SOCIAL ENVIRONMENT

Transportation Facilities

Introduction

This section of the environmental analysis examines the extent to which alternatives respond to transportation facilities direction established in the SNF Forest Plan (LRMP). The LRMP transportation facilities direction was established under the implementing regulations of the National Forest Management Act (NFMA) and the Forest Roads and Trails Act (FRTA). The National Forest Transportation System (NFTS) consists of roads, trails and motorized use areas. The NFTS provides for protection, development, management and utilization of resources on the National Forests. There are other roads and trails existing on the Forest that are not part of the NFTS. Transportation facilities considered in this analysis include roads, trails and areas that are suitable for motor vehicle use. Decisions regarding changes in the transportation facilities must consider: 1) providing for adequate public safety and 2) providing adequate maintenance of the roads, trails and areas that will be designated for public use. The analysis in this section focuses primarily on these two aspects of the NFTS.

Regulatory Framework: Compliance with the Forest Plan and Other Regulatory Direction

Direction relevant to the proposed action as it affects transportation facilities includes:

Travel Management Rule, Subpart B (36 CFR 212)

> The responsible official shall consider the effects of designated road, trails and areas on public safety, access needs, conflicts among uses of National Forest lands, the need for maintenance of roads, trails and areas and the availability of resources for that maintenance and administration of roads, trails and areas.
>
> For the designation of trails and areas the responsible official shall consider minimizing damage to soil, watershed, vegetation and other forest resources and minimizing conflicts among different classes of vehicles of motor vehicles use on NFS lands and neighboring Federal lands.
>
> For the designation of roads the responsible official shall consider the speed, volume, composition and distribution of traffic and the compatibility of vehicle class with road geometry and road surfacing.

Forest Service Manual Sections 2350 and 7700 contain Agency policy for management of the NFTS. The policy requires the development of trail management objectives (TMO) and road management objectives (RMO). The TMOs and RMOs document the purpose of each trail or road. The purpose for the trail or road sets the parameters for maintenance standards needed to meet user needs, resource protection and public safety. Forest Service Handbook 7709.58 describes the maintenance management system the Forest Service uses and the maintenance standards needed to meet RMOs and include considerations for public safety. Forest Service Handbook 2309.18 describes the technical guidelines for the survey, design, construction, maintenance and assessment to meet TMOs and include considerations for public safety.

Regional Forester's letters, file code 7700/2350, dated 08/26/06, 06/20/07 and 01/13/09 containing procedures National Forests in Pacific Southwest Region will use to evaluate safety

3. Sierra National Forest Estimated Costs for Road Maintenance
4. Sierra National Forest Estimated Costs for Trail Maintenance

Transportation Facility Indicator Measures

Public safety and transportation system affordability (annual maintenance and implementation cost) are the two important results which distinguish the overall affects of each of the five alternatives to the transportation facility. The measures and their indicators are described below. Indicator measures are intended to address how each alternative as the sum total of its proposed actions respond to the SNF LRMP, significant issues identified in scoping and Subpart B of the Travel Management Rule.

Each alternative may create different potential safety conflicts as each alternative emphasizes various combinations of users and vehicles. Any change to the application of the traffic rules are evaluated by a Forest Service Qualified Traffic Engineer from a public safety perspective. A summary of these evaluations may be found in Appendix I.

For analyzing the effects of changes to the NFTS by vehicle class and season of use as well as the addition of unauthorized routes to the NFTS as roads, indicator measures were used. Mileage available for each class of vehicle is useful in analyzing any change in costs for maintaining NFTS. In addition, mileage is useful in analyzing the ability of Forest users to travel around the Forest and enjoy various motorized recreation opportunities such as driving for pleasure, developed recreation, wilderness access, four-wheel drive experiences, ATV use and motorcycle use. Mileage for motorized recreation is an indicator of the number and types of experiences available for motorcycles, ATV/Quads and four-wheel drive vehicles in each alternative. The changes to motorized mileages can be used to interpret the level of change in opportunities for motorized visitors. The details for proposed seasonal closures are displayed in Table 46 (Recreation Resources). A summary of the changes to the NFTS may be found in Table 34.

Measurement Indicator 1: Public Safety

Short-term timeframe: 1 year

Long-term timeframe: 20 years.

Spatial boundary: Forest

Indicators: Public Safety

Rationale: The effects measurement indicator is based on NFMA and Travel Management Rule requirements, compliance with California Vehicle Code and significant issues raised during internal and public scoping.

