

FIDDLERS LAKE ROADS ANALYSIS

I. INTRODUCTION

The Roads Analysis Process

The roads analysis process includes ecological, social and economic information essential to making decisions about the characteristics of future transportation systems. It is intended to provide land managers with a science-based analytical tool to help balance public needs, management needs and funding levels when determining purpose and extent of future forest road systems.

The Scale of the Roads Analysis

This Roads Analysis was done at the project scale. It covers the FSR 300 (Louis Lake Road) corridor and adjacent roads for the Fiddlers Lake Timber Sale on the Washakie District of the Shoshone National Forest. Road and deferred maintenance inventories of the road system were available. This sale covers approximately 103 acres.

This scale is appropriate for the Roads Analysis because the EA describes effects of the no-action alternative and action alternatives on Forest resources and roads. The line manager has decided which of the questions in Table 1 will be answered at length in this analysis based upon guidance in the R2 Roads Analysis document. Refer to the Documentation table for results.

Definitions

Classified Road - A road constructed or maintained for long-term highway vehicle use. Classified roads may be public, private or Forest Service.

Public Road - A road open to public travel under the jurisdiction and maintained by a public authority such as state, county and local communities.

Private Road - A road under private ownership authorized by an easement to a private party, or a road that provides access pursuant to a reserved or private right.

Forest Service Road (FSR) - A road wholly or partially within or adjacent to a National Forest boundary and necessary for protecting, administering and using National Forest lands, which the Forest Service has authorized and over which the agency maintains jurisdiction.

Unclassified Road - A road that is not constructed, maintained or intended for long-term highway vehicle use, such as roads built for temporary access and other remnants of short-term-use roads associated with fire suppression, timber harvest and oil, gas or mineral activity, as well as travel-

ways resulting from off-road vehicle use.

Unroaded Areas - Areas that do not contain classified roads.

The Shoshone National Forest

Characteristics of the Shoshone National Forest are fairly typical of other forests in the Rocky Mountains. The nation's first National Forest, the Shoshone is comprised of approximately 2.5 million acres of rough, inaccessible and timbered lands. There are approximately 1.4 million acres of designated Wilderness on the Forest. Many species of wildlife are present, including the grizzly bear, black bear, wolf, moose, mountain lion, mule deer and elk.

The Forest has been managed for multiple uses, including vegetative treatment, wildlife habitat improvement, oil and gas exploration, watershed improvement and range management. There are many miles of trails on the Forest. The uniqueness of the Shoshone National Forest is that people and wildlife co-exist. Roads provide access into all parts of the Forest except Wildernesses. There are vast areas of the Forest that have motorized restrictions that help protect the natural integrity of the Forest.

II. EXISTING SITUATION

The Roads Analysis Area

The Fiddlers Lake Roads Analysis Area (hereafter referred to as the Roads Analysis Area) is located on the Washakie District of the Shoshone National Forest in Fremont County, Wyoming. The Roads Analysis Area, completely housed on National Forest System Lands, is approximately 1440 acres in size. This is the acreage within ½ mile of the Louis Lake Loop Road corridor within the Atlantic Analysis area. Forest Plan Management Areas within the Roads Analysis Area are: a) 2B, rural and roaded natural recreation opportunities and b) 9E, management for water impoundments, specifically around Fiddlers Lake, recreation developments and wildlife habitat.

The Louis Lake Road, FSR 300, is a Forest arterial that provides motorized access to a majority of the Washakie District. Many developed and dispersed recreation opportunities are available adjacent to FSR 300. Roads intersecting this arterial access existing developed and dispersed recreation sites, water resources and the general Forest area. Wheeled-vehicle motorized use is generally restricted seasonally, by gates on FSR 300, for resource protection and prevention of road damage during spring thaw.

The Roads Analysis Area is within a landscape formed by glaciers. Slopes vary from steep to flat; soils are generally shallow and sandy with large boulder fields; glacial moraines, ponds and associated wetlands are present. Timber types present include lodgepole pine, spruce-fir, whitebark/limber pine, and aspen.

Timber sale activity is expected to last approximately two years. Slash and other post-sale treatments should occur within five years of sale closure.

Past timber management activities in the Atlantic analysis area have taken place in recent years. The Louis Lake Salvage Sale was completed in 1995. The Atlantic Creek Salvage Sale was sold in 1999 and is scheduled to be completed in March 2003. A visual enhancement cut was also completed near Canyon Creek in 1998. Slash from this cut was burned in 1999. This cut is scheduled to be planted in 2002.

Historical uses of the roads within the Roads Analysis Area include access for hunting, fishing, recreation, post and pole cutting, fire suppression and fuelwood gathering. FSR 300 is the only primary access road into the Washakie District. This road accesses the majority of the District's developed recreation sites. As such, it receives use by a mix of vehicles, with the most intense use occurring in the summer and fall. This road has become a popular and scenic route for locals and visitors. It might offer a "Sunday afternoon" type excursion for those that have a couple hours to view wildlife and scenery and want to get off the highways. For others, it is the jump-off point to a wide variety of recreational experiences.

There are no inventoried roadless areas (RARE II) or unroaded areas (contiguous areas beyond 0.25 miles from existing Forest Development Roads) to consider within this Roads Analysis Area.

Management activities that currently occur or may occur in the Roads Analysis Area that would utilize the existing roads for access include prescribed fire, timber harvest and dispersed and developed recreation, including fishing, hunting, camping, fuelwood gathering, driving for pleasure and off road motorized use.

