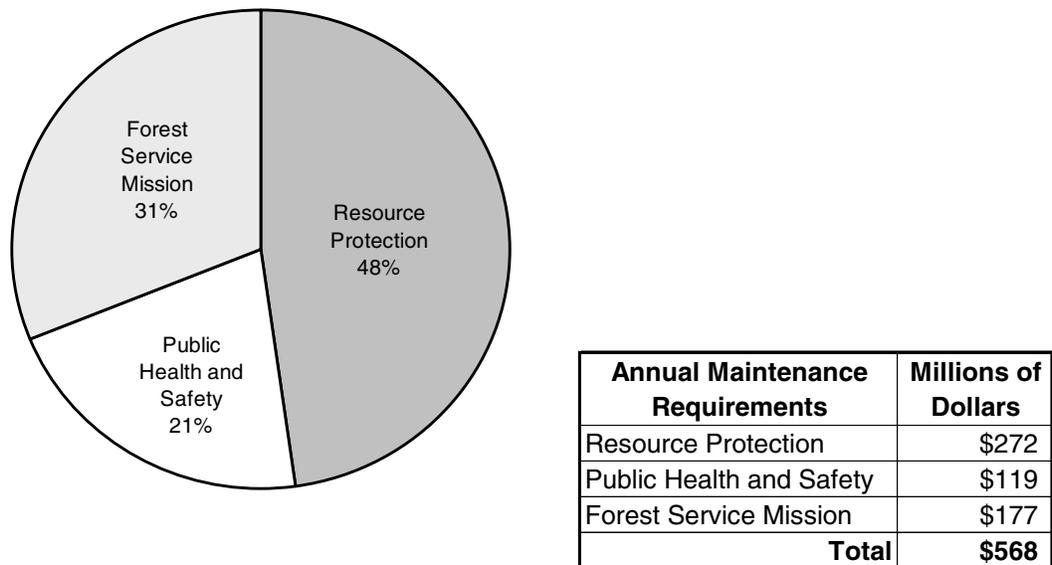


Figure 3-10. Annual road maintenance costs.

(USDA 1999h)

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 and grassland’s roads.” In fiscal year 1999, the Forest Service began a 5-year initiative to inventory and conduct condition surveys on its 386,000 miles of roads.

Results from the first year of the initiative indicate that the annual maintenance and deferred maintenance estimates from the March 1999 report are low and will increase as better data is collected and validated. The Forest Service also receives benefits from commercial use of its roads. A provision of the 1964 Roads and Trails Act, allows road use agreements, **timber sale** contracts, special use permits, mineral leases, and other cooperative agreements to accomplish **road reconstruction** and maintenance, or funds may be collected for maintenance. Although the amount of reconstruction and maintenance is commensurate with the commercial use, other users may benefit. For example, in 1991, timber purchasers reconstructed 2,736 miles of roads with a value of 34 million dollars, and an estimated 20 million dollars worth of road maintenance was accomplished using collections from commercial users, or was accomplished by the users themselves. This total contribution by commercial users of 54 million dollars compares to an appropriated road budget in 1991 of 264 million dollars, which is a benefit equivalent to 20.4% of the appropriated road budget. In 1998, commercial users contributed approximately \$41 million to an appropriated road budget of \$200 million, a benefit equal to 20.5% (USDA Forest Service 1999o).

Definitions and their use was a common topic in the public comment on the DEIS. The FEIS uses the following definitions.

Road – A motor vehicle travelway more than 50 inches wide, unless designated and managed as a trail. A road might be classified, unclassified, or temporary.

Classified roads – Roads wholly or partly within or adjacent to National Forest System lands that are determined to be needed for motor vehicle access, such as State roads, County roads, privately owned roads, National Forest System Transportation System roads, and roads authorized by the Forest Service that are intended for long-term use.

Unclassified roads – Roads on National Forest System lands that are not managed as part of the National Forest System Transportation System, such as unplanned roads, abandoned travelways, and off-road vehicle tracks, which have not been designated and managed as a trail, and are not under permit or other authorization.

Temporary roads – Roads authorized by contract, permit, lease, or emergency operation, not intended to be a part of the National Forest System Transportation System and are not necessary for long-term resource management.

Table 3-5 shows that there are approximately 77,073 miles of roads on NFS lands that are not under Forest Service jurisdiction. These roads are under the jurisdiction of **public road** agencies (State, Counties), or private parties (adjacent private landowners, mining claimants). The Forest Service also estimates that there are 60,445 miles of unclassified roads on NFS lands.

Table 3-5. Miles of existing National Forest System roads by Forest Service region (R).

Existing classified roads	Total	R1	R2	R3	R4	R5	R6	R8	R9	R10
Public roads on NFS lands	54,659	6,750	8,050	1,540	4,350	2,790	5,720	8,690	16,500	269
Private roads on NFS lands	22,414	5,280	5,410	210	1,670	1,650	2,470	369	5,270	85
National Forest System roads	385,572	53,170	31,134	54,279	37,863	44,529	93,235	36,849	30,894	3,619
Total existing classified roads	462,645	65,200	44,594	56,029	43,883	48,969	101,425	45,908	52,664	3,973
Total estimated unclassified roads	60,445	2,160	14,400	3,990	11,700	7,560	4,450	25	15,000	1,160

While the Forest Service manages approximately 9,400 miles of paved roads, the majority of NFS roads maintained for passenger cars have gravel surfaces. Of the roads maintained for high-clearance vehicles, about 190,000 miles are surfaced with native, on-site materials. Figure 3-11 displays the percentages of these road surfaces relative to the NFS roads that are open for public use. Many national forest visitors travel single lane, gravel-surfaced roads that are maintained for low-clearance passenger vehicles. Figure 3-12 shows a typical passenger car road on NFS land.

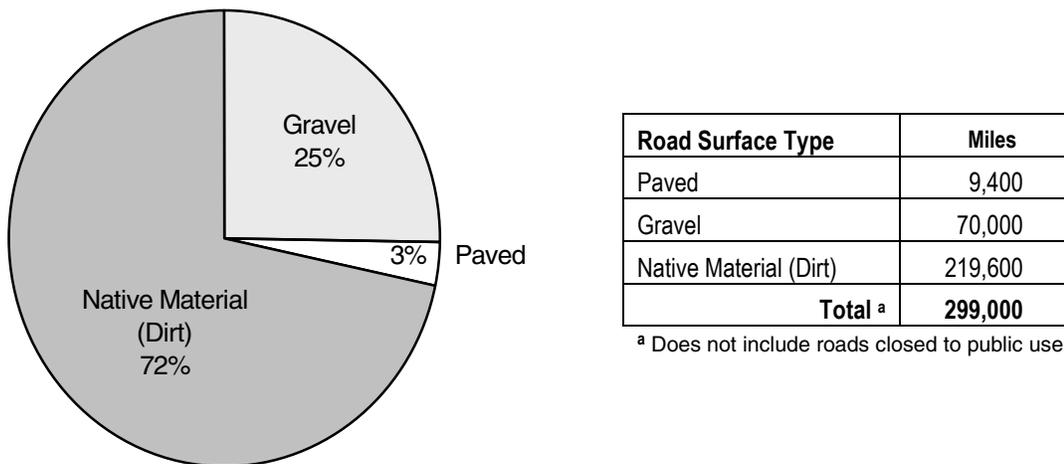


Figure 3-11. Types of road surfaces on roads that are open to public use on National Forest System lands.

