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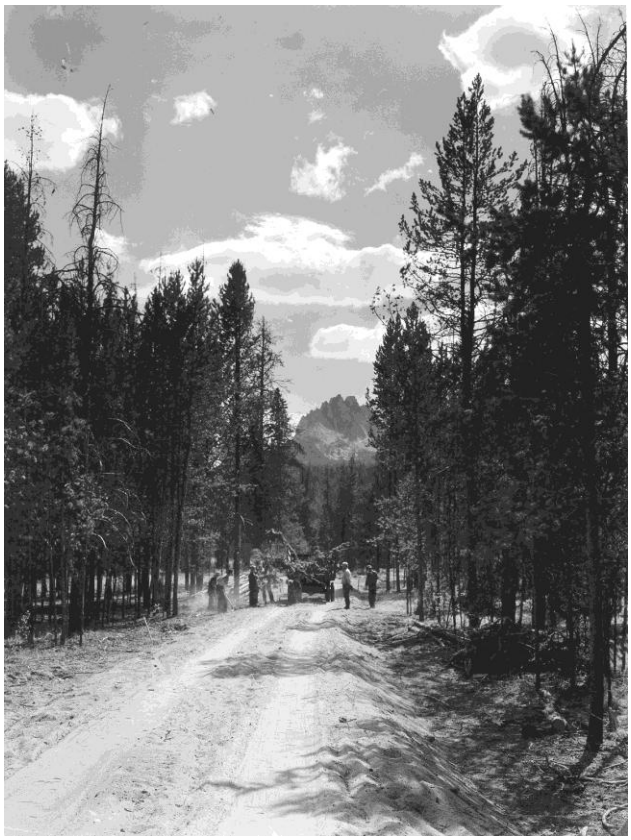
Environmental Assessment

Redfish Lake Complex Road and Bridge Reconstruction

Sawtooth National Recreation Area, Sawtooth National Forest
Custer County, Idaho



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Cover Photo:
1930's Civilian Conservation Corp road construction of Redfish Lake Road

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Summary

The Sawtooth National Forest proposes to improve bridges, roads, trails, parking areas, and utilities in the Redfish Lake Complex. The Redfish Lake Recreation Complex is located about 6 miles south of Stanley, Idaho. The Complex is located in Townships 9 and 10 North, Range 13 East, Boise Meridian within Custer County, Idaho and the Sawtooth National Recreation Area.

The Proposed Action would relocate the primary access road to the east side of Redfish Lake Creek, build a new bridge crossing, and build a new road to access the east side of Redfish Lake. Connected actions, such as moving the underground utilities to the new alignment, constructing an overlook, reconfiguring one bridge as a pedestrian/bicycle bridge, as well as the trails and parking within the North Shore area, and improving signage, are included as part of the Proposed Action.

In addition to the Proposed Action, the Forest Service also evaluated an alternative that replaced the two bridges in place, as well as a No Action Alternative.

This environmental assessment (EA) presents an analysis of the environmental effects of the alternatives and addresses comments and concerns expressed during the comment period.

Chapter One **PROPOSED ACTION**

Background

Redfish Lake is named for the bright red sockeye salmon that migrate to and from the Pacific Ocean and this high elevation home.

The Redfish Lake Complex is known for its recreational opportunities and scenic beauty.

The Redfish Lake Recreation Complex is part of the Sawtooth National Recreation Area (NRA) and is located about six miles south of Stanley, Idaho. At times during the summer months, the population of the Redfish Lake Complex is likely the largest "community" in Custer County. It is also the most heavily used and highly developed recreation complex on the Sawtooth National Forest (NF). It includes many roads, trails, and facilities (Figure 1-1).

An access road to Redfish Lake existed before 1900, though the exact alignment has changed periodically. The current alignment (Road #214) is believed to have been constructed in its current state in the mid-1950s. This road crosses Redfish Lake Creek twice and serves as the primary access into the Complex. Pedestrians and bicycles share the road with vehicles of all kinds.

Redfish Lake Road #214

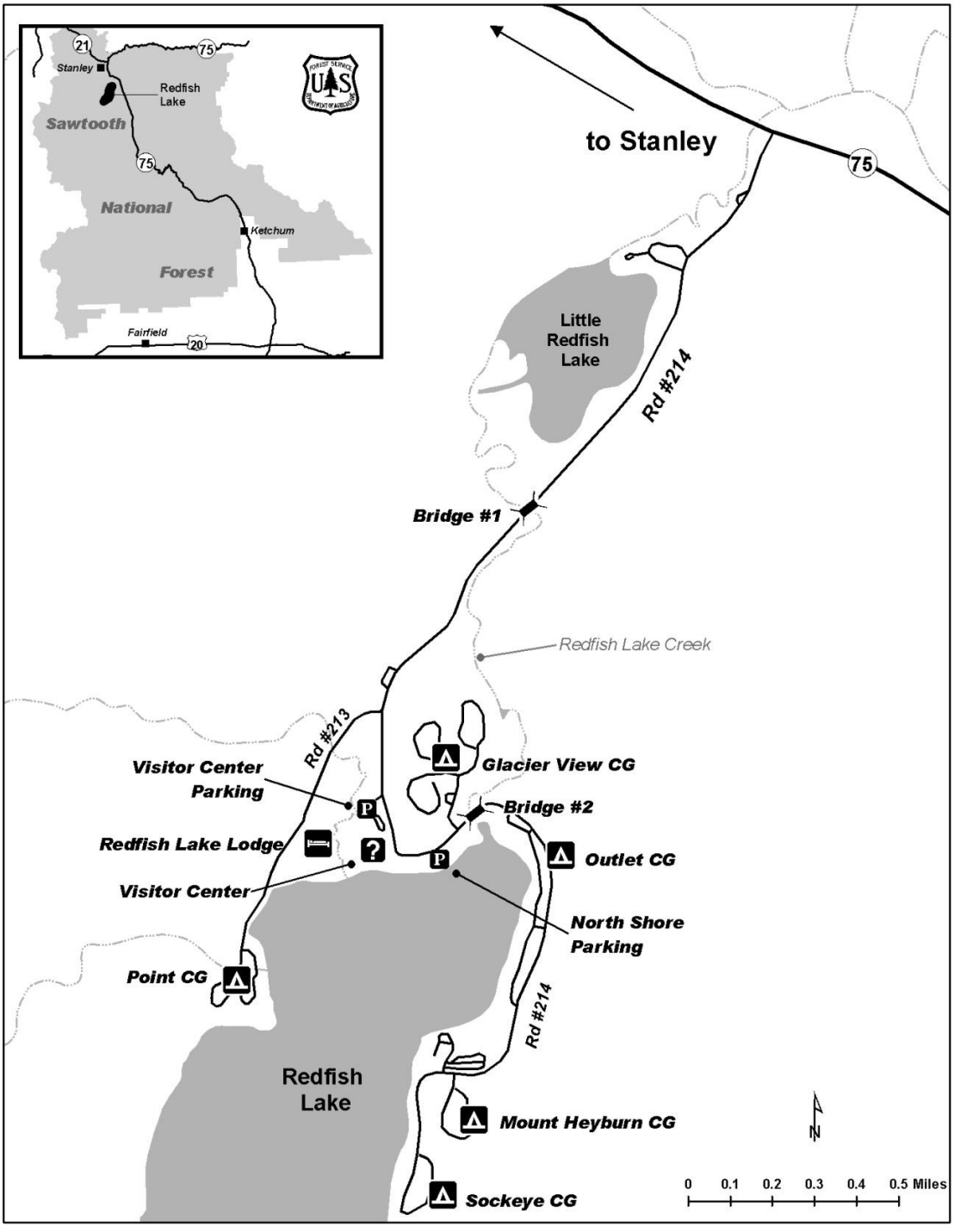

Figure 1-1: Project Vicinity Map

There are two bridges crossing Redfish Lake Creek on Redfish Lake Road. The bridges were built in 1956 (Bridge #2) and 1957 (Bridge #1).

Bridge #1

Bridge #2

Both bridges are over 50 years old and are visibly showing signs of deterioration, including settled abutments, rotted timber railings, and subsurface failure underneath the bridge approaches. The physical condition of the bridges has required that they be posted with restricted load ratings. Inspections have also demonstrated that both would need to be replaced in the near future if vehicle use was to continue. The two bridges were evaluated for their potential eligibility to the National Register of Historic Places but were found to be ineligible due to their lack of historic integrity.