Description: This measurement indicator looks at the impacts of proposed changes from a public safety perspective.

Method: The proposed additions and changes to the NFTS are to be evaluated for the affects on public safety. Table 33 summarizes the various changes to the Sierra NFTS. Appendix I displays the results of the combined and mixed use analysis and the resulting differences between the designation options. All alternatives and options within alternatives have been evaluated by a Forest Service Qualified Traffic Engineer from a public safety perspective.

the use to the appropriate trail vehicle. In a very few circumstances – especially in Alternative 5 where unauthorized routes will be added to enhance the recreation experience in response to public input – the characteristics of some trails may need to be modified over time to match specific vehicle classes or level of difficulty. Future management may require barriers to restrict the width of vehicles using the trail or changing the tread surface condition to limit use to the appropriate vehicle. If future ground disturbing activities are necessary, appropriate site specific analysis will be conducted.

Implementation costs for proposed changes to the NFTS are based on estimates for the type of work needed to complete the changes. Costs may include safety or resource improvements on the NFTS, work needed to bring unauthorized routes to acceptable standards for use by motor vehicles and any work needed to change a road or trail to a different use.

Measurement Indicator 2: Affortability

Short-term timeframe: 1 year

Long-term timeframe: 20 years.

Spatial boundary: Forest

Indicators: Affordability

Rationale: The proposed additions and changes to the NFTS are evaluated for the effects on affordability. Both the expected annual costs of maintaining the NFTS and the initial implementation costs are evaluated. Continuing annual costs include routine costs to maintain the road and trail system to standard over a long period of time. One time initial implementation costs are the costs required to put the system into service the first time.

An additional non-quantifiable indicator is the expected change in deferred maintenance needs. Currently the annual road maintenance activities are prioritized from a list of needs to be accommodated by the annual budget allocation. Typically such things are resizing culverts, replacing surface aggregate, road side brushing and asphalt surface treatments are deferred in order that more critical maintenance activities may be accomplished. This effectively increases the unmet need (deferred maintenance.) If the needed annual maintenance costs decrease and the budget remains the same, deferred maintenance may not increase at historical rates.

Description: This measurement indicator looks at the proposed changes on the need for maintenance and administration of the designated NFTS.

Method: The proposed additions and changes to the NFTS are to be evaluated for the affects on affordability. The costs are analyzed for the types of work needed to place additions or changes on a map as well as costs per mile by operational maintenance level.

The SNF receives approximately $425,000 annually to operate and maintain the NFTS or roads. Table 34 shows funding needed to maintain roads to standard. Total funding needs includes all uses for the SNF road system including needs for recreation, general administrative access, timber and silviculture needs, fire and fuels requirements and other motorized uses of the NF lands and transportation system. An analysis of all these access requirements is beyond the scope of this analysis. However, the change in funding needs would reflect the changes due to this analysis and the resulting decision.

Table 34. Funding Required to Maintain the Road System to Standard

	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5
Estimated Annual Maintenance Cost	$10,900,000	$10,300,000	$10,900,000	$10,200,000	$10,700,000
Change in Estimated Annual Maintenance Cost	-0-	- $ 600,000	-0-	- $ 700,000	- $ 200,000

The SNF receives approximately $100,000 for maintenance of 1,100 miles of NFTS non-motorized and motorized trails. In addition, $44,000 is received for motorized trail maintenance as a result of an agreement with the State of California, Department of Parks and Recreation.

Table 35. Funding Required to Maintain Motorized Trails to Standard by Alternative

	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5
Estimated Annual					
+($44,)	($34,0	($40,	+ ($34,	)6000	
Estimated Annual					

Affected Environment

Affected Environment and Environmental Consequences are common to all analysis units.

Roads

Most of the road network on the SNF was created in support of timber harvest activities beginning as far back as the late 1800s. A resurgence of timber harvest in the early 1960s through the late 1980s resulted in access roads into many new areas of the forest. Much of the road system was upgraded through timber sales and hydroelectric projects to support additional multiple uses including safe public access.