(USDA Forest Service 1999h)



Figure 3-12. Typical National Forest System gravel road.

(Forest Service Engineering Files 1999)

Road Construction and Decommissioning – Over the past decade, NFS road construction has declined by 85%, 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 period, about 2,660 miles of road were decommissioned each year (USDA Forest Service 1999o).

Roads are added to NFS lands when the Forest Service: 1) constructs new roads; 2) acquires new lands through purchase or land exchanges, which often contain roads; 3) identifies unclassified roads that are permanently needed and classifies them. For example, in 1999, the Forest Service constructed 192 miles of roads, decommissioned 1,842 miles, and classified 3,738 miles of previously unclassified roads. This resulted in a net increase of 2,088 miles of NFS roads (USDA Forest Service 1999v).

Beginning in the early 1990s, many planning decisions, such as those associated with the Northwest Forest Plan, identified the need to enhance watershed health. Because of planning efforts and national regulatory and policy changes such as the Clean Water Action Plan, the Forest Service increased efforts to decommission roads when they were no longer needed and as funding allowed. In fiscal year 2001, the Forest Service has a goal of decommissioning 3,000 miles of NFS roads.

Road decommissioning involves using various levels of treatments to restore unneeded roads to a more natural state, to mitigate environmental damage and restore hydrologic function. Treatment options might include blocking the entrance, water barring, removing culverts, reestablishing drainage ways, removing unstable fills, pulling back road shoulders, restoring natural contours and slopes, or other methods designed to meet specific conditions and objectives associated with the unneeded road. It includes conversion of a road to a designated trail. The cost of decommissioning varies with the treatment and local conditions, from a few hundred dollars per mile up to \$50,000 or more per mile. The average range is typically \$5,000 to \$10,000 per mile.

The rate of NFS road construction will likely have a continued downward trend of about 5% to 10% per year in the coming decade. Nationwide, road decommissioning will probably increase as funding allows (USDA Forest Service 1999o). The combined cumulative effects section later in this chapter addresses future trends in more detail. Figure 3-13 shows the trends for NFS road construction, reconstruction, and decommissioning over the last decade.

The Forest Service constructs, reconstructs, and maintains roads on NFS lands to provide needed access for implementing land management plan goals and objectives. As these objectives and goals change, road management objectives also change. It is through road management objectives (FSM 7700) that design standards, maintenance levels, and traffic management requirements, such as seasonal closures are established. As land management goals and objectives change, so do the need for new access and the objectives for managing existing access.

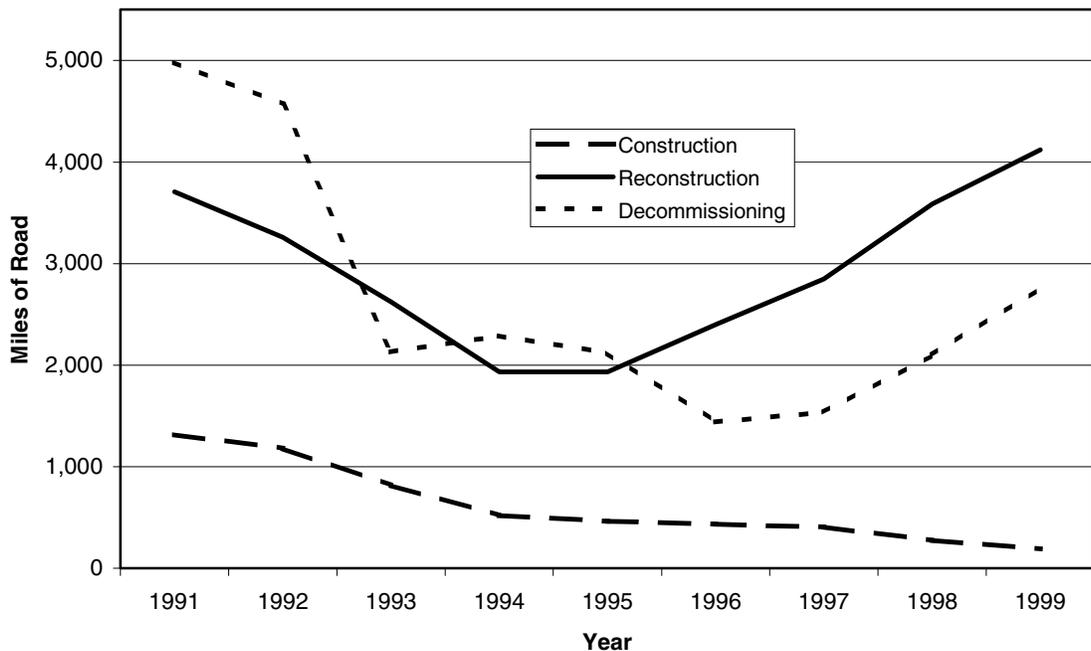


Figure 3-13. Trends in road construction, reconstruction, and decommissioning for National Forest System roads.

(USDA Forest Service 1999h)

On January 28, 1998, in an Advance Notice of Proposed Rulemaking (ANPR) (63 FR 4350), the Forest Service announced its intent to revise regulations concerning management of NFS roads. Simultaneously, the Forest Service published an Interim Roads Rule (36 CFR Part 212) to temporarily suspend permanent and temporary road construction and reconstruction in certain **unroaded areas** of NFS lands. The purpose of the Interim Roads Rule was to take a “time out” for 18 months while the Forest Service developed a new long-term road management policy and new analytical tools to provide a more ecological approach to analyzing existing and future road needs. In August 1999, the “Roads Analysis: Informing Decisions about Managing the National Forest Transportation System” was made available to Forest Service managers to use when making road management decisions.

The proposed Roads Policy requires that the findings and recommendations of a science-based roads analysis be considered when doing land management and project planning. Road management objectives are developed during land management and project level planning and these decision-making processes can be informed by a science-based roads analysis.