Between the first and second bridge, near the Visitor Center, there is a sharp curve in the Redfish Lake Road #214. This curve has been the site of several vehicle accidents caused by excessive speed and poor visibility. This location is also complicated by the existing circulation pattern that results in all traffic accessing the North Shore area, Glacier View Campground, and the developed sites on the east shore of Redfish Lake having to use this segment of roadway.

Road #214 Sharp Curve

Purpose and Need for Action

The purpose of the proposed Redfish Lake Complex Road and Bridge Reconstruction project is to address the safety and load capacity of the two bridges on Forest Road #214 leading into the complex. The bridge crossings of Redfish Lake Creek need to be structurally and functionally adequate for all traffic, including full highway loads.

A second purpose is to improve the safety of Forest Road #214 at the sharp curve near the Visitor Center.

Proposed Action

The need to replace two bridges on Road #214 presented some opportunities and considerations to improve access in and around the Redfish Lake Complex. These considerations included the overall balance and utility of the transportation system, construction impacts, environmental impacts, construction and maintenance costs, and long-term impacts to the overall recreation complex operation.

To address the purpose and need, the Sawtooth NRA proposes to relocate the primary access road to the east side of Redfish Lake Creek, build a new bridge crossing, and build a new road to access the east side of Redfish Lake. This action would address the bridge loading and safety as well as many of the additional needs and opportunities listed above.

Briefly, the Proposed Action would construct a new bridge across Redfish Lake Creek, realign Road #214 to access the new bridge site, and construct a new road to bypass the second bridge, thus eliminating the need for one road bridge. To address the safety of Road #214 at the sharp curve near the Visitor Center, the Proposed Action would realign this portion of the road to follow the toe of the slope from roughly the current Visitor Center entrance to the entrance of Glacier View Campground. The existing sharp curve would be incorporated into a relocated parking lot for the Visitor's Center. The existing road from the new Visitor Center parking lot to Bridge #2 would be removed and conditions restored.

To facilitate the road and bridge reconstruction, connected actions, such as moving the underground utilities to the new alignment, constructing an overlook, reconfiguring Bridge #2 as a pedestrian/bicycle bridge, and improving signage, are included as part of the Proposed Action.

The Proposed Action also includes additional actions around the north shore of Redfish Lake that are related to the bridge and road reconstruction proposals and make sense to consider at this time. These include relocating the Visitor Center parking lot out of its current wet location, relocating the North Shore parking lot to provide for more day-use parking, and constructing a new pedestrian/bicycle trail from Bridge #2 to near the Visitor Center. Abandoned roadways in the North Shore area would also be removed to reestablish natural topography.

The Proposed Action includes the development of a non-significant Forest Plan amendment to the 2003 Forest Plan to correct visual quality objectives (VQOs) in the Redfish Lake area.

A more detailed description of the Proposed Action is found in the Alternatives section in Chapter Two.

Decision Framework

The Sawtooth NRA Ranger for the Sawtooth National Recreation Area is the Deciding Official. Given the purpose and need, the deciding official reviews the proposed action and the other alternatives in order to make the following decisions:

1. Whether or not to approve implementation of the proposed action, an alternative to the proposed action, or no action.
2. If implementation of an action is approved, what operating standards, design features, mitigation measures, and monitoring activities should take place before, during, and after the activities occur.

The Forest Supervisor for the Sawtooth National Forest is the responsible official for deciding whether or not to amend the Forest Plan to correct the VQO mapping error.

Management Framework

The Sawtooth National Recreation Area was created in 1972 from National Forest System lands, and remains the largest NRA in the National Forest System. Enabling legislation (Public Law 92-400 1972) states the special designation is given "to assure the preservation and protection of the natural, scenic, historic, pastoral, and fish and wildlife values and to provide for the enhancement of the recreation values associated therewith." These are key values to be considered for all Sawtooth NRA management activities.

The Sawtooth National Forest Land and Resource Management Plan (Forest Plan) serves as the guiding direction for on-the-ground project planning and implementation. In addition to Forest-wide standards and guidelines, the Forest Plan also provides specific management direction within the Sawtooth NRA, providing the land allocation and resource decisions for NRA management as directed by PL 92-400.

The project area is entirely within Management Area 2, Upper Salmon River Valley. Within MA 2, the project is located on lands associated with Management Prescription Category (MPC) 3.2 (Active Restoration and Maintenance of Aquatic, Terrestrial, & Hydrologic Resources) and includes MPC 2.1. (Wild & Scenic Rivers and Their Corridors). Redfish Lake Creek is an eligible Wild and Scenic River classified as 'Recreational' from the Redfish Lake outlet to the confluence with the Salmon River. The objective of MPC 3.2 is to actively restore or maintain conditions for fish, wildlife, and botanical species, through a combination of management activiteis and natural processes.

Public Involvement

The Redfish Lake Complex project has been continually listed in the quarterly Sawtooth Forest Schedule of Proposed Actions since July 2008.

Public involvement for the Redfish Lake Complex Road and Bridge Reconstruction project was initiated with a letter sent to agencies, organizations, and interested individuals on November 16, 2009. The initial scoping result in 14 responses related to concerns about and effects on recreation, trails, scenery, economics, signing, safety, traffic flow, and fisheries.

The 30-day opportunity to comment period began July 8, 2010 with a legal notice in the Challis Messenger. This comment period resulted in five additional responses relating to fisheries, roadless areas, traffic flow, economics, and impacts to recreationists and special use permittees.

A detailed list of individual comments and responses can be found in the project record.

Tribal Involvement

Tribal governments have a special and unique legal and political relationship with the United States government as reflected in the United States Constitution, treaties, statutes, court decisions, executive orders, and memoranda. This relationship imparts a duty on all federal agencies to consult, coordinate, and communicate with American Indian Tribes on a government-to-government basis. Because Indian Tribes can be affected by the policies and actions of the Forest Service in managing the lands and resources under its jurisdiction, the Forest Service has a duty to consult with them on matters affecting their interests. Because of this government-to-government relationship, efforts were made to involve local tribal governments and to solicit their input regarding the proposed action.

Consultation was initiated for this project with the Northwestern Band of the Shoshone Nation, Shoshone-Paiute Tribes of Duck Valley, Shoshone-Bannock Tribes, and the Nez Perce Tribe. All tribes were notified of the project by a letter dated November 16, 2009 (see project record). Additional letters, also in the project record, were sent on July 6, 2010 and June 16, 2011. No responses were received from any of the four tribes.

Issues

Through review of the internal and external feedback received regarding the Proposed Action, issues were identified that are considered central to the analysis. Other concerns were also identified that have framed the analysis, and detail about these concerns is in the project record.

Issue 1 - Wetland, Fish and Aquatic Habitat: Relocating the road and/or replacing the bridges may have short term impacts and/or long term benefits on wetlands, streamside, and instream habitat, including that of ESA 'endangered' sockeye salmon, and 'threatened' Chinook salmon, steelhead, and bull trout, as well as cutthroat trout, a Forest Service sensitive species.

Indicator: Acres of roadway in wetland, streamside, or instream habitats

Issue 2 - Wildlife: Relocating the road may result in additional disturbance to wildlife habitats (e.g., ESA-listed and sensitive species, management indicaor species, and migratory birds).

Indicator: Habitat condition from road/bridge construction and other improvements, road/bridge restoration, and pit expansion.

Issue 3 - Traffic Flow within the Area: Relocating the road, adding a new road, and converting Bridge #2 to non-motorized use may result in increased travel time and distance between locations within the Redfish Lake Complex for both motorized and non-motorized users.

Indicator: Distance between locations for both motorized and non-motorized users
Indicator: Travel time between locations

Issue 4 - Economics: Adding a new road may impact local businesses such as the Redfish Lake Lodge and horseback ride provider that rely, to some extent, on the visibility their business

receives from travelers to and from the Redfish Lake Resort area. Additionally, the configuration of the intersection that leads traffic to the Resort Area or the campgrounds/boat launch may affect the amount of traffic that drives past local businesses.

Indicator: Estimates of visitors (vehicles) passing by the Lodge and horseback ride facility.
Indicator: Number of turns required to access the Lodge and horseback ride facility.

Chapter Two **ALTERNATIVES**

This chapter describes and compares the alternatives considered for the Redfish Lake Complex Road and Bridge Reconstruction project. It includes a description of each alternative considered. This section also presents the alternatives in comparative form, sharply defining the differences between each alternative and providing a clear basis for choice among options by the decision maker and the public.