Existing Road System

See figures 2B and 2C in the Fiddlers Lake Environmental Assessment for maps of the existing roads in the Atlantic Analysis Area. The Louis Lake Road, FSR 300, was initially constructed in the 1930s by the Civilian Conservation Corps (CCC). The purpose of the road at that time was to provide access to the Forest and to its water resources. It was built to acceptable standards for the type of vehicle and use that occurred in the 1930s.

Fremont County maintains the northernmost section of FSR 300 from Lander to FSR 302 (Roaring Fork road), which provides access to the Fremont County Youth Camp and Worthen Meadow Reservoir. The Forest Service maintains the remainder of the road from FSR 302 south to WY Highway 28.

The segment of FSR 300 in the Roads Analysis Area is generally a lane-and-a-half wide road that has previously received spot surfacing. However, there is very little surfacing remaining due to inadequate maintenance, erosion of roadway materials, growing use of the road and loss of binder material in the surfacing. Boulders and native materials are common within the roadway. Constructed ditches have disappeared due to erosion, sedimentation and inadequate maintenance. Roadside vegetation has intruded upon the road corridor, creating safety sight distance concerns and roadside hazards. There are both too few culverts and undersized culverts, which have resulted in plugged culverts, erosion of roadway materials and sedimentation in waterways. The road has deteriorated to a point that it must be improved just to restore it to its previous road standard and protect soil and water resources.

Inadequate maintenance mentioned here is primarily the result of a lack of funds to properly maintain the road and periodically restore it to its road standard. As the road deteriorates, there becomes less surface material to maintain, which affects ditch depth and ability of ditches to drain properly, user comfort of the roadbed as more and more finer material erodes away, leaving protruding rocks, integrity of culverts as there is less cover over them, resulting in damage and plugged culverts and sedimentation into waterways of the eroded material. Other inadequate maintenance includes the inability of current maintenance funding to allow for increasing the numbers and sizes of culverts necessary to handle the flow.

There are four closure gates on FSR 300 that affect seasonal access - one at the end of the asphalt in Sinks Canyon, one just beyond the intersection with FSR 302, one near Louis Lake and the final one near the intersection with WY 28. The purposes of the gates are for resource protection and road damage prevention during spring thaw.

A condition survey of the entire Louis Lake Loop Road, performed in 1999, documented millions of dollars in deferred maintenance costs, identifying work needs including additional and replacement drainage structures, intervisible turnouts, roadside clearing and placement of

aggregate that would bring the road to its standard and identified maintenance level for passenger car use. There is a growing and diverse use of vehicles that use the road. Repair and improvements to FSR 300 are necessary to safely accommodate use associated with camping and water activities and other mixed use on this primary Forest arterial.

Other classified roads within or beginning within the FSR 300 corridor in the Roads Analysis Area are: a) FSR 300.1G, Blue Ridge Spur, an open native-surface, single-lane road maintained for high-clearance vehicles only; b) FSR 300.2B, an open native-surface, single-lane road maintained for high-clearance vehicles only; c) FSR 300.2E, Popo Agie Campground Ground, an open single-lane, native-surface road maintained for passenger cars; d) FSR 300.5T, Christina Lake Trailhead, an open single-lane, aggregate-surface road maintained for passenger cars; e) FSR 306, Blue Ridge Lookout, an open single-lane, native surface road maintained for high-clearance vehicles; f) FSR 307, Fiddler's Lake Camp Ground, an open single-lane, aggregate-surfaced road maintained for passenger cars. There were also several existing unclassified roads identified in the 1996 inventory of this area, most of which are not passable by highway vehicles.

Road densities are discussed in section 3.9 of Chapter III of the Fiddlers Lake Environmental Assessment.

ISSUES AND KEY QUESTIONS

Following are concerns and issues raised during scoping and developed by managers and technical specialists.

Soil and Water Concerns - There are concerns about sedimentation from roads and timber activities entering into nearby lakes, ponds and streams, degrading water quality. There are also concerns associated with activities causing water degradation in headwaters of Middle Fork Popo Agie River, Cow Lake and streams that provide fisheries habitat and the City of Lander water supply.

Vegetative Treatment Concerns - The Fiddlers Lake Environmental Assessment proposes commercial harvest in the vicinity of Fiddlers Lake. Silviculturists are concerned that the area is declining in forest health and vigor and that diseases have begun to take hold. Some members of the public believe that tree mortality is beneficial to healthy ecosystems.

Wildlife - The Atlantic analysis area supports a variety of wildlife species. Providing wildlife security and habitat are key concerns of the public and the Forest Service. Motorized use and open roads directly affect habitat quality and wildlife security. Public concerns include wildlife displacement, fragmentation, loss of cover, impacts on big game and TES species and not cutting standing dead to provide habitat for snag dependent species.

Recreation Access and Uses - Advocates of both non-motorized and motorized recreation opportunities are concerned with access travel management and seasonal restrictions. Much of the area proposed for harvest is currently well roaded. The entire Roads Analysis Area off of existing roads is available for non-motorized recreation use. There are concerns about timber sale activities and associated road use conflicting with dispersed and developed recreation.

Wetlands - There are wetlands and glacial ponds scattered within the Roads Analysis Area. There are concerns that these ecosystems not be disturbed.

Visuals - Concerns include clear-cuts within sight distance of open roads or visible slash piles, the presence of numerous dead trees along the roads and the "tunnel effect" that is present on FSR 300.

Roads - Concerns range from not constructing new roads and closing new construction to the possible need for temporary road construction.