Management of existing NFS roads will be governed by the Roads Policy, when adopted as final (36 CFR 212 and FSM 7700) and within the framework established in the Planning Regulations at 36CFR219 and FSM 1920. A discussion of the combined cumulative effects of these and other Forest Service planning and policy initiatives is contained later in this chapter. The combined effects of the alternatives along with other Forest Service policy initiatives was often mentioned as an issue in the public comment on the DEIS.

Classified roads in general are those NFS roads that are needed to meet the goals and objectives established in land management plans that require permanent, long-term access. Classified roads also include those public roads that provide primary access into and through NFS lands and those privately owned roads that access private lands within and adjacent to NFS lands. Classified roads, with the exception of private roads, are those roads to which State traffic regulations generally apply and are designed and maintained for “highway legal” motor vehicles though use by other classes of recreational vehicles might be allowed. Classified roads may not be inventoried and mapped by the Forest Service, and they might not be maintained at the level specified by road management objectives. The proposed Roads Policy requires inventorying and mapping of all roads on NFS lands.

Temporary roads are authorized under contracts and permits, such as timber sale contracts, special use permits, oil and gas exploration permits, facility construction contracts, or they may be constructed by the Forest Service for administrative access. These roads are needed for a short time to meet a one-time access need, usually for 1 and not more than 10 years. The Forest and Rangeland Renewable Resources Planning Act of 1974 (as amended) generally requires temporary roads be closed and revegetated within 10 years. In general, the Forest Service decommissions temporary roads within one year after the need for access has terminated.

Unclassified roads are those roads that exist on NFS lands without the Agency's authorization. They include remnants of historic uses, such as old logging and mining roads, user-created roads due to repeated travel by recreational vehicles off designated roads and trails, and old temporary roads that were not decommissioned. The Roads Policy proposes a review of unclassified roads to determine if they are needed as a road, a trail or need to be decommissioned. It is likely that some unclassified roads will continue to be created in the future though less frequently than in the past due to the Roads Policy and other policy changes.

The proposed Roads Policy would also establish definitions for road construction, road reconstruction, road decommissioning, and road maintenance. These definitions can be found in the glossary. Road decommissioning is discussed above and the definitions for construction, reconstruction, and maintenance are discussed in the alternative effects sections below.

Roads can have both beneficial and negative effects. On the benefit side, roads provide access for multiple uses such as timber harvest, grazing, mining, fire suppression, forest management, ecosystem restoration, research, monitoring, recreation, subsistence uses, emergency rescue, and to meet other access needs. Roads provide access to private lands within and adjacent to NFS lands, and roads can have historic and cultural value. Non-access related benefits include providing edge habitat and firebreaks. Properly constructed or reconstructed roads can mitigate negative effects of past roading on water quality and riparian habitats.

Roads may have undesired and negative effects on hydrology, geomorphic features such as debris slides, **sedimentation**, a source of human-caused fire, habitat **fragmentation**, predation, road kill, invasion by exotic species, dispersal of pathogens, some recreational experiences, water quality and chemical contamination, soil productivity and biodiversity (USDA Forest Service 2000h).

All management activities associated with NFS roads are required to comply with relevant State and Federal statutes such as the Clean Water Act, NEPA, and Endangered Species Act (ESA). In addition, it is the Agency's policy to use the best available scientific information and **best management practices**⁵ for planning, designing, constructing, and maintaining roads regardless of where the road is located. Implementation of these policies can minimize, but not eliminate, some of these adverse environmental effects. Within the context of the alternatives, specific effects of road construction and reconstruction on individual resources are discussed later in this chapter. A key underlying assumption to all effect analyses are that road impacts are proportional to the miles of construction and reconstruction. Therefore, it is important that differences in road construction and reconstruction between alternatives are discussed.

⁵Compliance rates for implementing best management practices are between 85% and 98%, with rates increasing over time as awareness and training programs take effect (Stuart 1996, State of Oregon 1999, State of Montana 1998). Results vary between States and ownerships, with Federal lands and large forest industries showing the highest compliance, while small non-industrial landowners with little access to professional forestry assistance fall behind. A recent report from Oregon found overall compliance rates of 98% to 99% across all ownership classes (State of Oregon 1999), while a study in Maine reported only 34% of best management practices with compliance rates greater than 80% (University of Maine 1996).

The criteria used during RARE I and II allowed the presence of some roads in areas that were inventoried for Wilderness consideration (USDA Forest Service 1992). Subsequent roadless area inventories used the same criteria. Today, approximately 9,660 miles of roads currently exist on 5% of the land area in inventoried roadless areas. Some of these roads pre-date the inventories, while others have been constructed where land management plans have allowed development in inventoried roadless areas.

Alternative 1 – No Action

An estimated 1,160 miles of classified and temporary roads (including public roads not under Forest Service jurisdiction and private roads) are planned to be constructed or reconstructed in inventoried roadless areas over the years 2000 to 2004. Table 3-6 shows the miles of classified and temporary road construction and reconstruction in inventoried roadless areas, required to support the **timber offer** volume projected over the same years. The estimated percentage of the classified roads that would be closed after planned use is also displayed. Forty-two percent of the planned timber-related roads are single-purpose roads closed to traffic between uses or are short-term roads that would be decommissioned. In addition, all of the planned temporary roads would be decommissioned within 10 years after use. The Forest and Rangeland Renewable Resources Planning Act of 1974, generally requires temporary roads to be closed and revegetated after use. By closing or decommissioning roads after use, the long-term effects on the environment are reduced. On the other hand, while temporary road construction must comply with law, regulation, and policy, in general, temporary roads are not designed or constructed to the same standards as classified roads and are not intended to be part of the National Forest System Transportation System. The results can be a higher risk of environmental impacts over the short run. The effects of the road construction and reconstruction are described for the prohibition alternatives for each resource later in this chapter.

Table 3-6. Miles of planned timber-related road construction activities, 2000-2004.

Region	Classified road const	Classified road reconst	Temporary road const	Total all categories	Estimated closures of classified roads	Estimated closures of classified roads (%)
Northern (1)	12	33	7	52	26	58
Rocky Mountain (2)	16	25	18	59	31	76
Southwestern (3)	0	0	3	3	0	0
Intermountain (4)	73	15	28	116	49	56
Pacific Southwest (5)	4	3	4	11	4	57
Pacific Northwest (6)	16	1	2	19	17	100
Southern (8)	5	16	4	25	18	86
Eastern (9)	6	6	35	47	11	92
Alaska (10)	214	0	77	291	32	15
Total	346	99	178	623	188	42

Alternatives 2 through 4

The direct effect of implementing the national prohibitions outlined in all three alternatives is an immediate end to 867 miles of projected road construction and reconstruction, including temporary roads planned in inventoried roadless areas from 2000 through 2004. Long term, this is expected to result in a reduction in the Forest Service road program of approximately 173 miles per year (based on the 5-year average of the data collected).