Alternative 1: No Action

Under the No Action Alternative, current road, bridge, and facility conditions in the Redfish Lake Complex would not change. Neither of the bridges would be replaced, so the current load restrictions would remain in place. The sharp curve near the Visitor Center will not be realigned, and no improvements to the North Shore and Visitor Center parking lots will be made.

Alternative 2: Proposed Action

Alternative 2 was designed to address the bridge loading and safety concerns and includes additional actions that fit well into the larger vision for the Redfish Lake Complex.

Alternative 2 Actions

To address the condition of the current bridges, Alternative 2 would construct a new bridge across Redfish Lake Creek and construct a new road to bypass the second bridge, thus eliminating the need for one road bridge (Figure 2-1). Specifically, Alternative 2 would:

- Reroute Road #214 around Bridge #1 (0.6 miles).
- Construct a new bridge crossing 0.3 miles upstream of Bridge #1 that ties into Road #214 for access to Redfish Lake Lodge, the Visitor Center, Point and Glacier View Campgrounds, and day use areas on the west side of Redfish Lake Creek. The new bridge would be a 2-lane bridge with an attached bike lane and would use natural appearing colors to blend with the landscape.
- Build a new road (1.0 miles) east of Redfish Lake Creek to access the boat launch and campgrounds on the eastside of Redfish Lake.

To address the safety of Road #214 at the sharp curve near the Visitor Center, Alternative 2 would realign this portion of the road to follow the toe of the slope from roughly the current Visitor Center entrance to the entrance of Glacier View Campground. The existing road from the new Visitor Center parking lot to Bridge #2 would be removed and conditions restored.

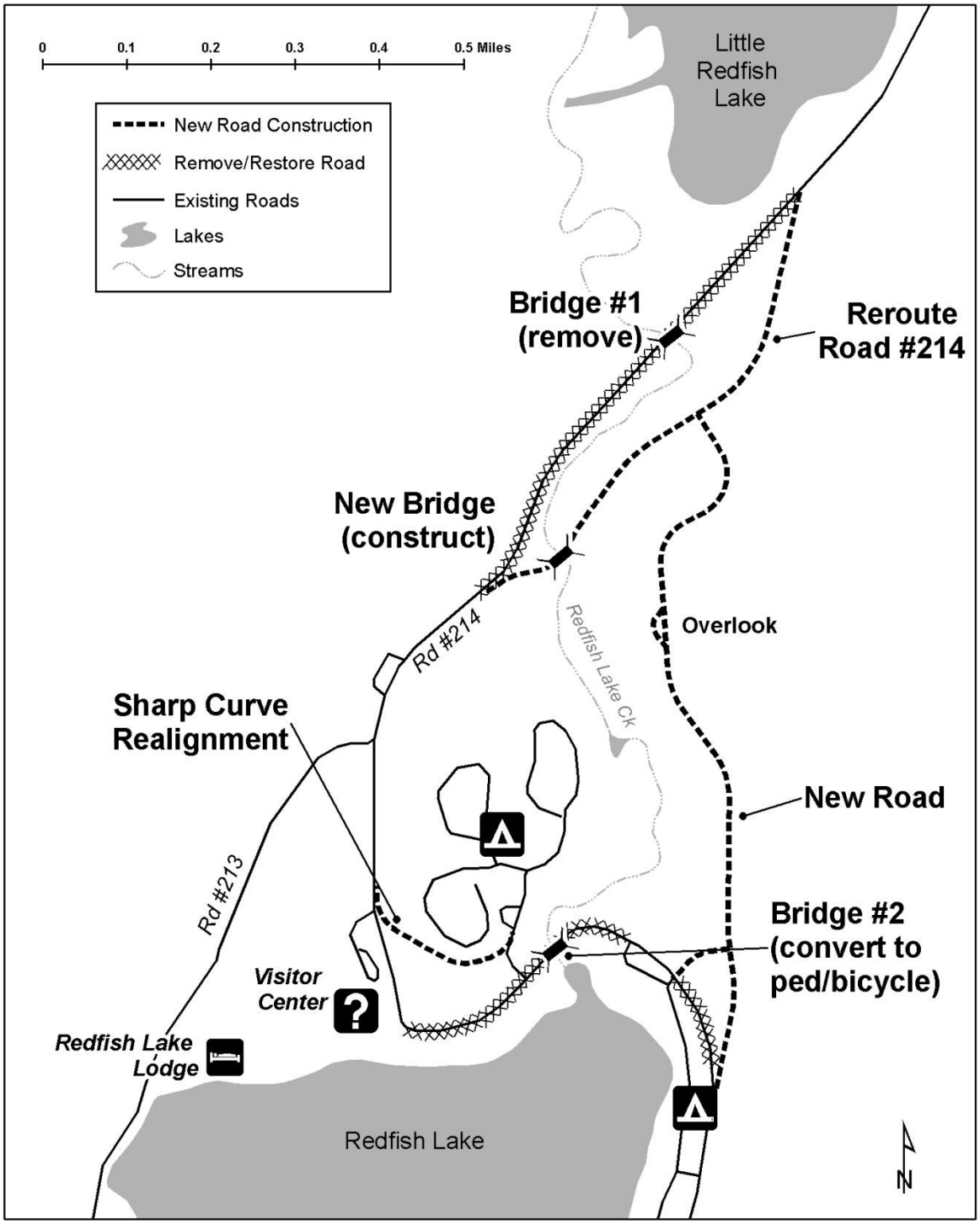

Figure 2-1: Alternative 2

To facilitate the road and bridge reconstruction, the following connected actions are included as part of Alternative 2:

- Expand the approximately 20 acre existing gravel source for road, bridge, and trail construction at Champion Mineral Materials Source by 10 acres. For paving, a hot mix plant would also be established at the materials source location.
- Move the underground utilities (electric, phone, sewer) to align with the reroute of Road #214. Bury the utilities under the road and suspend them beneath the new bridge along the girders. Construct one sewage lift station beside the road near the new bridge location. The practical separation between the creek and the lift station would be maximized.
- Construct an overlook with parking and interpretation along the new road to showcase the scenic vista afforded by the new road.
- Remove and restore to natural topography and conditions the portions of Road #214 that are no longer needed (0.6 miles).
- Remove existing Bridge #1, including instream piers and the in-channel encroachment of fill associated with the abutments. Restore naturally resilient streambanks.
- Reconfigure Bridge #2 near Outlet Campground as a pedestrian/bicycle bridge. This includes removing the asphalt and installing wood planks as the trail surface.
- Add signs at intersections directing traffic to facilities within the Redfish Lake Complex.
- Relocate the approximately 2 acre service area that currently exists north of Outlet Campground to a location hidden from view along the new road. The new service area would be smaller but would provide similar services including up to six concessionaire RV sites, a toilet, and storage areas. Rehabilitate the former location.

Alternative 3: Replace Two Bridges in Place

Alternative 3 was developed to address the purpose and need of improving the safety of the two Redfish Lake Creek bridges and the safety of the sharp curve on Road #214. In addition, Alternative 3 was designed to address the issues of fish and aquatic habitat, wildlife habitat, traffic flow, and economics associated with the Proposed Action.

Alternative 3 Actions

To address the condition of the current bridges, Alternative 3 would replace Bridge #1 and Bridge #2 in place with bridges rated for full highway loads (Figure 2-2). The new bridges would be 2-lane bridges and would use natural appearing colors to blend with the landscape. A pedestrian/bicycle lane will be included with Bridge #2. Replacing the bridges would require construction of detour roadways and bridges. These would be removed at the end of the construction process. Temporary bridges will be installed next to the existing bridges.