IV. ASSESSMENT OF EFFECTS

Methodology

The process described in the report *Roads Analysis: Informing Decisions About Managing the National Forest Transportation System (USDA Forest Service, 1999, Misc. Rep. FS-643)* was used in this Analysis. Appendix 1 of this document provides a list of questions in that might be used for the analysis. The intent of the list of questions is to provide a logical organization for the assessment by general topic area. The document *R2 Roads Analysis Guidance*, a supplement to Appendix 1 of Misc. Rep. FS-643, is intended to provide guidance concerning the appropriate scale for addressing the questions and the analysis needed.

The Washakie District Ranger reviewed the list of questions and screened out questions that were Forest-wide issues to be addressed during Forest Plan Revision and those that were not relevant to the Fiddlers Lake Environmental Assessment. The results of the screening appear in the Table 1.

Following is a discussion of the questions that were relevant to the Fiddlers Lake Environmental Assessment.

Aquatic, Riparian Zone and Water Quality (AQ) (Also see sections 3.8, 4.8 and 4.1X of the Fiddlers Lake Environmental Assessment.)

AQ (1): How and where does the road system modify the surface and subsurface hydrology of the area?

The existing road system does not modify the surface or subsurface hydrology of the area. The many kettle ponds, marshes and lakes in the moraine area are hydrologically connected. The road network is limited and not hydrologically connected to these riparian areas and wetlands. Both action alternatives involve only temporary road construction outside of the area's riparian areas and wetlands, therefore neither of the action alternatives in the Fiddler's EA will result in changes to the hydrologic regime and the capability of the wetlands to facilitate groundwater recharge.

AQ (2): How and where does the road system generate surface erosion?

Occasionally, heavy rains or rapid snowmelt cause rilling and erosion of the surface of FSR 300, especially on steeper grades. During spring, rolling dips are sometimes constructed on the road to reduce the distance between cross-drains and allow the water to slow down, reducing erosion and movement of sediment off site. Where the grade of roads is fairly flat, there is very little erosion and sedimentation that occurs. Neither action alternative will cause an increase in surface erosion because the temporary roads needed for access to harvest units will be on relatively flat ground and will be obliterated following use.

AQ (3): How and where does the road system affect mass wasting?

Some slope slumping along FSR 300 has occurred in the past. This slumping sometimes occurs in the soil types present here where glacial moraine soils are over-steepened during construction. This slumping has not caused degradation of wetlands, riparian areas or waters of the United States and appears to be stabilized. Neither action alternative will affect mass wasting because the temporary roads will involve very little earth movement and will be obliterated following use.

AQ (4): How and where do road-stream crossings influence local stream channels and water quality?

Seasonal and weather-related runoff occasionally produces erosion of the FSR 300 road surface on steeper grades and causes sediment to enter Canyon Creek. The existing culvert crossing at Canyon Creek is not of sufficient dimension to handle flood flows. Inadequate numbers and placement of culverts and infrequent maintenance of drainage structures on FSR 300 perpetuate the surface erosion that has occurred in the past. Sediment deposited into Canyon Creek from these events reduces water quality. In accordance with BMP's, temporary roads will not be connected to the area's waters of the United States. Neither action alternative will increase potential for water quality degradation.

AQ (6): How and where is the road system hydrologically connected to the stream system? How do the connections affect water quality and quantity?

See answer to AQ (4). On FSR 300 at the old Christina Lake Trailhead at Fiddlers Lake and on FSR 307 that leads to Fiddlers Lake Campground, there are several areas where the ditch of the insloped road and the road itself drain directly into the Creek or Lake. Connected Disturbed Areas (CDAs) negatively affect water quality, allowing sediment to directly enter the stream system. Sediment fans can remove stream meanders and reroute channels or create sand bars and lessen fish habitat in water bodies. Freshwater fish habitat may be degraded. As more sediment is deposited, water tends to spread out, causing shallower stream sections and slower water and decreasing opportunities for a stream to clean itself out. Sediment deposits in streams may harm insect populations and fish reproduction. Temporary roads will not be connected to the area's waters of the United States, in accordance with BMPs. Neither action alternative will increase potential for water quality degradation nor reduce water quantity.

AQ (7): What downstream beneficial uses of water exist in the area? What changes in uses and demand are expected over time? How are they affected or put at risk by road-derived pollutants?

Downstream beneficial uses include fisheries for Brook Trout and Rainbow Trout, agriculture, protection and propagation of fish and wildlife, recreation, human consumption (following treatment) and scenic value. Water rights exist downstream of the Atlantic analysis area that are directly tied to these beneficial uses. They include rights primarily for irrigation use and stock watering. Water is also used in the watershed by recreationists for human consumption and stock watering. Possible changes in use and demand over time may be recreation fisheries, increased use for agriculture and increased need for human consumption. There are no known pollutants entering the Waters of the United States in this Roads Analysis Area. Sedimentation caused by erosion and CDAs may affect water quality to a limited extent due to the generally-unroaded nature of the watershed. Neither of the action alternatives is expected to degrade downstream beneficial uses nor cause a potential increase in road-derived pollutants. There is minimal risk associated with the fueling and servicing of timber harvesting-related equipment at areas at least 150' from wetlands, riparian areas and streams by using berms to contain potential spills at fueling sites and disposing of used oil and fuel properly.

AQ (8): How and where does the road system affect wetlands?

None of the proposed activities will result in changes to the hydrologic regime and the capability of the wetlands to function as a water quality filter and facilitate groundwater recharge. No wetland acreage will be crossed by new roads in either action alternative. No new roads will occur in flood-prone areas. Either action alternative will minimize adverse effects to aquatic habitat. The action alternatives may indirectly benefit riparian habitat over the long term by helping to prevent catastrophic wildfire through tree removal.