Public use of the road system has grown steadily. In 1950, the nationwide average ratio of recreation to timber traffic on Forest Service roads was 10 to 1. In 1975, the ratio was 27 to 1 and in 1996 the ratio was estimated at 114 to 1. Driving for pleasure has become the single largest recreation use of Forest Service managed lands. Almost all National Forest visitors travel on NFTS roads. The roads provide access for recreation, research, OHV use, fish and wildlife habitat management, grazing, timber harvesting, hunting and fishing, fire suppression, fuels reduction, mining, insect and disease control and access to private land. There are several other road networks which provide varying degrees of access and connectivity within the SNF they are described below.

State Highways and County roads are considered public roads. Public roads are roads constructed and maintained by a public road agency such as a city, county or State. These roads are for public travel and fall under the National Highway Safety Act. The SNF is within easy driving distance of the Fresno, Madera and Mariposa metropolitan areas, and within three hours of Stockton or Bakersfield. Three major access routes are State Highway 41 and State Highway 140, accessing the northern half of the forest, and State Highway 168, accessing the southern half. State Highway 49 connects Highway 41 to Highway 140 and crosses through small areas of the Forest. There are 325 miles of State Highways on or near the SNF. The SNF lies in the jurisdiction of three different counties and each county has a selection of roads within or near the SNF boundaries. There are 200 miles of Fresno county roads in the southern half of the SNF and 200 miles of county roads combined for Madera and Mariposa counties in the northern half of the forest.

NFTS Roads have been and are developed, managed and maintained for the utilization of NF System lands. Most areas where road access is needed, in the foreseeable future, have adequate roads. Road work is funded, for the most part, by appropriated funds through the budget approved by Congress. Commercial uses are responsible for any road work required as a result of their activities on NF roads.

National Forest Special Use Roads are roads located within National Forest System lands which have been built and are maintained by authorized permits or licenses. Some of these roads are for the use of commercial entities such as utility companies. Some are for access to private in-holdings or access to organizational camps. These roads are managed by the permit holder for themselves and their customers. The SNF manages approximate 180 miles of this type of road.

Private roads are roads on private lands which the Forest Service does not have a right-of-way on or through the property. These roads are maintained by the land owner and access is at the discretion of the land owner. The Forest Service does not direct visitors to these roads. There are approximately 150 miles of private road within the SNF excluding those in developed areas such as Oakhurst, North Fork and Shaver Lake.

Other Federal agencies have roads connecting to the Sierra NFTS of roads including the National Park Service, the Bureau of Land Management, Army Corps of Engineers and the Bureau of Indian Affairs. Approximately 5 miles of roads are managed by other Federal agencies.

Trails

The Sierra NFTS includes motorized trails that are currently managed in the National databases as roads and are shown on the recreation visitor map, with directional signs to the beginning of the trail. There are 98 miles currently listed as roads and managed as motorized trails (see Table 37). These trails are maintained by volunteers in partnership with the Forest Service. For operations and maintenance, these opportunities are funded through a partnership with the State of California Off-Highway Motor Vehicle Division. These funds assist in keeping these opportunities maintained and open to the public.

Table 37. Primitive Roads Managed as Motorized Trails

OHV Route	Road ID	Length (miles)
Hite Cove	03S002	4.0
Onion Springs	05S008	5.5
Star Lakes	05S026	2.6
Green Mountain	05S030X	1.7
Cattle Mountain	05S030XA	2.8
Red Top	05S070A	1.0
Iron Lakes	05S092A	3.7
Shuteye	06S059	2.7
Bear Diversion	06S083	3.0
Dusy-Ershim	07S032	33.0
Hooper Diversion	07S065	2.5
Red Mountain	08S042	2.0
Coyote Lake	08S042A	1.5
West Lake	08S042X	1.0
Strawberry Lake	08S042X	2.0
Mirror Lake	08S042XB	1.0
Brewer Lake	09S034	3.5
Bald Mountain	09S043	5.5
Swamp Lake	10S015	13.5
Spanish Mountain	11S007A	5.5

Areas

There are an estimated 1,700 dispersed recreation sites on the SNF. These sites are scattered throughout the project area. The sites are accessed by existing roads and unauthorized routes. The creation of these sites vary from old log landings to sites used as overflow camping near developed campgrounds to staging areas for loading and unloading of horses or ATVs. There are a few areas used for motorized recreation play areas; usually these play areas are granitic outcrops or domes which provide a variety of rock crawling and scenic view opportunities.