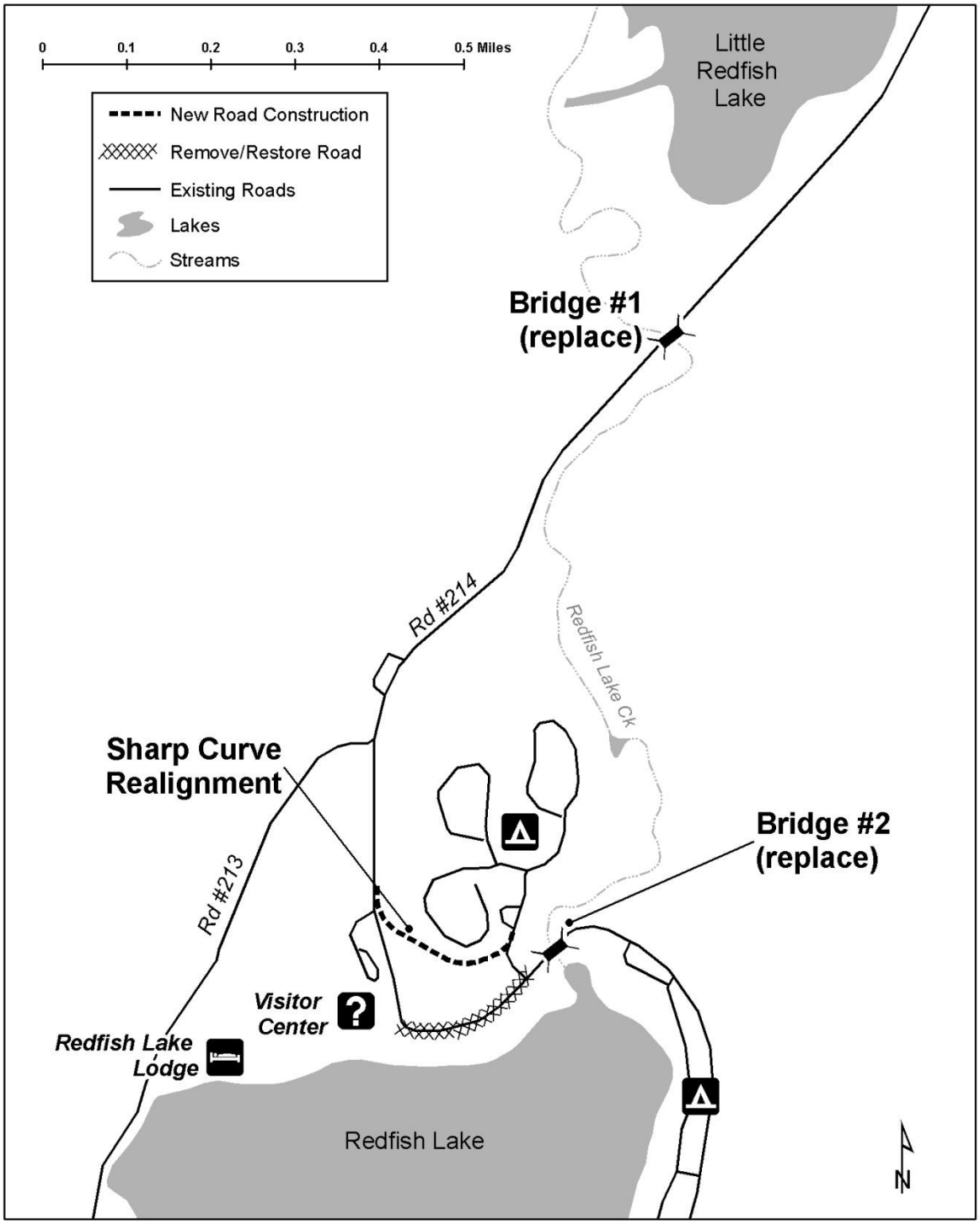

Figure 2-2: Alternative 3

To address the safety of Road #214 at the sharp curve near the Visitor Center, Alternative 3 would realign this portion of the road to follow the toe of the slope from roughly the current Visitor Center entrance to the entrance of Glacier View Campground. The existing road from the new Visitor Center parking lot to where the realigned curve connects to Road #214 would be removed and conditions restored.

To facilitate the bridge reconstruction, the following connected actions are included as part of Alternative 3:

- Expand the approximately 20 acre existing gravel source for road, bridge, and trail construction at Champion Mineral Materials Source by 10 acres. Waste material removed from any former routes would be returned to this pit. For paving, a hot mix plant would also be established at the materials source location.
- Suspend the underground utilities (electric, phone, sewer) beneath the new Bridge #1 along the girders. Construct one sewage lift station beside the road near Bridge #1.

Actions Common to Alternatives 1, 2, and 3

All Alternatives, including the No Action Alternative include the development of a non-significant Forest Plan amendment to the 2003 Forest Plan to correct visual quality objectives (VQOs) in the Redfish Lake area. This amendment is specific to Forest-wide Scenic Standard #SCST0, *All projects shall be designed to meet the adopted VQO as displayed on the Forest VQO map*.

This procedural amendment would update mapped/adopted Retention VQO to either Partial Retention or Modification, thereby bringing the site into compliance with Forest-wide and Management Area 02 direction regarding the scenic environment. Per this non-significant amendment, the Forest-wide VQO map would be modified accordingly. These VQO updates simply correct a mapping error that was not corrected during the 2003 Forest Plan revision.

Actions Common to Alternatives 2 and 3

Alternatives 2 and 3 include some additional actions around the North Shore of Redfish Lake that are related to the bridge and road reconstruction proposals and make sense to consider at this time (Figure 2-3). These include:

- Relocate the Visitor Center parking lot out of its current, wet location to a higher location near the sharp curve. Include a one-way loop road for accessible access. Construct a new trail from this new parking lot to the Visitor Center. Remove and rehabilitate the existing Visitor Center parking lot.
- Relocate and reconfigure the North Shore parking lot onto dryer ground and provide for more day-use parking. The existing North Shore parking would be removed and restored.
- Construct a new pedestrian/bicycle trail from Bridge #2 to near the Visitor Center. Improve the trail from the Outlet parking lot to Bridge #2.
- Remove abandoned roadways in the North Shore area to reestablish natural topography.

- Use temporary irrigation (extended from the existing Glacier View Campground system) for a year or two to accelerate and assure rapid restoration response.