Prohibiting new roads would prevent any construction activities that would result in adding classified or temporary road miles in inventoried roadless areas. The prohibition on reconstruction would prevent any construction activities that would result in improving or relocating an existing road in inventoried roadless areas. In general, improvements include expanding a road's design capacity allowing it to accommodate more traffic; changing its design function, for example, from that of a low standard single use road to a primary access route for low clearance passenger cars. Relocation means physically moving all or part of an existing road to a new location and includes decommissioning the old section of road. See the Glossary for specific definitions.

Design criteria used under Alternatives 2 through 4 include **exceptions** to the prohibitions on road construction and reconstruction when:

- A road is needed to protect public health and safety in cases of imminent threat of flood, fire, or other catastrophic event that, without intervention, would cause the loss of life or property;
- A road is needed pursuant to reserved or outstanding rights or as provided for by statute or treaty; or
- **Road realignment** is needed to prevent irretrievable resource damage by an existing classified road that is deemed essential for public or private access, management, or public health and safety, and such damage cannot be corrected by maintenance;
- A road is needed to conduct a proposed action under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) or to conduct a natural resource restoration action under CERCLA, section 311 of the Clean Water Act, or Oil Pollution Act.

Any roads constructed or reconstructed because of the exceptions (as noted in Chapter 2) are subject to other laws, regulations, and policies governing these activities. In particular, the requirements being established in the Roads Policy, including interim requirements for inventoried roadless areas and use of the **Road Analysis** Process would apply, if included in the final Roads Policy.

In general, road construction or reconstruction done under one of the above exceptions would be the minimum needed to meet the required short-term access need, if possible, and would be designed to minimize and mitigate impacts on an inventoried roadless area's **roadless characteristics**.

Approximately 293 miles of roads planned in inventoried roadless areas (combined construction and reconstruction 2000 through 2004) would qualify under the exceptions.

This represents an average annual road program of about 59 miles per year in inventoried roadless areas under the prohibition alternatives.

Table 3-7 summarizes, by Forest Service region, the planned road construction and reconstruction not related to timber harvest. Table 3-8 shows miles of road construction and reconstruction for various resource management purposes that would be prohibited under Alternatives 2 through 4.

Table 3-7. Planned miles of non-timber-related road construction activities including estimates for roads under Forest Service jurisdiction, other public roads, and private roads in inventoried roadless areas, 2000-2004 (Alternatives 2 through 4).

	Excepted ^a				Not Excepted ^a				Total
	Classified road const	Classified road reconst	Temp road const	Sub total	Classified road const	Classified road reconst	Temp road const	Sub total	
Northern (1)	64	0	8	72	14	1	0	15	87
Rocky Mountain (2)	25	0	0	25	41	2	0	43	68
Southwestern (3)	13	0	0	13	7	0	0	7	20
Intermountain (4)	41	19	0	60	41	52	0	93	153
Pacific Southwest (5)	27	0	0	27	31	0	0	31	58
Pacific Northwest (6)	24	0	0	24	9	2	1	12	36
Southern (8)	19	0	0	19	7	4	0	11	30
Eastern (9)	1	0	0	1	12	0	0	12	13
Alaska (10)	52	0	0	52	20	0	0	20	72
Total	266	19	8	293	182	61	1	244	537

^aExceptions to the prohibitions as noted in this FEIS.
(USDA Forest Service 1999h; Roadless Database 2000)

The prohibitions on road construction and reconstruction in Alternatives 2 through 4 do not restrict or limit road maintenance. All activities that are needed to meet a road’s current road management objective would be allowed. For example, if the gravel surfacing on the road shown in Figure 3-12 wears out, then it could be replaced. If a bridge or culvert on that same road needs to be replaced because it is no longer safe or it no longer meets environmental standards, then the replacement would be allowed. However, if it were desirable to make that road two lanes, and pave it to accommodate an increased need for access, those improvements would not be allowed because this is reconstruction, which is prohibited under Alternatives 2 through 4. If a road is proposed for reconstruction to protect an endangered run of salmon in a nearby stream and reduce sedimentation, then that would be allowed. In general, those activities needed to maintain a road’s current design standard, maintenance level or traffic service level would be

Table 3-8. Planned miles of classified and temporary roads by resource area that would be prohibited under Alternatives 2 through 4 (2000-2004).

	Timber	Mineral	Recreation	Access	Wildlife	Total
Classified road construction	346	59	24	85	14	528
Classified road reconstruction	99	0	8	48	5	160
Temporary road construction	178	0	1	0	0	179
Total	623	59	33	133	19	867

(Roadless Database 2000)

allowed. Maintenance activities needed to meet new environmental or safety requirements resulting from law, regulation or policy would also be allowed.

Timber harvest contracts and other commercial activities provide a means of accomplishing needed road reconstruction and maintenance. As a requirement of a timber sale contract, special use permits, or other contracts, safety and environmental problems on existing NFS roads would be corrected to the extent necessary for executing the permit or contract. Road maintenance is performed based on the level of use by the commercial user, or funds are collected for later maintenance by the Forest Service. This reconstruction and maintenance provides an indirect benefit to other road users and contributes to the accomplishment of Forest Service management objectives including elimination of backlog maintenance and capital improvement needs. As timber harvest is reduced in Alternative 3 and eliminated in Alternative 4 these direct and indirect benefits would be forgone.

Any appropriated funds for road construction or reconstruction not spent in inventoried roadless areas because of the national prohibitions would be shifted to other high-priority roads to meet health, safety, and environmental protection and mission needs.

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 and during public comment on the DEIS. No closure orders would be issued because of the prohibitions outlined in Alternatives 2 through 4. There would be no additional time requirements or economic burdens placed on law enforcement beyond what already exists as a result of current regulation at CFR 36, Part 261 – Prohibitions.

Effects of Social and Economic Mitigation on National Forest System Roads

With the additional mitigation proposed in Chapter 2, the Secretary's authority to grant rights-of-way for State highway projects (23 U.S.C. 317) is maintained. Over the 5 years from 2000 to 2004, only one 5.5-mile State-highway relocation project is proposed in an inventoried roadless area, on the Chugach National Forest. In most cases, other classified roads not under Forest Service jurisdiction, public roads (County, city), and private roads would be able to be constructed or reconstructed within existing rights-of-way or within

rights-of-way granted under one of the exceptions. In cases where additional rights-of-way are needed and the exceptions do not apply, then those requests would not likely be granted.

If road construction and reconstruction for leasable minerals is permitted, then an additional 59 miles of road construction would be allowed during the 5 years from 2000 through 2004. This, along with the State Highway Project on the Chugach National Forest, would increase total miles excepted from 293 to 358, which is an average of about 65 miles per year, or approximately 13 additional miles per year than under Alternatives 2 through 4.