AQ (12): How and where does the road system contribute to fishing, poaching or direct habitat loss for at-risk aquatic species?

The existing Forest Service road system provides access to Fiddlers Lake, Cow Lake and area streams for recreational fishing, which is a popular activity along FSR 300. Poaching of fish (exceeding daily limits) certainly may occur here but this has not been identified as a concern. Eastern Brook Trout is the only species that over-winters the area's waters. Rainbow Trout must be stocked in Fiddlers Lake because the lake is too shallow to support the species over the winter. There are no known or expected degradations of other aquatic species in this Roads Analysis Area.

Terrestrial Wildlife (TW)

TW (1): What are direct effects of the road system on terrestrial species habitat?

The presence of roads directly affects habitat for many species. Direct effects include habitat loss and fragmentation, and edge effects. For most species of terrestrial wildlife, direct habitat loss (i.e., a road prism, surfaced or unsurfaced, that is maintained, eliminates and prevents the previous habitat in that road location) and fragmentation (the bisecting or making bigger pieces of habitat into smaller sections) are adverse effects. Some species may benefit from the creation of additional edge, but generally not when a road creates that linear edge. Building roads through forested stands reduces or eliminates those stands ability to function as hiding/security cover. For the Loop Road, these effects occurred many decades ago.

The quarter mile of temporary road construction proposed in the action alternatives will result in less than 1 acre of disturbance, which is not expected to have significant direct effect on wildlife habitat.

TW (2): How does the road system facilitate human activities that affect habitat?

Roads may facilitate human activities that result in habitat disturbances. The road system provides access into the area for human activities including firewood gathering (which causes removal of snags and logs used by cavity excavators and nesters and may temporarily disturb and displace wildlife), hunting (which disturbs and displaces, especially, the hunted wildlife species), recreation (whether driving for pleasure or fishing or camping at designated recreation sites along FSR 300, wildlife may be temporarily or seasonal disturbed or displaced), and timber sales (which remove trees that may be cover or habitat for some species). Disturbances can also include losing or modifying habitat to fires resulting from human-caused ignitions and destroying habitat by trampling. FSR 300 is the main arterial into the Washakie District and, as such, receives high and intense use by wheeled motorized vehicles in the late spring, summer and early fall and moderate use by snowmobiles in the winter. The primary influence on the larger animals is disturbance caused by this motorized use.

Proposed construction of temporary road that creates less than 1 acre of ground disturbance will have insignificant impacts over the existing condition. There are vast unroaded areas within the adjacent Atlantic analysis area that provide cover, birthing and foraging habitat for the wildlife species that may be disturbed by human activity associated with road use.

TW (3): How does the road system affect legal and illegal human activities (including trapping, hunting, poaching, harassment, road kill or illegal kill levels)? What are the effects on wildlife species?

The road system provides access into the area for both legal and illegal human activities that can have impacts on wildlife through hunting, trapping, poaching, collecting, harassing, road kill, and disruption of wildlife dispersal, displacement, and other negative interactions with people. The limited access off of FSR 300 and the non-motorized designation of the surrounding area, however, generally precludes potential illegal activity off-road. Wildlife species, especially the big game animals, are frequently pressured and disturbed during the individual hunting seasons. Other wildlife species, that are not hunted, react by

finding hiding cover and distancing themselves from the human activity. The magnitude of these effects depends on the intensity of road use, traffic speed, road location, types of habitats traversed by roads, mobility of animal species, and the status of the populations in the surrounding area.

Roads that increase access into areas, which have been previously secluded or lightly visited by humans, especially into areas where there is suitable denning/security habitat, can have adverse impacts on lynx. These impacts can be direct (e.g., displacement and kitten mortality due to human presence and habitat alterations) and indirect (e.g., mistaken or illegal harvest). For the Loop Road, these effects occurred many decades ago. Another indirect effect of road construction is the increase in winter use (e.g., snowmobiling) that allows the range extensions of lynx competitors (e.g., bobcat, coyote, and red fox) and predators (e.g., coyote and mountain lion) into the higher elevation ranges of lynx. Snowmobile use of the Loop Road has increased since its development.

Road construction, road use, and activities facilitated by road access into previously unroaded and undisturbed habitat areas usually causes some disturbance and displacement of big game and other species, particularly if the animals have not habituated to these activities. This disturbance and displacement is usually short-term, especially if new roads are closed to motorized travel immediately after activities are complete, but could be long-term depending on the magnitude and duration of adverse impacts and if the roads are open to motorized travel or if human access increases on roads.

It is fair to say that many terrestrial species have become accustomed to road use and human activities along the FSR 300 corridor as this road has been in existence since the 1930s and is a primary District arterial receiving heavy recreation traffic and related activities in spring, summer and fall.

The existing and proposed road system for the Fiddlers Timber Sale area is not likely to adversely affect any wildlife species in the Roads Analysis Area because of the limited magnitude of the area affected by new temporary road.

TW (4): How does the road system directly affect unique communities or special features in the area?

There are no special habitat features such as talus slopes, rock formations, cliffs, caves, or rare or unique plant communities along FSR 300. The road system has very little effect on the aquatic areas or wetlands. Also, the surrounding area is designated non-motorized or no off-road use.

Ecosystem Functions and Processes (EF)

EF (2): To what degree does the presence, type and location of roads increase the introduction and spread of exotic plant and animal species, insects, diseases and parasites? What are the potential effects of such introductions to plant and animal species and ecosystem function in the area?