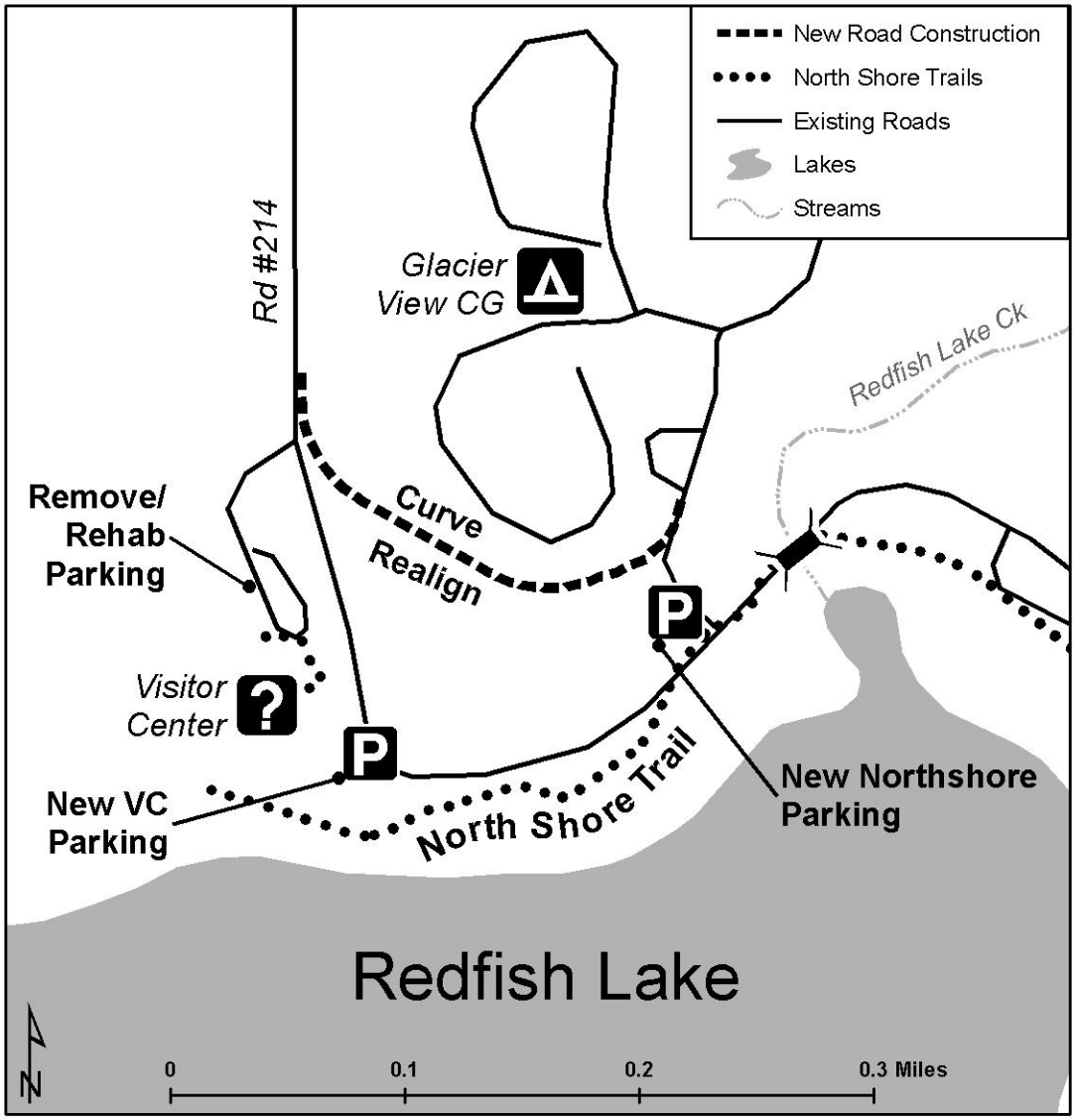

Figure 2-3: North Shore Improvements

Mitigation Measures for Alternatives 2 and 3

Mitigation measures are used to minimize impacts of the Alternatives by limiting the degree of magnitude of the actions or reduce or eliminate impacts over time. The following mitigation measures and design features are included as part of Alternatives 2 and 3:

Timing Restrictions

- For streamside activities, work would only occur during daylight hours between July 15 and October 1.
- Removal of existing bridges will take place after July 15 to avoid disturbance to nesting birds and before September 1 to avoid disturbance to sockeye spawning and incubation.
- North Shore trail work, restoration activities, tree removal for road realignments, and other tree felling will take place after Labor Day and before December 1 to minimize impacts to visitors and natural resources.
- Removal of vegetation for the Champion Material Source expansion will take place between August 15 and December 1 to avoid disturbance to nesting birds and wintering sage-grouse.
- No concrete pours will occur over water (e.g., bridge deck) after September 1 in order to minimize risks during sockeye spawning and incubation.

Other Measures

- Equipment staging would occur in predesignated areas outside of Riparian Conservation Areas (RCAs), currently anticipated near the junction of the two new alignments, and/or within the former timber sale landing northwest of the existing alignment.
- Fuel storage would occur only within staging areas and equipment refueling will not occur within RCAs (except as necessary at the lift station). Engine and hydraulic fluids will be monitored for leaks.
- If a crane is used and on-site refueling is required within the RCAs, a permanent fuel containment basin, capable of 110% of the crane's fuel capacity, would be established around the crane.
- No equipment or construction activity would occur within Redfish Lake Creek for bridge construction. New bridges will fully span the bankfull channel. Public access to the creek may be closed temporarily as necessary for safety.
- Should pumping be required to vacate groundwater inflow from the abutment excavations, the pumped outflow will occur at sufficient distance, or with sufficient methods, to assure flows are clear and free of sediments should they reach the creek. Pumps will reside within a containment with at least 110% capacity (e.g., tub or lined depression), as far from the creek as is practical.
- Within potential Chinook spawning habitat, where objectives instream or streamside are intended after August 15, fish avoidance surveys will be conducted over a minimum of 600 feet downstream and 400 feet upstream daily to confirm the absence of any spawning activity and/or redds. If redds of ESA protected salmonids are identified, the appropriate agencies would be contacted to determine if or how the project may proceed.
- Herbicide applications may be employed for noxious weed treatments and would utilize Agency approved chemicals, practices, limitations, and terms existing at the time of

intended use. As such, no use of herbicides will occur without perquisite consideration of the potential effects to TES species, and/or Section 7 consultation, either as tiered to a programmatic analysis or project specific.

- Standard erosion control and containment practices (e.g., wattles, silt fence) will be applied wherever ground disturbing activities occur within RCAs or on slopes greater than 20 percent, or in areas where water may concentrate during snowmelt periods. Revegetation of such locations will also be emphasized.
- When paving new roadways, methods will be utilized to prevent asphalt or road oils from entry into water or wetlands. No side casting shall take place during brooming operations within 100 feet of bridges, adjacent wetlands and surface waters, or as directed. When asphalt surfacing is removed from the former roadways, it will be gathered and contained in such a manner as to also prevent entry into water or wetlands.
- No concrete pours will occur in-water. Should concrete pours be required within RCAs, methods will be utilized to assure no uncured concrete enters water or wetlands. In order to minimize risks during sockeye spawning and incubation, no concrete pours will occur over water (e.g., bridge deck) after September 1. Discharge of uncured excess concrete, and the washing of tools and equipment, will occur only within staging areas where there is no potential for effluent to reach surface waters.
- Care will be utilized to minimize the entry of construction or demolition debris into water or wetlands.
- Where instream objectives are anticipated (e.g., bridge removal, bank restoration), temporary water filled flow deflectors or a similar strategy will be utilized to protect the immediate work area from flow energies.
- Organic matter, forest debris, and soils will be salvaged as possible from clearing for new roads and stockpiled for use in the various restoration objectives associated with the project.
- No on-site fuel storage will occur at the sewage lift stations and refueling will occur by hand following standard best practices to prevent and/or contain spills.
- Prior to on-site arrival, all equipment used for instream work will be cleaned of external oil, grease, dirt and mud, and leaks repaired, before entering streams or areas that drain directly to streams or wetlands. Spill packs will also be on hand for minor leaks/spills.
- If needed, water drafting sites will be pre-identified through coordination with an aquatics specialist to avoid spawning and key rearing areas. All drafting equipment and operations will meet screening criteria of openings $\leq 3/32$" with approach velocities < 0.40 feet per second.
- Where new construction occurs within RCAs, existing vegetation will be protected to the extent possible and disturbed areas promptly rehabilitated.
- During construction, minimize impacts to recreation traffic due to construction delays. Use signing to advertise for delays ahead of time.

Implementation

If either Alternative 2 or 3 are approved, activities would not begin until at least 2012. Table 2-1 describes a possible implementation schedule for each of these alternatives, dependent on funding and weather considerations.

Table 2-1. Implementation Schedule

YEAR	ALTERNATIVE 2	ALTERNATIVE 3
1	Begin constructing the road reroute and new road; Begin work to install the new bridge; Place utilities in the new road alignment; Realign the sharp curve.	Replace Bridge #1.
2	Continue constructing the road reroute and new road; Continue the new bridge installation.	Replace Bridge #2.
3	Remove Bridge #1; Remove and restore the unused portion of Road #214; Construct the new Visitor Center and North Shore parking lots; Restore North Shore areas.	Realign the sharp curve; Construct the new Visitor Center and North Shore parking lots; Restore North Shore areas.

Comparison of Alternatives

This section provides a summary of the effects of implementing each alternative. Table 2-2 draws information and discussion presented in Chapter 3 and provides the results of the analysis in a brief summary. Information in this table is focused on the issues presented in Chapter 2 and other resource concerns.

Table 2-2. Comparison of Alternatives

Issue	Alternative 1: No Action	Alternative 2: New Road and Bridge Crossing	Alternative 3: Replace Bridges in Place
Bridges and Safety	Bridges would continue to deteriorate; continued safety concerns at the sharp curve.	One new road bridge meeting safety and load requirements; improved safety at the realigned sharp curve.	Two new road bridges meeting safety and load requirements; improved safety at the realigned sharp curve.

Issue	Alternative 1: No Action	Alternative 2: New Road and Bridge Crossing	Alternative 3: Replace Bridges in Place
Wetland, Fish, and Aquatic Habitat	The most potential long-term effects to current instream functions; No benefits to current stream RCA functions; 8.1 acres of travel ways within RCAs.	Some potential long-term effects to current instream functions; The most benefits to current stream RCA functions; 3.3 acres of travel ways within RCAs.	Some potential long-term effects to current instream functions; Few benefits to current stream RCA functions; 6.3 acres of travel ways within RCAs.
Wildlife Habitat	No change in miles of roads or acreage of permanent wildlife habitats.	Increased miles of roads, decreased acreage of forested and sagebrush habitats, increased acreage of wetland and shoreline habitats.	No change in miles of roads, decreased acreage of sagebrush habitats, increased acreage of forested, wetland, and shoreline habitats.
Travel Distances/Times within the Complex	No change in distances or travel times.	Increased distances and times from the eastside of Redfish Lake to the facilities on the North Shore and westside of the Lake. Short-term increase in travel times due to construction delays.	Slight improvement in distances and times due to realignment of the sharp curve. Short-term increase in travel times due to construction delays.
Economic Impacts to Special Use Operators	No change in visitors' ability to access local businesses.	Potential long-term decrease in visitors passing by local businesses.	Short-term delays in visitors accessing local businesses due to construction.