Environmental Consequences, Summary of Effects Analysis across All Alternatives

When a road, trail or area is added to the system, it is assigned an RMO or a TMO, which defines the level of development, maintenance and management the facility will receive. Once a facility is added to the system, opportunities increase for management of the facility and its effects since

appropriated funds can only be spent on NFTS facilities. Guided by management objectives, appropriate structural improvements, such as drainage structures, safety devices and travelways and tread retention structures can be installed which will reduce or eliminate natural resource effects like erosion and provide the driver or rider with a more enjoyable experience.

Routine facility maintenance activities occur at a cost and have a positive cumulative effect on the stability of roads, trails and areas. Routine maintenance activities include clearing obstacles, cleaning and reconstructing water diversion structures and repairing structures to protect resources like hardened approaches to water crossings, bridges and barriers for wet weather closures. Wet weather closures are applied to maintain tread stability and reduce maintenance costs. All of these actions are intended to improve facility stability by decreasing erosion, limiting areas where water is trapped in the facility tread and encouraging visitors to stay on the NFTS tread instead of creating use trails to avoid obstacles in the travel way.

The number of NFTS miles devoted to each vehicle class added to the transportation system will have a direct effect to pubic safety and affordability.

Alternative 1 – No Action

Direct and Indirect Effects

Continued Cross-country Travel

No cross-country travel prohibition would be put into place. The Travel Management Rule would not be implemented. Motorized cross-country travel will continue in the lower elevations; with a probable increase in the number of motorized recreation routes. There could be an increase in

Alternative 2 – Proposed Action

Direct and Indirect Effects

Prohibition of Cross-country Travel

This alternative prohibits cross-country travel. Public safety would be improved with the prohibition to cross-country travel by eliminating those unauthorized routes that cross and closely parallel NFTS roads.

Addition of Facilities

The added roads would be operated as mixed-use and will not increase safety conflicts between passenger cars and unlicensed vehicles. The increase cost of these new facilities will change the annual maintenance cost very slightly.

One 6-acre motorized use areas would be added to the NFTS. This is a historic family camping area which has a hardened surface and would have a negligible effect on the annual road and trail maintenance budget.

Change to the Existing NFTS

Changes would bring the SNF NFTS into conformity with current National Forest policies and direction and the LRMP as amended.

Converting 36 miles of mix-use roads to “Highway Vehicles Only” would increase public safety on these roads by removing conflicts between passenger cars and unlicensed vehicles. Managing 43 miles of “Highway Vehicles Only” as “Open to All Vehicles” (motorized mixed-use) does not adversely affect public safety.

Seven (7) miles of NFTS roads would be changed to be managed as NFTS trails “Open to All Vehicles.” and 6 miles of NFTS roads will be converted to NFTS trails “Open to Vehicles less than 50” wide. These changes are considered corrections since they reflect the current and historical intended management of these motorized trails.

Affordability will improve as some roads are maintained at a lower standard at less cost per mile.

Cumulative Effects

There would not be any cumulative adverse effects for public safety. Deferred road maintenance will not increase as rapidly. However, deferred motorized trail maintenance will continue to rise if additional funding is not secured.

Alternative 3

Direct and Indirect Effects

Prohibition of Cross-country Travel

This alternative prohibits cross-country travel. Public safety would be improved with the prohibition to cross-country travel by eliminating those unauthorized routes that cross and closely parallel NFTS roads.

Addition of Facilities

Existing unauthorized routes would not be added to the NFTS.

Change to the Existing NFTS

Changes to the allowable uses on NFTS roads will be limited to reestablishing of the previously approved 1998 Road Closure Plan. The 1998 Closure Plan is out of conformance with current National Forest policies and the LRMP.

Cumulative Effects

Some unnecessary safety conflicts between passenger cars and unlicensed vehicles will continue on many NFTS roads. Cumulative effects of static road and trail funding and rising costs result in an increase in deferred maintenance.

Alternative 4

Direct and Indirect Effects

Prohibition of Cross-country Travel

This alternative prohibits cross-country travel. Public safety would be improved with the prohibition to cross-country travel by eliminating those unauthorized routes that cross and closely parallel NFTS roads.

Addition of Facilities

The added roads would be operated as mixed-use and will not increase the safety conflicts between passenger cars and unlicensed vehicles. The increase cost of these new facilities will change the annual maintenance cost very slightly.

Thirty seven (37) acres of motorized use areas would be added to the NFTS. These are either small dispersed recreation areas or hardened surfaces and would also have a negligible effect on the annual road and trail maintenance budget.