FSR 300 and intersecting open roads in the Roads Analysis Area may always be conduits for and recipients of exotic plants, insects and parasites and carriers of disease spreading mechanisms. These organisms may attack and damage trees and riparian/wetland vegetation, eventually causing widespread destruction of healthy ecosystems if left unchecked. Currently, dwarf mistletoe and commandra rust are active in timber stands, especially near FSR 300. The action alternatives in the Fiddlers EA propose to greatly improve the vegetative health of these stands. The lack of an extensive and wide-ranging network of open roads, however, is helpful in reducing vehicle-borne species, insects, parasites and disease.

Noxious weeds are unknown at this time, although the close proximity to the Louis Lake road indicates a

potential for weed introduction.

EF (3): To what degree does the presence, type and location of roads contribute to the control of insects, diseases and parasites?

Roads help to provide access to areas so that timber stands may be treated either by conventional timber sale harvesting methods or for firewood, thinning or other treatment activities. The spread and continuous damaging effects of insects, disease and parasites are disrupted by removal of timber and hosts - clearcutting, selective harvest, thinning, fire. The open roads in this Roads Analysis Area are essential in providing the access needed to improve vegetative health.

EF (4): How does the road system affect ecological disturbance regimes in the area?

The limited road system, with the exception of FSR 300, would have little effect on stopping the spread of a catastrophic wildfire. There are, however, many rocky areas, wetlands/riparian areas, meadows, ponds and marshes near FSR 300 and within the Atlantic analysis area that may help to reduce the spread of wildfire.

Economics (EC)

EC (1): How does the road system affect the Agency's direct costs and direct revenues used in assessing financial efficiency?

The Forest Service Road system should be maintained for the documented use, standard and maintenance level. This involves direct costs to the Forest Service in terms of road maintenance funding for surface blading, maintenance of drainage structures, road repair, roadside vegetation removal for safety sight distance, repair of erosion and sedimentation, etc. Over a 20-year period, maintenance of aggregate roads may average \$500 per mile per year, while over the same period of time, maintenance of native surface roads may average \$200 per mile per year. Commercial activities such as timber harvest and oil and gas development generate more intensive and frequent road maintenance, much of it performed by the commercial users.

Revenues for commercial management activities on the National Forest are a direct return to the Treasury. Generally, timber sale base bid rates are adjusted downward for road construction, reconstruction and maintenance activities required of the operator during the life of the timber sale. This means that return to the Treasury for a timber sale in an adequately roaded area are higher than a timber sale of equal value in a less adequately roaded area.

Costs of possible new temporary road construction have been identified in the Quicksilver Investment Analysis for the Fiddlers Lake Environmental Assessment. Costs of temporary roads exclusively for a single resource management activity are generally less because the use is specific and controlled and temporary roads are to be obliterated after the planned activity is complete. No other construction is planned.

Road closure devices such as gates may be costly to maintain if they have a tendency to be removed or damaged by determined motorized users of closed roads. Standard single-bar closure gates cost approximately \$1000 to install. Road closures also require enforcement in order to be effective. Existing gated road closures appear to be effective.

Reconstruction costs may range from \$1000 to \$25,000 per mile, depending on road standard and need for additional drainage, road surfacing, etc. Reconstruction of FSR 300 is not planned to coincide with proposed harvest in the Fiddlers Lake area, although maintenance and clearing of roadside timber may be accomplished through the timber sale. The condition survey performed on this road in 1999 identified a need for improvement and heavy maintenance that is too costly and more far-ranging than the Timber Sale is capable of funding.

Decommissioning averages \$2000 per mile for Forest Service System roads and \$1500 per mile for unclassified roads. Cost of obliteration ranges from \$2000 per mile and up, depending on the work needed to return the contour and return the land to as natural and productive a state as possible.

Revenues from minerals, grazing, recreation and other programs would be affected very little in this Roads Analysis Area from reconstruction, construction and maintenance activities. Closing, decommissioning and obliterating unclassified roads in the Roads Analysis Area may affect revenues from firewood and other timber product programs but should have very little effect on revenues associated with the other programs. Costs for fire suppression would increase should additional roads in the Roads Analysis Area be decommissioned or obliterated.

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

Management of the Forest to achieve the desired forest condition generally provides a mix of multiple use goods and services that maximize net public benefit. This mix of goods and services requires attaining and maintaining specific ecosystem conditions for maximizing net public benefit. Vegetation treatment is deemed necessary to achieve the desired forest condition and maintain it through time over an area large enough to capture such items as wildlife habitat, vegetative and habitat diversity, visual diversity and quality recreation experiences.

The scale of the Fiddlers EA project is such that there would be no measurable impact on social or economic systems in Fremont County. Quantifying resources that are not typically valued in terms of dollars can be misleading due to the difficulty in assigning monetary value to resources such as wildlife, vegetation diversity, scenic quality, watershed condition and recreation opportunities. For this reason these resource values were not quantified in terms of dollar values and were not included in the economic efficiency analysis. Consequently, the analysis of revenues and actual project costs offers only a partial guide to the decision process. These non-market values must be analyzed in a qualitative manner separate from the quantitative analysis of revenues and costs. (See Social and Economic Environment discussion in Chapters 3 and 4 of the Fiddlers Lake EA, which is tiered to the Forest Plan, as amended by the Allowable Sale Quantity EIS and ROD.)

Commodity Production (TM) (RM) (WP) (SU)

TM (1): How does the road spacing and location affect logging system feasibility?