Alternatives Considered but Eliminated from Detailed Analysis

Two additional alternatives were considered in response to comments received during the scoping periods.

Modify the Proposed Action to include leaving the old roadbed for a utility corridor and non-motorized use.

The Interdisciplinary Team considered modifying the Proposed Action to exclude fully restoring the portion of Road #214 from the new alignment to the new bridge crossing. The purpose of this proposal was to keep the utilities in place in the old corridor and to retain the old roadbed as a potential pathway for non-motorized recreation use, including cross-country skiing.

Rationale for Dismissal: Only 0.6 miles of road is being rerouted in the Proposed Action. This distance provides little opportunity for a non-motorized pathway. In addition, Bridge #1 will be removed when the road is rerouted, regardless of whether the old road is fully restored. Without the use of Bridge #1, there is not a route for the utilities or a trail.

Modify the Proposed Action to include an alternate crossing for the new bridge.

The Interdisciplinary Team and Engineering Report examined an alternate crossing for the new bridge upstream of the Proposed Action bridge crossing. Reasons for considering this alternate crossing were that it connected straight into Road #213 and there was existing disturbance near the crossing site.

Rationale for Dismissal: The alternate crossing upstream of the site for the new bridge in the Proposed Action was considered but dismissed for four reasons. First, the alternate crossing was relatively close to Glacier View campground and may have increased traffic noise for campers. Second, the alternate crossing's proximity to the Fish and Game weir structure may have raised public accessibility issues. Third, the reroute of the road would have bypassed the horseback ride facility. Finally, the alternate crossing and road reroute may have impacted an historic property.

Chapter Three **AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES**

This chapter summarizes the existing environments of the affected project area and discloses the potential effects of implementing the alternatives presented in Chapter Two. The analysis presented is a summary the specialist report findings. The full reports can be found in the project record.

Overview of Affected Area

The affected environment is the area in and surrounding the Redfish Lake Recreation Complex. The surface elevation of Redfish Lake is 6547 feet above sea level. The Redfish Lake landscape is dominated by glacial topography. Glaciation as recent as 14,000 years ago carved the rough Sawtooth Range and left glacial moraines which are now forested along the base of these mountains. Redfish Lake is a glacial lake that occupies a U-shaped glacial valley.

Redfish Lake Creek and Redfish Lake are important to the lifecycle of several native fish species, including populations of sockeye and Chinook salmon, steelhead, and bull trout. Redfish Lake remains the only lake with returning sockeye adults within the Snake River system.

Vegetation and structure in the area are diverse, consisting predominantly of thinned lodgepole with some natural openings of sagebrush, grasses, and forbs. The riparian area of Redfish Lake Creek is composed of mixed conifer species including lodgepole pine, Douglas-fir, Engelmann spruce, and subalpine fir with quaking aspen. Wetlands typically exist along the streams and lakeshores within the project area.

The Redfish Lake Complex is accessed via State Highway (SH) 75 and Forest Road #214. There are over 7 miles of paved system roads (starting at SH 75) in the area. Vehicle, pedestrian, and bicycle traffic is heavy along the roads and trails throughout the summer months. Facilities in the Complex include trails and trailheads, seven developed campgrounds, three picnic/day use areas, a visitor center, and Redfish Lake Lodge, which provides a restaurant, general store, cabins, showers and laundry facilities, and a horseback ride facility.

The nearest community to the project area is the town of Stanley, Idaho located about 6 miles to the north.

Bridges, Roads, and Safety

This section will describe how each of the alternatives addresses the purpose and need of improving the safety and load capacity of the two bridges on Forest Road #214, along with improving the safety at the sharp curve near the Visitor Center.

Affected Environment

The two bridges that cross Redfish Lake Creek on Road #214 are both over 50 years old and are past their useful life. The bridges have load restrictions due to their deteriorated condition and

can no longer carry highway legal loads. Reconstruction projects of campgrounds have resulted in higher cost because any materials brought in are broken down into smaller loads at the highway in order to cross the bridges. For those materials that can't be separated into smaller loads, the bridges have to be reinforced.

The first bridge, referred to as Bridge #1, is 28 feet, 4 inches wide by 88 feet long and was constructed in 1957. The second bridge, referred to as Bridge #2, is located in the North Shore Area near the entrance to Glacier View Campground. This bridge is 25 feet wide by 89 feet long and was built in 1956.

The Redfish Lake Road (#214) is the access route to the Redfish Lake Complex. The road is a 22-foot wide double-lane paved road with two bridges over Redfish Lake Creek. The pavement on the road is in good condition.

Between the first and second bridge there is a sharp curve in the Redfish Lake Road #214 near the Visitor Center. This curve has been the site of several vehicle accidents caused by excessive speed. The curve does not meet the posted 25 mph speed. The substandard curve has a 100 foot radius and meets a 20 mph design speed assuming a superelevation of 6 percent. Due to the irregular superelevation on this curve, it should be signed to 15 mph if no improvements are made to it (DJ&A, P.C., 2010, page 17).

Environmental Consequences

Alternative 1 (No Action). Under the No Action Alternative, the roads would continue to exist as they currently do. Over time the asphalt would breakdown and need to be repaired or replaced. The sharp curve would continue to have high accident potential. For this alternative, the bridges would continue to deteriorate until they are no longer functional as road bridges. Once the bridges are no longer functional as road bridges, the Redfish Complex would become a non-motorized access only area until the bridges were replaced. Vehicles would no longer be able to drive to Redfish Lake Lodge, Point Campground, the Visitor's Center, and the North Shore Area. Alternative 1 does not meet the purpose and need for the project.

Alternative 2 (Proposed Action). Under Alternative 2, the road reroute of Road #214 and the new road on the east side of Redfish Lake Creek would be a double lane asphalt road with enhanced shoulders that are paved to allow for the possibility of bicycle traffic while minimizing conflicts with the vehicle traffic. This alternative would add 1.0 miles to the total number of miles of system road in the Redfish Lake Complex, after the restoration work is complete. The design speed and curve radii would take into account the larger vehicles that are on the road today. The conditions of the existing roads would remain the same until the scheduled maintenance is performed.

For Alternative 2, there would be a new road bridge located between the two existing bridges. Bridge #1 would be removed along with the roadway fills and Bridge #2 would remain in place but be converted to a pedestrian/bicycle bridge. The new bridge would be the only crossing of Redfish Lake Creek and would be wide enough to accommodate two way vehicle traffic and bicycle/pedestrian traffic to increase the safety of the traffic. The new bridge would be designed to carry full highway loads.

Alternative 2 Proposed Bridge Site

Alternative 3. Under Alternative 3, the bridges would be replaced in their existing locations. Temporary detours and detour bridges would be constructed while the bridges are being replaced. A bicycle/pedestrian bridge would be included with Bridge #2 to reduce conflicts and improve the safety between motor vehicles and bicycle/pedestrian traffic. Both new bridges would be designed to carry full highway loads. This alternative would add not change the number of miles of system road in the Redfish Lake Complex.

For both Alternatives 2 and 3, the sharp curve near the Visitor's Center would be improved by relocating it along the slope near Glacier View Campground. The corner would be constructed with a larger radius designed for the larger and longer recreation vehicles that exist, thus improving the safety at this curve. Both Alternatives 2 and 3 meet the purpose and need for this project.

Key Issues

This section will discuss how each of the alternatives addresses the key issues identified in Chapter Two.

Issue 1: Aquatic, Fish, and Wetland Habitat

Effects to aquatic, fish, and wetland habitat were identified as the first issue. Relocating the road and/or replacing the bridges may have short term impacts and/or long term benefits on wetlands, streamside, and instream habitat, including that of ESA 'endangered' sockeye salmon, and 'threatened' chinook salmon, steelhead, and bull trout, as well as cutthroat trout, a Forest Service sensitive species.