Other Indirect and Cumulative Effects on National Forest System Roads

It is reasonable to expect that the historic trends for developing inventoried roadless areas established over the past 20 years will continue in this century. Currently, it is estimated that in inventoried roadless areas where development is allowed, 8% has been roaded. Over the next 20 years under Alternative 1, probably an additional 5% to 10% of the area in inventoried roadless areas would be roaded. If the road program identified in data reported for 2000 through 2004 is a predictor of future activity, then probably an additional 3,200 miles of classified roads would be constructed by 2020. By 2040, between 18% and 28% of the total classified inventoried roadless area acres would be roaded with an estimated additional 6,400 miles of classified roads.

Under Alternatives 2 through 4, the rate of road construction in inventoried roadless areas would be lower than under Alternative 1. Under Alternatives 2 through 4, by 2020 the classified road miles in inventoried roadless will have grown by an estimated 1,160 miles, and by 2040, by an additional 1,160 miles. With the addition of an exception for mineral leasing, the total classified road miles in inventoried roadless areas are estimated to increase by 1,360 miles by 2020, and another 1,360 by 2040,

In 1997, there were approximately 4 million miles of public roads in the United States (USDOT Bureau of Transportation Statistics 1999). Of these, about 3 million miles were rural public roads (generally, County, secondary State, and Federal land management agency roads). There are an estimated 368,000-miles of NFS roads, which represents approximately 12% of rural public roads. There is no discernable difference between Alternatives 2 through 4 and Alternative 1 in their effects on national rural public road access. Alternatives 2 through 4 would have a minimal effect on rural public road access when assessed nationally.

Included in the analysis are discussions of the implications and consistency with the Forest Service Strategic Plan, the Unified Federal Policy, and other related initiatives.

The initiatives being proposed by the Forest Service, when taken in combination, would result in more informed decisions about conservation management and use of NFS lands. The revision of the Planning Regulations sets the planning framework for considering the road network necessary for sustainable multiple-use management. A roads analysis

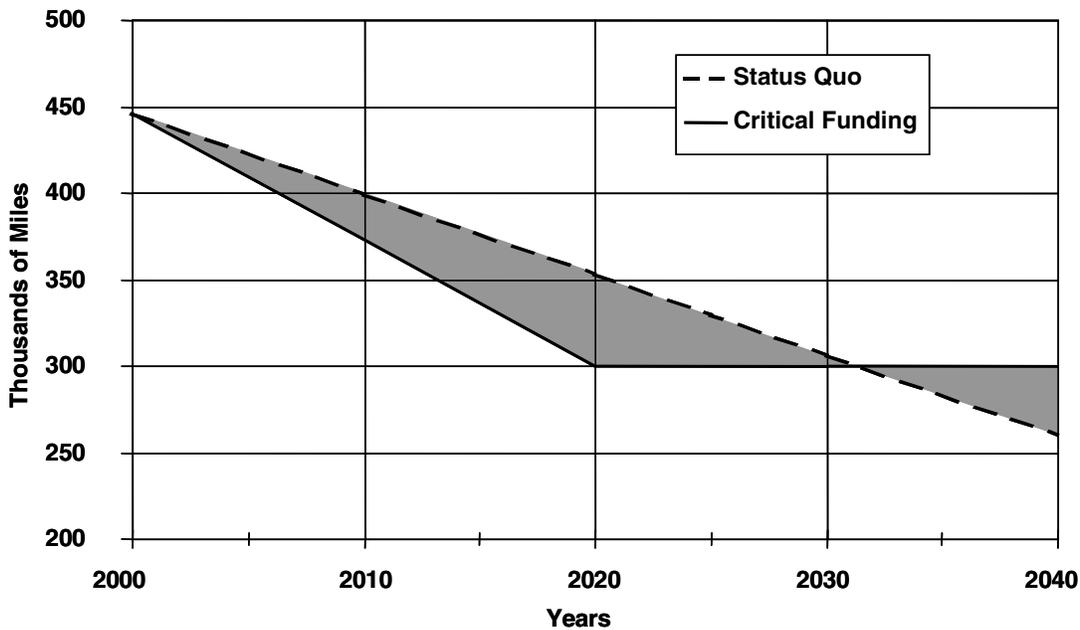
process at the land management plan level is required by the proposed Roads Policy and will change the current policy emphasis from road development to road maintenance. This analysis, required by the proposed Roads Policy, would examine NFS roads using public involvement and the best available science while considering effects on social, economic, and environmental sustainability.

The forest-wide roads analysis process required by the proposed Roads Policy would also be important for its influence on future road-management decisions. Decisions on individual road construction and reconstruction projects in unroaded areas would be informed by roads analysis as influenced by the analysis of unroaded areas required at the time of land management plan revision. The Roads Policy outlines a consistent process that each forest and grassland would follow to determine what roads are needed, including unclassified roads, for the long-term management of NFS lands. Road management decisions, made at the local level, must comply with existing laws such as the Clean Water Act, the ESA, Highway Safety Act, and be consistent with land management plans.

It is not possible to predict the outcome to NFS roads on individual national forests and grasslands from decisions that will be made at the land management plan and project level from the combined implementation of the Planning Regulations, the Roads Policy, and the alternatives considered in this FEIS. Other initiatives, such as the Unified Federal Policy, the draft Strategic Plan, and the **Cohesive Strategy** should have minimal effects on NFS roads. Under the Cohesive Strategy, there would likely be a bias toward maintaining and increasing access for **fuel treatment** in priority areas. The Unified Federal Policy establishes watershed assessments that are expected to be combined with the Roads Policy analysis guidelines to help identify needed and unneeded roads. Additionally, Regional initiatives, specifically the Interior Columbia Basin and Sierra Nevada Framework projects, could also have compounding effects of reducing the miles of classified and unclassified roads, which is consistent with the downward trends projected in Figure 3-14. Although the alternatives in the Sierra Nevada Framework Project DEIS do not show any decline in NFS road miles as a direct result of the decisions to be made, the DEIS for the Interior Columbia Basin does project declines.

It is possible to estimate reasonably foreseeable trends describing the future amount and condition of roads under Forest Service jurisdiction. It is anticipated that the majority of the existing roads will continue to be needed for management since the road network has continued to grow (Figure 3-8). The Forest Service estimates that between 260,000 miles and 300,000 miles of NFS roads will exist after implementation of these policies. Decisions about whether a road is needed will be driven by the Forest Service's ability to meet land management plan objectives within the funding received, along with safety and environmental protection standards. The actual amount of NFS roads closed, decommissioned, open to public travel, the standard maintained, and the time to reach a minimum amount of roads needed to best serve current and anticipated management objectives and public uses is dependent on many factors including budgets, environmental risks, capabilities of the land, and use. Management of NFS roads will comply with applicable law, regulation, and policy.