Generally, existing road spacing, location, terrain and physical barriers significantly affect the feasibility of treating stands using conventional logging methods. The location of FSR 300 facilitates the use of conventional ground based logging systems to treat stands immediately adjacent to this road. In this case, physical barriers to movement of harvested trees to the main road include large boulders and cliff areas and kettle ponds, which also dictate feasible road locations and logging system feasibility. In general, FSR 300

provides excellent access to the area for commercial timber harvest. Also See TM (2) and TM (3).

TM (2) and TM (3): How does the road system affect managing the suitable timber base? How does the road system affect access to timber stands needing silvicultural treatment?

The existing road system provides very good access to the suitable timber base for the proposed harvest areas in the Fiddlers Lake Environmental Assessment as the proposed harvest units are within 0.25 mile of the road. Physical barriers to movement of harvested trees to the main road include large boulders and cliff areas and kettle ponds, which also dictate feasible road locations. Temporary road construction of no more than 0.25 mile in length is proposed in either action alternative for the Fiddlers Lake EA. This is necessary in order to treat stands that are not directly accessible, for skidding purposes, from FSR 300 due to physical barriers. The terrain and presence of physical barriers limit the access needed to commercially harvest all stands that may need treatment. Precommercial thinning and prescribed burning are methods that also may be used to treat unhealthy stands.

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

The proposed harvest at Fiddlers Lake is within the Atlantic Sheep and Goat grazing allotment, which is currently vacant. FSR 300 provides sufficient access to the allotment for movement of stock, as needed.

WP (1): How does the road system affect access, constructing, maintaining, monitoring and operating water diversions, impoundments and distribution canals or pipes?

The existing road system provides adequate access for maintaining, monitoring and operating the Fiddlers Lake dam.

SU (1): How does the road system affect managing special-use permit sites (concessionaires, communication sites, utility corridors, etc.)?

The existing road system provides access to recreation areas, the Youth Camp and any other permitted activity.

General Public Transportation (GT)

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

FSR 300, a Forest Arterial, connects State Highway 131 southwest of Lander to State Highway 28 near South Pass, making a "Loop" which is often advertised by the Lander Chamber of Commerce as a scenic and recreation-oriented route. It is a very popular road for recreational activities, such as accessing fishing, camping and hunting areas, driving for pleasure and a scenic alternative to traveling the higher speed highways. It provides access to a County-operated youth camp and to the Worthen Meadow Reservoir, which is a municipal water supply for the City of Lander.

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

FSR 300 was originally constructed in the mid-1930s by the Civilian Conservation Corps. Today, considerably more and larger vehicles use the road than it was originally designed and intended for. Road maintenance and improvement have not kept up with the growing use of this road. Work needs to improve the user comfort and safety of the road include aggregate stabilization of surface materials, improved

ditches, more culverts, larger culverts in stream crossings, improved sight distance, wider template or intervisible turnouts.

Administrative Use (AU)

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

The Little Popo Agie Piedmont Moraine is a potential Geological/Botanical Special Interest Area. The kettle ponds, marshes, lakes, wetlands and riparian areas in the Atlantic analysis area make up the Piedmont Moraine. There is interest in and potential for research activities occurring in this special aquatic area. FSR 300 and associated existing system roads would provide the network researchers would use to access the area. The limited number of roads is also helpful because the integrity and undisturbed nature of the Moraine is of primary importance to research.

Protection (PT)

PT (1): How does the road system affect fuels management?

No prescribed fire or timber harvest activities to reduce fuels have occurred within the Roads Analysis Area, except along its southern boundary. The Atlantic Timber Sale is currently active, and the Louis Lake Salvage Sale was completed in 1995. Visual cuts in the Canyon Creek area on the north side of the Roads Analysis Area were completed in 1998. Buildup of fuels is occurring because of the tree mortality caused by the commandra rust and dwarf mistletoe that are present. The only other current activities reducing fuel buildup within the Roads Analysis Area are those associated with the gathering of firewood - removal of dead trees - within 100 feet minimum to 300 feet maximum of the open road corridors, an estimated volume of 4 cords per acre. Both action alternatives in the Fiddlers EA, with associated temporary road construction, would help to reduce fuel buildup within the general corridor of FSR 300.

PT (2): How does the road system affect risk to firefighters and to public safety?

The minimal existing road system makes it difficult to rapidly attack wildfire beyond the existing road system corridors using local engine crews and firefighters. This lack of roaded access also requires costly air support in the event that a fire escapes initial attack. Air resources would theoretically be used in the areas beyond existing road corridors for initial attack or in support of ground forces. Helitack crews from Ft. Washakie, Wyoming and smokejumpers from West Yellowstone, Montana are the closest air resources.

PT (3): How does the road system affect the capacity of the Forest Service and cooperators to suppress wildfires?

See PT (2). Additionally, it has been recognized by the Forest Service since the early 1900s that fast initial attack will most often limit the size of a fire and, therefore, reduce firefighter exposure to risk (Blackwater Fire of 1937 on the Shoshone National Forest and subsequent development of the smokejumper program).

The lack of a more extensive road system beyond the corridors of existing roads in this Roads Analysis document limits the ability of ground forces to initial attack a wildfire there. Air resources, such as helitack and smokejumpers, are not often available during an extreme and busy fire season across the country due to their commitment to on-going wildfires. A high potential exists for a wildfire to escape initial attack and grow to project size with increased cost and exposure to risk for all firefighters involved due to the lack of

vehicular access.