Indicator: acres of roadway in wetland, streamside, or instream habitats

Affected Environment

Stream and Lakeshore Conditions. The surficial conditions through which the outlet flows are primarily unsorted glacial till (Arp et al 2007). While the gradient varies, large rock (i.e. cobble, boulder) is a common substrate feature throughout. Where the gradient steepens, the substrates become predominately coarse. GIS analysis suggests that Redfish Lake Creek within the action area is primarily low gradient (85%), with a short segment of moderate and high gradient stream lying roughly midway between the lakes. Average stream width through this reach is approximately 68 feet and, overall, the streambanks are considered very stable (Sawtooth NRA 2002). Specific locations of encroachment and/or trampling occur where facilities exist and/or people concentrate – near the bridges, Idaho Department of Fish and Game (IDFG) fish weir, and the recreation developments located at the outlet. Channel encroachments of 5 to 10 feet of channel width occur at each of the existing cross channel structures – Bridge #1, IDFG weir, and Bridge #2. Finally, with the recent natural mortality/turnover of the predominantly lodgepole forests at streamside, in-channel large, woody debris (LWD) is abundant and expected to increase.

In contrast, the Redfish lakeshore has been substantially altered as a result of decades of intensive visitor use on this easily accessible, first encountered, and stunningly beautiful shoreline location. Essentially all the shoreline within the action area lie within or adjacent to recreational developments and/or roadways, though nearly 75% of Redfish Lake shoreline has no developments, and remains near pristine condition.

No current chronic water quality conflicts are known within the action area. IDEQ assessments have been conducted within the watershed and no *water quality limited* segments have been identified (IDEQ 2009). However, with the intensive use and development within and around the lake, the risk remains ever-present. The existing sewer line, where it currently crosses Redfish Lake Creek at Bridge 1 represents one of these risks. The gravity line is suspended beneath the existing bridge superstructure within an insulated casing. The line is routinely at or submerged below stream water level during annual high snowmelt periods. As such it is subject to flow and floating debris passing under the bridge. However, no break of the line from debris is known, or has been documented, during this period. The line did freeze and break during the winter (non-use period) in 1993 (personal observation), when fluid settled within this very low gradient segment of the line. This occurrence prompted inspections and repairs to address deficiencies, and no break is known to have occurred since.

Riparian Conservation Areas. Riparian Conservation Areas (RCAs) are portions of watersheds where riparian-dependent resources receive primary emphasis, and management activities are subject to specific goals, objectives, standards, and guidelines. RCAs include riparian habitats and their influence corridors associated with perennial and intermittent streams, wetlands, lakes, springs, reservoirs, and other similar areas. Here proper riparian functions and ecological processes are crucial to maintenance of the area's water, sediment, woody debris, and nutrient delivery systems, and associated biotic communities and habitat (Spence et al. 1996, Quigley and Arbelbide 1997). RCAs within the action area are associated with Redfish Lake Creek, Fishhook Creek, Redfish Lake, and their related wetlands.

Some road and trail surfaces within the action area occupy former habitats within RCAs. Where these travel ways ramp up or down topographic changes, their associated cuts and fills also greatly expand the *footprint* of the influenced surface within these RCAs. Within the action area RCAs, fills are far more common than cuts, but both have typically altered vegetative cover and types. Even after decades of healing, the large *through cut*, adjacent to Redfish Lake Creek, that ascends to the core area of the complex, remains only partially vegetated. Though fill slopes are typically more vegetated, the vegetation/habitat types growing there are frequently different than those that formerly existed under the fills. In the lowest topographic areas within the RCAs these road fills have typically replaced productive wetland habitats.

Along the north shore of Redfish Lake the principle transportation routes have changed several times through the years. The former routes have typically been left and adopted for other uses, though rarely deliberately. Instead scraps of former roadways remain, now serving as informal walkways to indeterminate endpoints or junctions. These abandoned road/trail surfaces, with their fills, bridges, and other infrastructure, also occupy RCAs within the action area.
A former borrow site is located within the action area RCA on a bench just east of the outlet of Redfish Lake Creek, associated with the *Service Area*. The ½ acre site, among upland vegetation types, remains mostly absent of permanent vegetation.

Fish. All four fish species that are Federally listed for protection under the Endangered Species Act within the upper Salmon River are associated with Redfish Lake Creek: Snake River sockeye and Chinook salmon, Snake River steelhead, and Columbia River bull trout. Westslope cutthroat trout, a Forest Service sensitive species, as well as non-native eastern brook trout, are also confirmed within the drainage.

Sockeye designated critical habitat includes Redfish and Little Redfish Lakes and their inlets (Fishhook Creek and a short segment of the inlet of Redfish Lake), and their outlets. Critical habitat has also been designated for Chinook salmon, steelhead, and bull trout, and includes Redfish Lake Creek throughout the project area.

Redfish remains the only lake with returning sockeye adults within the Snake River system. The recovery program continues to introduce sockeye adults and juveniles into Redfish Lake. IDFG operates an interrogation weir within Redfish Lake Creek. Successful adult returns have occurred since 2000, with a high of 652 returning to Redfish Lake in 2010. Another 703 returned to the Sawtooth Hatchery or elsewhere. In 2010 managers began passing fish directly above the Redfish weir for the first time since the recovery program began. Similar or increasing returns are anticipated in the coming 3 to 5 years. In 2011, for the first time, all sockeye smolts were released (~190,000) at Redfish Lake Creek (rather than the majority being released at Sawtooth Hatchery weir, as in the past). This strategy is intended to reduce straying, as well as further test the capacity of the weir (Peterson, IDFG lead sockeye biologist, per comm). These results are believed to be fundamentally a success of the captive broodstock program, rather than any change to the contemporary challenges to sockeye life history. That is, these returns are not self sustainable (Heindel, IDFG sockeye manager, per comm).

With increasing numbers, straying by sockeye has also become more pronounced, with, for example, sockeye being detected 13 river miles up the East Fork Salmon River at IDFG's trap

facility in both 2009 and 2010. In these same years sockeye have been documented, for the first time ever, spawning in lower Fishhook Creek with kokanee, as well as in the upper meadow of Fishhook Creek, and downstream of the Lake between Redfish and Little Redfish Lakes (Peterson, IDFG lead sockeye biologist, per comm). Use of these spawning locations were not documented in historic periods, but may continue to occur with this highly variable recruitment from the captive broodstock. Meanwhile, counts of wild residual sockeye spawning at Redfish Lake have declined (TOC 1998).

Of the fish species considered here, Redfish Lake Creek downstream of Redfish Lake is primarily used as migratory/transitory habitat for all, and rearing habitat for Chinook salmon and steelhead juveniles. Steelhead spawning is known to occur in this segment, but their typical abundance and distribution remains unknown. Chinook are also known to spawn downstream of the Lake in very low numbers. In comprehensive surveys during two of the best escapement years in recent decades (1978 and 2001), 1 and 0 Chinook redds were observed respectively. Nevertheless, observations have occurred in other seasons throughout most suitable reaches, some in the vicinity of the existing and proposed bridge locations. In 1995, a redd was observed near the base of the cascade between Little Redfish Lake and Redfish Lake (personal observation). IDFG reports a single redd has been common within the first pool tail just downstream of the weir in recent years (Peterson, IDFG, per comm). Similarly, they relate that in recent years they have also observed a few Chinook redds in the segments just upstream of Little Redfish Lake. However, no Chinook spawning has ever been documented within the immediate vicinity of the existing or proposed bridge sites.

Bull trout are identified within the Sawtooth National Forest Plan as a Management Indicator Species (MIS). Redfish Lake Creek occurs within the Upper Salmon Core Area, as defined in the USFWS draft bull trout recovery plan. There are only a few local populations considered *strong* within the Upper Salmon Core Area. The Redfish population constitutes one of these strong populations. The Lake provides key overwintering habitat for fluvial bull trout throughout the upper Salmon River basin (Schoby 2007). Though bull trout have rarely been observed in the creek, IDFG annually interrogates several hundred fluvial bull trout at their weir on Redfish Lake Creek (Peterson, IDFG, per comm), possibly indicating deliberate and rapid transitory movements. A strong adfluvial population also utilizes Fishhook Creek for spawning and rearing. No bull trout spawning has ever been documented in Redfish Lake Creek below the Lake, and is unlikely, due to lingering warm water temperatures well into their typical spawning period.

Westslope cutthroat trout are a Forest Service sensitive species. As with bull trout, fluvial cutthroat have also been documented overwintering within Redfish Lake (Schoby 2007), but may not show as strong affinity. Otherwise, cutthroat remain uncommon within the streams of the drainage and, where observed in the headwaters, are suspect outmigrants from IDFG high lakes stocking.