The two **scenarios** discussed below estimate different foreseeable future scenarios based on projections for access needs, budget, and an assumed rate at which unneeded roads would be identified and removed from the National Forest System Transportation System. The space between these two scenarios represents a range of possible outcomes (Figure 3-14).



386,000 miles of classified roads plus 60,000 miles of unclassified roads equals 446,000 miles of roads
 Status Quo: 260,000 miles of roads after 40 years
 Critical Funding: 300,000 miles of roads after 20 years

Figure 3-14. Range of possible National Forest System road miles based on funding.

Scenario 1: Current Budget Levels – Under this scenario the current appropriated road construction and maintenance budget of 200 million dollars a year would continue and would keep pace with inflation, which reflects the current trend of a 5% to 10% increase each year. Land management plan revisions guided by new Planning Regulations may identify unroaded areas where road construction could be prohibited. The roads analysis process would be completed on NFS lands and, through land management planning, decisions would be made about which roads are needed. As budgets allow, roads would be maintained at standards that would seek to balance the need for access with environmental protection. Because current funding levels would not achieve all road management objectives, it is likely that NFS roads would continue to deteriorate. Roads would become impassable, decisions to close roads would likely increase, and the level to which the roads are maintained would be lower than is necessary to meet all land management plan goals and objectives. In general, Agency resources would be focused on the 60,000 to 80,000 miles of road that carry the majority of NFS visitors, and on

correcting negative environmental effects on the remaining NFS roads. Under this scenario, NFS roads would reach a stable size in approximately 40 years.

Scenario 2: Critical Funding Needs Are Met – The Forest Service’s Natural Resource Agenda sets clear priorities in accordance with the Forest Service Strategic Plan and within the guidelines of the Government Performance and Results Act of 1993. One of the four elements of the Forest Service Natural Resource Agenda is roads, and one of the objectives of the Roads Policy is to seek funding at a level that will allow the Agency to maintain the roads for NFS lands access to acceptable environmental and public safety standards. To do this, the Agency works with Congress and other Federal agencies to establish sustained funding for NFS roads at a \$900 million annual level.

At this funding level, which will meet critical needs, the Forest Service would be able to move methodically to reduce its estimated 8.4 billion dollar capital improvement and deferred maintenance backlog over the next 20 years. Roads analysis process would be completed and NFS roads would be assessed over the next 10 years to determine which roads are needed and which are unneeded for management. These determinations would be made at the appropriate level through environmental analysis. In general, roads would be maintained at standards that would accommodate the appropriate balance between projected demand for access to NFS lands and environmental protection. Decommissioning of unneeded roads would progress at an accelerated pace compared to current trends.

Generally, no roads would be impassable due to lack of maintenance once the crucial deferred maintenance needs are eliminated. Under this scenario, NFS roads would reach equilibrium approximately 20 years from when the Agency starts to receive funding for its critical needs.

Road management decisions and the Forest Service’s ability to implement them will be influenced by Agency budget levels, and the availability of Forest Service and **community** resources.

Alternatives 2 through 4 would contribute to the downward trends described above because there would be fewer roads constructed under these alternatives than under Alternative 1. However, the difference in effects between Alternative 1 and Alternatives 2 through 4 is minimal when looking at the likely trends in access on NFS lands over the next 20 to 40 years. Other policy changes and available funding for NFS roads are more likely to affect downward trends discussed above.

Creation of Unroaded Areas – The combined effect of implementing the Roads Policy, proposed Roadless Rule, and individual land management plans all within the planning framework established in the Planning Regulations would likely be reductions in road densities and possibly the creation of unroaded areas. The prohibitions on road construction and reconstruction proposed under Alternatives 2 through 4 would not apply to these newly created unroaded areas.

It is impossible to predict how many local land management plan and project level decisions would result in road density reductions and in turn how much and where

unroaded areas would be created or enlarged. Land management plan goals, such as reducing road densities for big game or recreation management, eliminating failing roads in riparian areas, or reducing fragmentation of a particular wildlife habitat, may result in road decommissioning projects. Consultation with the U.S. Fish and Wildlife Service or National Marine Fisheries Service during project-level planning may result in road decommissioning to meet conservation strategy or recovery goals or to implement measures in biological opinions. The following two examples illustrate how road decommissioning could affect the amount of unroaded area acres.

In the first example, the land management-plan objective may be to reduce road density (measured as miles of road per square mile). Through planning, consultation, and local collaboration, it could be determined that the road density is too high and should be reduced to meet resource management goals. In this case, elimination of roads, even a large number of individual roads or miles of roads, may not create or enlarge unroaded areas as road density is reduced and roaded access is maintained. This particular management scenario is quite common throughout Agency-managed lands in the West. Eliminating roads to reduce road density and not creating unroaded areas is likely to be the most common decommissioning scenario accounting for perhaps 90% or more of road decommissioning decisions.

The second example is the purposeful creation of unroaded acres as a by-product of implementing land management plan objectives. For example, a watershed could have originally been roaded to provide access for timber management activities. Under new land management-plan direction, the same area could now be managed for other values or under a different **land allocation**. To reduce erosion, rehabilitate drainage patterns, increase water quality, stabilize vegetation, enhance the scenic quality, reduce landslide potential, enhance fish and wildlife habitat, and create a more secure domestic water supply, all roads could be decommissioned and the watershed restored to a more natural condition. Examples of this can be found in the portions of the Pacific Northwest that are covered by the Northwest Forest Plan where the Aquatic Conservation Strategy has placed an emphasis on road decommissioning and watershed restoration.

Restoration of large portions of watersheds where management objectives no longer require roaded access, while expected to remain uncommon, are likely to be more frequent as the Forest Service manages for sustainability of forest ecosystems. The Agency estimates that unroaded area acres are likely to increase 5% to 10% by the time NFS roads stabilize at 260,000 miles to 300,000 miles nationally.

In both of these examples it is less likely that unroaded areas would be expanded in the East due to the way these national forests were reserved, their tendency to contain more roads not under Forest Service jurisdiction, the differences in habitat and habitat needs for protected species and the differences in geology, hydrology, and topography.

The Planning Regulations would require the **responsible official**, at the time of plan revision, to identify and evaluate the important social and ecological characteristics of unroaded areas and inventoried roadless areas, and make a determination if they should

receive any additional protection. This would take place in the context of the collaboration, sustainability, and science requirements of the Planning Regulations.