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

Dust is inherent in the native and aggregate surfaced portions of the existing road system. Airborne dust is a function of road surface moisture, wind, presence of vehicles or other disturbance and vehicle speed. The existing roads are generally low speed. Surface moisture is generally not high. There are high volumes of traffic, especially in the summer when recreation demand is high. Wind speed is variable. The opportunity exists for airborne dust to occasionally be present along open road corridors. However, there is no evidence that the amount and concentrations of dust generated by vehicle use causes health concerns at the present time. There are no homes or facilities located along a higher speed section of any of the existing roads.

Road Related Recreation (RR)

RR(6): How does the road system affect the Scenic Integrity Objective (SIO or VQO)?

The existing open road system is an essential part of the recreation experience. It provides the access necessary for a variety of experiences, including camping, fishing, driving for pleasure, firewood gathering, hunting, snowmobiling and photographic opportunities. The Forest expects this type of use to occur because of the opportunities that exist, and the public expects to be able to use the existing road system to recreate here. The road use is historical.

The Visual Quality Objective in Management Area 2B is Partial Retention, with Sensitivity Level 1 along Forest arterials and collectors. Roaded natural or rural recreation opportunities are provided along open roads. Moderate to high indents of contact with other groups and individuals are expected.

Social Issues (SI)

SI (1): What are people's perceived needs and values for roads? How does road management affect people's dependence on, need for and desire for roads?

FSR 300 has provided access to Forest users for over 70 years, establishing historical use and expectations of continued use. The road is a popular scenic route with many adjacent recreation opportunities valued by the public. Use is high during the late spring, summer and fall by passenger vehicles, ATV users, horse users, hikers, etc. FSR 300 and other open roads are not plowed in the winter, providing excellent opportunity for snowmobiling. There are gates on FSR 300 that close the area during spring thaw when the roadbeds are soft and vehicle use might cause resource damage.

Much of the use that occurs in this area is from local citizens. They expect to continue to use the area for their recreation experiences, fuelwood needs and hunting opportunities. The local users have accepted the less-than-standard condition of FSR 300 and the presence of the other existing roads. There has not been a demand for additional roads in the area. ATV use is on the increase and there may be a need to designate trails for this user group.

V. OPPORTUNITIES AND PRIORITIES

Opportunities to Improve Existing Condition

A. The Clean Water Act directs us to improve watershed condition and the quality of water resources on the National Forest. Timely maintenance and adequate drainage and number and size of structures are necessary to reduce CDAs on roads that are on the Forest Service Road system. Effective road closures, reinstating natural drainage patterns and ensuring revegetation are necessary to reduce CDAs on unclassified roads that are to be decommissioned or obliterated.

B. Disturbance of wildlife and maintaining habitat have been identified as concerns in the Atlantic analysis area. Efforts have been made to close some of the old two-track, temporary and ghost roads (unclassified). Enforcing the road closures to ensure effectiveness, decommissioning more of the existing unclassified roads and identifying designated ATV and snowmobile trails would promote even less wildlife disturbance.

C. Harvesting timber may be beneficial to the road system by ensuring more frequent road maintenance on roads used for haul and harvest and providing opportunities to fix problem areas, rehabilitate corridors and initiate closures. Any new roads, temporary or otherwise, will be closed to highway vehicles.

D. Providing a minimal, yet strategically spaced, transportation system is important for wildfire suppression and prescribed fire. The Fiddlers Lake EA has documented the presence of insects and disease in the Atlantic analysis area, which ultimately kill the trees and provide fire fuels, and areas of dense timber where wildfire control may be challenging.

E. Under the roadless policy, there are large portions of the remainder of the greater Atlantic analysis area that are considered roadless because they contain no roads. There is an opportunity at this time to perpetuate these roadless characteristics by not constructing any new roads. There is also an opportunity to decommission or obliterate unclassified roads and close some of the local Forest Service System roads in the Atlantic analysis area.

Risks of New Construction

A large portion of the greater Atlantic analysis area is identified as either Wilderness or unroaded. Motorized access to much of this area is not desirable due to the wetlands, riparian areas and moraine features present and the inaccessibility due to terrain. New construction, though corridors may be closed after identified resource management is complete, may increase wildlife disturbances by providing additional corridors for unauthorized ATV and snowmobile use in the short term. In the long term, however, the corridor will have revegetated and off-road motorized use will decrease. Additional roads increase wildlife disturbance until such time as the roads have been closed to motorized vehicles. New road construction increases road maintenance costs, especially when open to motorized uses and if there are soil and water concerns.

Benefits of New Construction

New construction, as identified in the action alternatives of the Fiddlers Lake EA, would help to remediate identified forest health issues of insect and bug infestations and threat of catastrophic wildfire.

Benefits of Reconstruction

Benefits of reconstructing FSR 300 to its documented road standard for passenger car use include: improving user safety, reducing erosion and sedimentation, increasing user comfort, providing a more appealing and satisfactory driving for pleasure experience, ensuring access to all users in the long term for a wide range of activities.

Recommendations and Priorities

Reconstruct FSR 300 (recommend the entire length) to address the identified deferred maintenance needs, including clearing of right-of-way trees and laying back of cutslopes to improve safety sight distance, addition of intervisible turnouts or double lane sections at critical locations, vast improvement of drainage structures including replacing, adding and enlarging structures and repairing ditches to reduce CDAs and sedimentation, placement of aggregate surfacing to protect the native soils and reduce erosion and sedimentation of the surface. The majority of this funding must be appropriated as the scope of reconstruction is immense, and is outside the scope of the Fiddlers Lake Environmental Assessment.

Relocate the existing pullout at Fiddlers Lake to the east side of FSR 300. The existing pullout would then be closed. This is being done to reduce the amount of sediment entering the lake from the existing pullout. It is also being done to provide a landing area for wood and/or slash generated from the proposed treatment on the southeast side of Fiddlers Lake.