Change to the Existing NFTS

Changes would bring the Sierra NFTS into conformity with current Forest Service policies and direction and the LRMP as amended.

Converting 42 miles of mix-use roads to “Highway Vehicles Only” would increase public safety by removing conflicts between passenger cars and unlicensed vehicles. Converting 52 miles of “Highway Vehicles Only” to “Open to All Vehicles” (motorized mixed-use) does not adversely affect public safety. These changes are corrections for the current intended use and maintenance investment.

Seven (7) miles of NFTS roads would be changed to be managed as NFTS trails “Open to All Vehicles.” and 6 miles of NFTS roads would be converted to NFTS trails “Open to Vehicles less than 50” wide” These changes are considered corrections since they reflect the current and historical intended management of these motorized trails.

Affordability will improve as some roads are maintained at a lower standard at less cost per mile.

Cumulative Effects

There would not be any cumulative effects for public safety. There would be a decrease in annual road maintenance costs for roads; therefore, deferred maintenance may not increase as rapidly. Annual trail maintenance cost would increase slightly and deferred mainte

Alternative 5

Direct and Indirect Effects

Prohibition of Cross-country Travel

This alternative prohibits cross-country travel. Public safety would be improved with the prohibition to cross-country travel by eliminating those unauthorized routes that cross and closely parallel NFTS roads.

Addition of Facilities

Most of the added roads are short spurs to dispersed camping opportunities and thus have negligible effect on annual road maintenance costs. The added trails would have some increased annual maintenance cost.

One hundred and thirteen (113) acres of motorized use areas would be added to the NFTS. These are either small dispersed recreation areas or hardened surfaces and would also have a negligible effect on the annual road and trail maintenance budget.

All of these additions would be motorized mix-use and will not adversely effect public safety.

Change to the Existing NFTS

Changes would bring the Sierra NFTS into conformity with current National Forest Service policies and direction and the LRMP.

Converting 42 miles of mix-use roads to “Highway Vehicles Only” would increase public safety by removing conflicts between passenger cars and unlicensed vehicles. Converting 52 miles of “Highway Vehicles Only” to “Open to All Vehicles” (motorized mixed-use) does not adversely affect public safety. These changes are corrections for the current intended use and maintenance investment.

Seven (7) miles of NFTS roads would be changed to be managed as NFTS trails “Open to All Vehicles.” and 7 miles of NFTS roads will be converted to NFTS trails “Open to Vehicles less than 50” wide” These changes are considered corrections since they reflect the current and historical intended management of these motorized trails.

Forty seven (47) miles of roads open to highway vehicles only would be designated as combined use under CVC 38026. This would allow connectivity to and between off-highway vehicle use areas, thus greatly improving the recreation experience. There would be an education period as people begin to understand that under age and unlicensed operators are not allowed to use these road segments. All traffic rule changes were evaluated by a NF Qualified Traffic Engineer and were found to not have an adverse effect on public safety.

Affordability would improve as some roads are maintained at a lower standard at less cost per mile. The annual NFTS maintenance needs would decrease by $546,000 per year.

Cumulative Effects

There would be no cumulative adverse effects on public safety. All traffic rule changes are considered safe by a NF Qualified Traffic Engineer.

The changes of roads from mixed-use or to mixed-use are safe and only require proper traffic signing to implement. Affordability will improve as some roads are maintained at a lower standard at less cost per mile.

Compliance with the Forest Plan and Other Regulatory Direction

The action Alternatives 2, 4 and 5 implement the Travel Management Rule by designating those routes for motorized use type of vehicle and time of year. These alternatives also follow Forest LMRP direction to close to National Forest System lands to cross-country motorized travel. They are also consistent with Forest Service policy described in FS Manual Sections 2350 and 7700: Management of the National Forest Transportation System. All mixed-use and combine-use option designations have been evaluated as safe by a Forest Service Qualified Traffic Engineer under National FS guidelines and FS Pacific Southwest Region policies.

Alternative 1 does not implement the Travel Management Rule (36 CFR 212, 251, 261 and 295) and is out of compliance with the Forest LMRP.

Alternative 3 does implement the Travel Management Rule (36 CFR 212, 251, 261 and 295); however, without application of current National forest policy and current LRMP standards and guidelines the Sierra NFTS will remain out of compliance with the LRMP.