The proposed Roads Policy would require that each forest and grassland undertake a roads analysis process at the national forest level. The findings of this analysis may inform a revision or an amendment of land management plans. The roads analysis process would ensure local public and private collaboration in informing road management decisions. Classified, unclassified, and temporary roads would be inventoried, mapped and a determination made by responsible officials as to whether a road is needed and, if so, where it would be located. The draft environmental assessment for the Roads Policy estimated that, at a minimum, approximately 2,900 roads would be decommissioned annually. In some cases, roads may be converted to and managed as designated trails. It is during this assessment and decision-making process that the effects of road decommissioning, including unroaded area creation, would be disclosed.

There would not be any additional unroaded areas created because of selecting and implementing the alternatives analyzed in this FEIS.

Access

Because the Roadless Rule proposes to prohibit future road construction in the inventoried roadless areas of NFS lands, it raised public concern over the question of access to these lands. There was extensive public comment on the Notice of Intent and the Draft Environmental Impact Statement pertaining to many different facets of the access issue (Chapter 1, Public Review and Comment on the DEIS and Issues Considered). People have diverse and often conflicting interests in how NFS lands are managed. Forest and grassland roads and trails represent more than just mere travel ways to many people. To many people, roads symbolize their personal rights and freedoms. People may be socially or economically dependent on the access they provide. The ways people use them are often expressions of their individual lifestyles, choices, and values. Some people view a prohibition on road construction in inventoried roadless areas as a foreclosure of future rights, opportunities, and freedoms.

The preceding section on NFS roads discussed road-related issues from a technical perspective. This section focuses on roads and the access they provide to NFS lands from a social standpoint. The following discussion summarizes existing public perceptions, concerns, and values relating to access. It is based on public comments received during this rulemaking process.

Affected Environment

Many comments received on the Notice of Intent and the Draft Environmental Impact Statement expressed concern about the effects that prohibiting road construction and reconstruction in inventoried roadless areas would have on the delivery of future goods, services, and activities. Many people perceive that the proposed rule would close roads and trails and cut off access to large areas of NFS lands. Often people oppose the proposed rule for this reason, believing it would force them to discontinue activities in

places they currently use, with negative social, cultural, or economic consequences. These activities include motorized recreation, equestrian use, hunting and fishing, grazing, logging, mining, and harvesting non-timber forest products. Other people support the rule because they believe it would close roads and trails, and as a result, have many ecological benefits, as well as benefits to people who prefer non-motorized recreation opportunities, and who have other non-commodity values relating to NFS lands. These perceptions that the proposed rule would close existing access are not correct.

There is also a perception that prohibiting road construction and other activities in inventoried roadless areas would lead to future restrictions and prohibitions on other parts of NFS lands. In addition, several comments were received that stated that a prohibition on road construction would deny future generations the opportunity to enjoy certain areas of public lands. Commentators also believe that by limiting access for forest management activities, such a restriction would lead to increased forest health and fire control problems, and would prevent ecosystem restoration activities in roadless areas. They believe that a prohibition on road construction could also hinder search and rescue efforts, and limit timber harvesting options due to increased cost.

Access is also an existing or perceived legal right to many people, some of whom believe the Roadless Rule violates this right. Mining interests refer to the 1872 United States Mining Law as providing them legal access to areas not withdrawn from mineral exploration. American Indian Tribes have treaties that may have reserved certain rights of access for various activities. Some States have laws that provide access to private lands by residents along surveyed section lines. Other regulations govern access to private lands within NFS boundaries. Some people mentioned Revised Statute 2477 (Public Law 94-579) roads as having legal standing. Other people believe past government actions or legislation, such as special designated areas, guaranteed them access to certain areas. Commentators mentioned Wilderness Acts that had release language on lands not designated as Wilderness. Still others stated that the trails or routes they use within certain roadless areas have historic significance and established use, and thus have legal standing as roads. Finally, some people felt that special use permits and administrative permits provide them with access to specific areas so that their operations can be efficiently managed. The definition of access is a legal question, and can vary on a case-by-case basis.

Another concern expressed by respondents pertaining to the issue of access is that the Roadless Rule discriminates against certain sub-groups of the population who, in their view, can only experience NFS lands by road. These sub-groups include the elderly, children, people with disabilities, persons in poor health, people who do not enjoy walking, and people who lack the time or money to visit NFS lands on foot. These respondents (who are not necessarily members of these sub-groups themselves) believe the prohibition alternatives would unfairly (and perhaps illegally) limit the ability of such people to gain access to and enjoy NFS lands. Other respondents, including members of those groups, dismiss such arguments as being purely political.

There is also concern among some members of the public that the Roadless Rule would exacerbate what they view as being a situation of unfair private roaded access to NFS lands by certain groups. There is a perception that private landowners, permittees, and lessees have exclusive roaded access rights to some areas of NFS lands because they have rights to use some roads that the public cannot. These roads are generally private roads that cross NFS lands and provide access to private **inholdings**; or, that border NFS lands and provide access to adjacent private lands. Some people view these exclusive access rights as being unfair, and believe the Forest Service should take over or open access to these roads, or build new roads, that would provide roaded access to the same areas by the general public. They are concerned that a prohibition on road construction would prevent new roads from being built in inventoried roadless areas to remedy this perceived injustice.

While many people feel their rights of access and associated forest uses are threatened by the Roadless Rule in the ways described above, many others support the rule precisely because they believe it would limit roaded and motorized access to NFS lands. They believe that limiting access, including off-highway vehicle (OHV) use, is appropriate, citing the detrimental environmental effects of roads and OHVs, and their negative effects on the peace and quiet of the forest. They feel that existing roads and motorized trails provide sufficient access to large blocks of relatively unroaded areas. These commentators also believe that there is already enough roaded access to NFS lands outside of roadless areas, which is sufficient to accommodate road-related and motorized uses.

The effects of the alternatives on access to NFS lands by specific sub-groups of the population, and by people who engage in specific uses of these lands, are discussed in the Social and Economic Factors section of this chapter.

Alternative 1 - No Action

Under this alternative existing access to roadless areas would be maintained. Access related decisions would continue to be made at the local level through forest and project land and resource management planning. Current trends for road construction, reconstruction, and decommissioning (refer to the National Forest System Roads section) would likely continue over the next decade. Access for the purposes of developed and **road based recreation** opportunities would continue to increase; conversely, the supply of land available for **dispersed recreation (Primitive, Semi-Primitive Non-motorized, and Semi-Primitive Motorized ROS classes**, see discussion in Chapter Three, Recreation) would continue to decrease. Future opportunities for increased roaded access to inventoried roadless areas for resource extraction and other uses would be conserved.