Apply hauling restrictions so that timber haul does not conflict with primary recreation use periods.

Construct new roads as necessary to facilitate timber harvest proposed in the Fiddlers Lake EA. Obliterate temporary roads, skid trails and new roads constructed for the timber sale.

Maintain all existing Forest Service System roads at their documented and approved maintenance level.

Provide adequate warning and regulatory and guide signing. Properly sign Forest Service Roads and Trails and sign closures as needed.

In the Fiddlers Lake Area, FSR's 300, 300.1G, 300.2B, 300.2E, 300.ZZ and 307 are recommended to be open for either passenger cars or high-clearance vehicles.

Adequately close/decommission/obliterate unclassified roads along the FSR 300 corridor that are not needed for long-term management as appropriated funds for these activities become available. Maintain the closures through law enforcement, signing and on-site work.

Restrict off-road vehicle use in riparian ecosystems and wetlands. Designate ATV trails.

Incorporate Wyoming Best Management Practices (BMPS) into road construction and reconstruction. Utilize BMP concepts when maintaining roads.

Monitor noxious weeds due to the close proximity of the Loop Road, pile burning, and from potential spread from existing seeds that may be attached to any heavy equipment brought in to complete proposed work.

Revegetate bare cut and fill slopes.

Restrict off-road vehicle use where landscapes are fragile and resource damage might occur.

Vary right-of-way clearing lines to soften the visual impact.

Properly maintain and protect open roads necessary for resource management.

New road construction is allowed. Do not exceed a road density of 2 miles per square mile.

Provide for public access in Management Area 9E, emphasizing public safety and resource protection.

Table 1: Documentation Table for Roads Analysis Process Step 4

Question Number	Addressed in Analysis (Yes/No)	If addressed directly, page number in environmental document; or Forest Plan location or standard and guideline	If addressed indirectly, location in administrative record	If not addressed, rationale or location in administrative record
EF1	No			Not in unroaded
EF2	Yes	Fiddlers EA Ch3		
EF3	Yes	Fiddlers EA Ch3		
EF4	Yes	Fiddlers EA Ch3		
EF5	No			Not an issue
AQ1	Yes	Fiddlers EA Ch3		
AQ2	Yes	Fiddlers EA Ch3		
AQ3	Yes	Fiddlers EA Ch3		
AQ4	Yes	Fiddlers EA Ch3		
AQ5	No			Not an issue
AQ6	Yes	Fiddlers EA Ch3		
AQ7	Yes	Fiddlers EA Ch3		
AQ8	Yes	Fiddlers EA Ch3		
AQ9	No			See AQ 1,3,4,6
AQ10	No			Not an issue
AQ11	No			Not an issue
AQ12	Yes	Fiddlers BA		
AQ13	No			Not an issue
AQ14	No			Not an issue
TW1	Yes	Fiddlers EA Ch3	Fiddlers BA/BE	
TW2	Yes	Fiddlers EA Ch3	Fiddlers BA/BE	
TW3	Yes	Fiddlers EA Ch3	Fiddlers BA/BE	
TW4	Yes	Fiddlers EA Ch3	Fiddlers BA/BE	
EC1	Yes	Roads Analysis		
EC2	Yes	Quicksilver Investment Analysis		
EC3	No			Not an issue
TM1	Yes	Fiddlers EA Ch3		
TM2	Yes	Fiddlers EA Ch3		
TM3	Yes	Fiddlers EA Ch3		
MM1	No			Not an issue
RM1	Yes	Fiddlers EA Ch3		

Question Number	Addressed in Analysis (Yes/No)	If addressed directly, page number in environmental document; or Forest Plan location or standard and guideline	If addressed indirectly, location in administrative record	If not addressed, rationale or location in administrative record
WP1	Yes	Fiddlers EA Ch3		
WP2	No			See AQ 7
WP3	No			No hydroelectric
SP1	No			Not an issue
SU1	Yes	Fiddlers EA Ch3		
GT1	Yes	Fiddlers EA Ch3		
GT2	No			No other ownership
GT3	No			No easements
GT4	Yes	Fiddlers EA Ch3		
AU1	Yes	Fiddlers EA Ch3		
AU2	No			Not an issue
PT1	Yes	Fiddlers EA Ch3		
PT2	Yes	Fiddlers EA Ch3		
PT3	Yes	Fiddlers EA Ch3		
PT4	Yes	Fiddlers EA Ch3		
UR1	No			Forest Plan issue
UR2	No			Not an issue
UR3	No			Not an issue
UR4	No			Forest Plan issue
UR5	No			Forest Plan issue
UR6	No			Forest Plan issue
RR1	No			Not an issue
RR2	No			Not an issue
RR3	No			Not an issue
RR4	No			Forest Plan issue
RR5	No			Forest Plan issue
RR6	Yes	Fiddlers EA Ch3		
PV1	No			Not an issue
PV2	No			Not an issue
PV3	No			Not an issue
PV4	No			Not an issue
SI1	Yes	Fiddlers EA Ch3		
SI2	No			Not an issue
SI3	No			Not an issue

Question Number	Addressed in Analysis (Yes/No)	If addressed directly, page number in environmental document; or Forest Plan location or standard and guideline	If addressed indirectly, location in administrative record	If not addressed, rationale or location in administrative record
SI4	No			Not an issue
SI5	No			Not an issue
SI6	No			Not an issue
SI7	No			Not an issue
SI8	No			Not an issue
SI9	No			Not an issue
SI10	No			Not an issue
CR1	No			Not an issue