Alternatives 2 through 4

The action alternatives would have essentially the same effects on access. No existing roads or trails would be closed by the prohibitions. No new roads would be built in inventoried roadless areas, and existing roads could not be reconstructed. Therefore, at a minimum, the current level of roaded access to inventoried roadless areas would be

maintained, as would all forest uses associated with existing access. If funding allows, the deferred road maintenance backlog could be reduced, which would improve access on existing roads through better road maintenance (see the National Forest System Roads section).

Existing and future access to inventoried roadless areas by trail, whether motorized or non-motorized, would not be affected by the national prohibitions. Existing road and trail access for persons with disabilities would also not be affected by the prohibitions.

Future opportunities to expand activities in inventoried roadless areas would be foreclosed if they required new road construction to expand. Alternatives 2, 3, and 4 would limit or discontinue access to inventoried roadless areas, respectively, for purposes of timber harvest. New roads could be constructed, or existing roads reconstructed, to provide access to inventoried roadless areas to allow for the exceptions listed in Chapter 2, alternatives section. These include roads needed to protect public health and safety; roads needed pursuant to reserved or outstanding rights, or as provided for by statute or treaty; roads needed to conduct response actions or natural resource restoration actions under existing environmental laws; and as needed to prevent irretrievable resource damage.

Any future limitations on existing access to inventoried roadless areas required to protect roadless characteristics would be decided upon at the local level through forest and project resource management and planning efforts, with public participation.

Ecological Factors

Developing and implementing ecologically sustainable policies and programs presents many challenges for managers, scientists, and the public alike. Finding a balance between what people want from the land and what the land is ecologically capable of providing will likely continue to dominate the debate over NFS land management. The following sustainability issues are discussed in this section.

- Dynamic nature of ecological systems,
- Significance of natural processes,
- Variability of ecological systems,
- Human wants and needs, and effects of human use,
- Cumulative effects of human activities, and
- Level of our knowledge of complex ecosystems.

Ecosystem health describes the condition of an ecosystem. To measure ecosystem health, physical and biological factors, such as water, soil, air, biodiversity, terrestrial and aquatic habitat and species and **disturbance** processes, such as fire, landslides and flooding are considered. These factors are described in the Ecological Factors section. Together, all these factors describe the past, present, and potential future ecological condition of inventoried roadless areas by alternative.

The National Forest System Draft Strategic Plan (USDA Forest Service 1999f) establishes ecosystem health as a priority goal. The Strategic Plan addresses the need to improve and protect watershed conditions; increase the amount of habitat capable of sustaining all native species; and reduce risks from fire, insects, disease, and nonnative invasive species. Managers often describe the health of an ecosystem by comparing present conditions to historical ones. The estimated **historic range of variability** is a concept often used as a baseline when evaluating ecosystem health (USDA Forest Service and USDI Bureau of Land Management 2000). Scientists and land managers often compare the historic conditions of an ecosystem with today's conditions, and rate an ecosystem's health as a measure of departure from the historic conditions (historic range of variability). For example, after many years of fire suppression, more than 24 million acres of Western national forests are outside their historical **fire regimes**. At particular risk are the ponderosa pine forests in the Intermountain West, which historically experienced frequent light understory burns. Now, after decades of fire suppression, the buildup of live and dead vegetation has made these forests “unhealthy” tinderboxes that are vulnerable to large **stand** replacing fires.

In some parts of the country, it is not possible to use the historic range of variability as a benchmark either due to lack of information about the pre-settlement ecological conditions or to substantial and irretrievable ecosystem changes. For example, in the Eastern United States, much of the landscape has changed due to establishment of nonnative invasive species. Once, large chestnut trees covered 25 to 30% of many Eastern forests. Today, virtually all of these large trees have been eliminated by chestnut blight and seven moth species that feed exclusively on chestnut trees (Opler 1976). In West Virginia, more than 30% of the current plant species are nonnative and much of the forest has been harvested several times since European settlement. In this analysis, the historic range of variability is used qualitatively to describe the differences between alternatives considering the range of factors.

The ecological factors that were evaluated include:

- **Ecoregion** representation, habitat distribution,
- Size and distribution of roadless habitat,
- Size and distribution of roadless habitat relative to Grizzly Bear Recovery Areas,
- Nonnative invasive species introduction,
- Habitat fragmentation and loss **connectivity** for threatened and endangered (T&E) species other terrestrial and aquatic species,
- **Sediment** loading,
- Quantity and quality of water and air,
- Landslide,
- Fire disturbance processes,
- Insects and disease, and
- Levels of human disturbance.

Individually these factors represent various parts of an ecosystem; together, they may provide a more holistic picture. These factors are discussed under three broad subheadings: physical resources, forest health, and biological diversity.

Generally, the ecological benefits of protecting more inventoried roadless areas from development and roading include:

Physical Resources

- Conserving water, soil, and air resources
- Protecting aquatic ecosystems
- Ensuring that community drinking water sources are protected
- Protecting overall watershed health

Forest Health

- May reduce the occurrence of human-caused fires
- May reduce the spread of some damaging insects and diseases

Biological Diversity

- Increasing habitat protection
- Protecting areas from additional landscape fragmentation and further loss of connectivity
- Maintaining and/or enhancing native plant and animal communities and reducing opportunities for the spread of nonnative invasive species
- Increasing the protection of a diversity of habitats from low to high elevations
- Conserving habitat for threatened, endangered, proposed, and sensitive species (TEPS)
- Providing important habitat for populations of wide ranging animals that need large areas with low human activity levels

Physical Resources

Water, soil, and air resources have measurable characteristics that operate within naturally variable ranges of values. Water yield, timing, and quality, soil erosion, air quality, and other characteristics can vary widely, even in undisturbed situations. Land management practices, such as roading, timber harvest, **prescribed burning**, and other similar activities, can affect these values, and their variability. Sometimes the effects are within natural ranges; sometimes they are not. The most common effects of road construction and timber harvest activities on water, soil, and air resources are loss of ground cover vegetation, soil erosion and compaction, loss of soil productivity, increased potential for landslides, reduced transpiration (use of water by plants), increased water runoff, reduced water quality, and reduced air quality. In this analysis, the specific characteristics discussed are water quantity and timing, water quality, drinking water source areas, channel morphology, soil loss and sedimentation, site productivity, landslides, and air resources. Effects of fire on watersheds are discussed in the Forest Health and Fire Ecology section.

Roads have long been recognized as the primary human-caused source of soil and water disturbances in forested environments (Patric 1976; Egan and others 1996). Most impacts occur during initial road construction and then gradually decrease as roadside vegetation is reestablished and disturbed soil surfaces stabilize. Effects such as landslides persist when a road permanently undercuts unstable soils or landforms, or when roads are continually disturbed by road maintenance. Periodic maintenance activities can cause some of the impacts to briefly, but repeatedly, recur. Areas of particular concern are the