Environmental Consequences

Methods: A surrogate/corresponding Sawtooth Forest Plan term of "riparian conservation areas" (RCAs) is used in this analysis for areas "within wetland, streamside". In addition, the analysis assesses lakeshore conditions and contrasts the area of roads and trails under each

alternative that would also lie within RCAs adjacent to lakes. Since within the project area these RCA features are seamless between lake, wetland, and stream waters, the results are combined for an overall contrast. The analysis also considers the potential of direct effects to TES fish species, as well as to water quality, in qualitative terms.

For the bulk of this analysis, the stream corridor between the inlet of Little Redfish Lake upstream to the outlet of Redfish Lake, as well as the Redfish lakeshore area between Outlet Campground and the inlet of Fishhook Creek, and connected RCAs, constitute the area of concern and is referred to in this section as the *action area* (Figure 3-1). This analysis will not address further the proposed expansion of the existing Champion materials source. The limits of the pit expansion would remain over 0.5 miles from the Salmon River, and 0.3 miles from Champion Creek over gentle topography with coarse soils. As such, no influence to waterways, or associated resources, would occur under any alternative.

To establish the existing condition of the affected environment with regard to RCAs, the apparent and/or recognized road and trails were delineated using 2009 digital imagery. Casual trails, timber harvest roads and skid trails, and similar informal or temporary travel ways were not included, nor were non travel way surfaces (toilets, tables, etc.). For formal travel way surfaces within RCAs, their full *footprint* of effect, including their cuts and fills, were typically delineated.

Alternative 1 (No Action). As a result of not implementing the proposed action, approximately 8.1 acres of travel surfaces, including their cuts and fills would continue to occupy sensitive RCA habitats within the action area. However, there is no evidence that these conditions currently prevent the attainment of riparian objectives, except along the shoreline areas of Redfish Lake where, when combined with decades of intensive use, conditions fall well short of objectives. As such, taking no action would primarily result in lost opportunity to further improve stream, streamside, wetland, and particularly lakeshore habitats. For example, opportunities to remove the large abandoned fills within the impacted North Shore area and deliberately design and establish a pedestrian trail network would be missed, perpetuating the intensive dispersed damage to the remaining shoreline habitats.

The small channel encroachments at the existing bridges would persist, as would the risks to water quality at the existing sewer line crossing of Bridge #1. Bridge #1 would also remain situated within recently utilized spawning habitat of sockeye salmon, providing easy public access, and thus a slight additional security risk to these endangered fish.

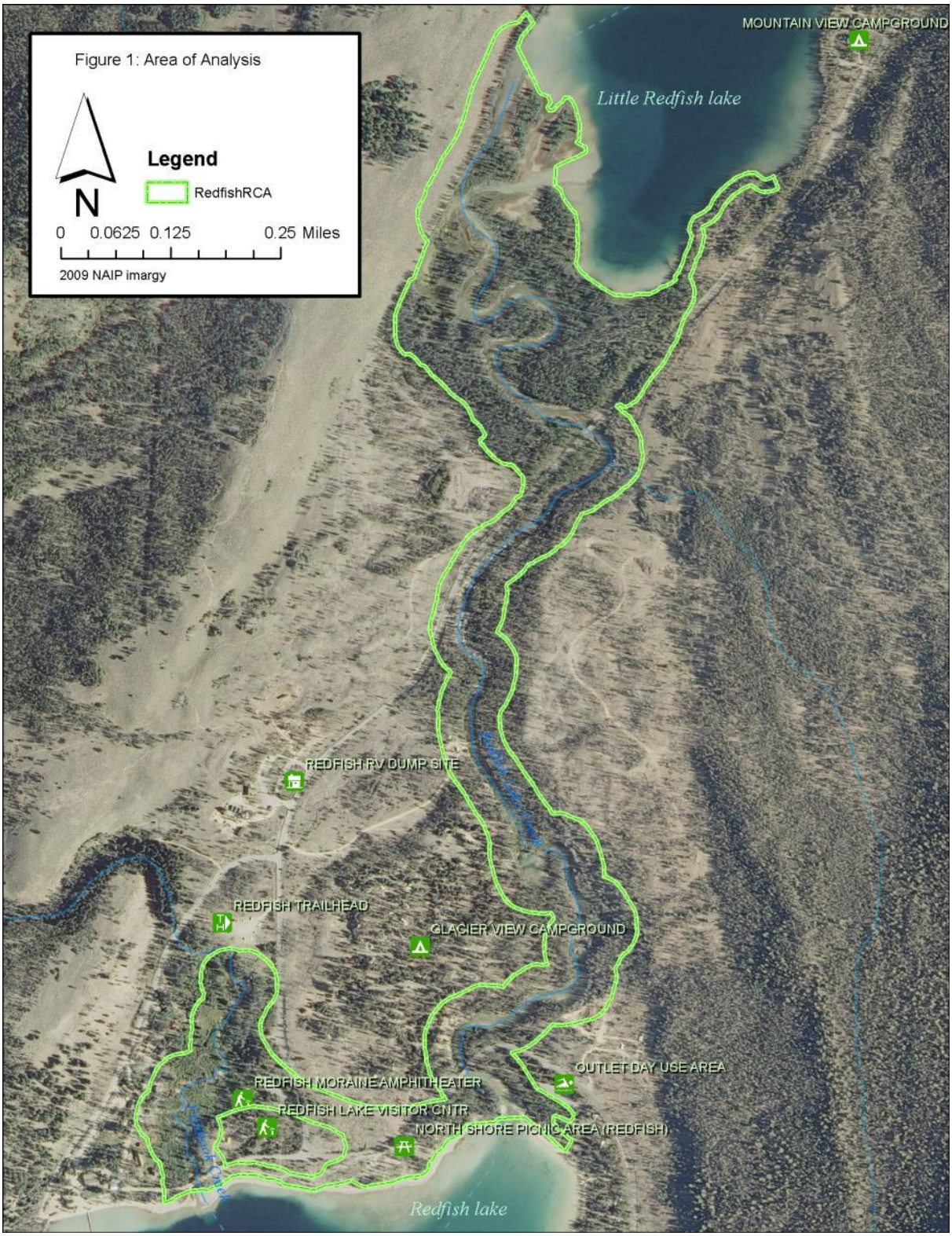

Figure 3-1: Action Area for Aquatic, Fish, and Wetland Habitat

Alternative 2 (Proposed Action) Direct and Indirect Effects. Short term effects are possible as a result of implementing the Alternative 2 where activities would occur within, or immediate adjacent to water, beds, or banks. Construction of the new alignments would present little risk of effects to these resources as a result of their substantial separation. The exception would occur at the new bridge crossing where some cuts and fills would be necessary, and which could generate sediments that would require careful containment and stabilization to prevent entry into Redfish Lake Creek. The new sewer line alignment would also cross at the same location and require the installation of a lift station. However, the bridge and sewer line would fully span the channel, having no direct footprint or effect within the active channel. The selected bridge location is superior to the existing condition in that it would reside within a naturally confined, steeper gradient segment, with a narrow floodplain and less tendency for lateral adjustment. The new bridge and abutment fills would have little expected influence within this setting.

Bridge #2 would remain unaltered except for removal of the existing paved surface. Design practices would assure the containment of the asphalt as it is removed. During low water conditions, the lower bridge would be disassembled and removed, beginning with the asphalt surface in similar fashion. The disassembly would occur, piece by piece, by hand, or with shore located equipment, until only the in-channel structures remain. If, when lifting, the sill (i.e., bottom) timber detaches, it would be abandoned in place at depth. The remaining exposed uprights and braces would be removed. Finally, the abutments would be similarly removed, including their fill and coarse rock protection. As determined necessary or desirable for long-term restoration, the slight encroachments of fill into the channel would be pulled back to natural channel width, and large, conifer revetment(s) placed on the face to provide short term resilience. Behind the revetment, willow clumps and cuttings would be incorporated to provide long-term resilience. Prescribed design practices would be implemented to protect the immediate work areas from stream energies. Nevertheless, these actions have the highest potential to produce temporary effects from sediment to Redfish Lake Creek. Experience with similar projects and practices indicates that careful planning and implementation can minimize the magnitude and duration of such effects to negligible levels.

Road and trail removal and restoration would follow. Those to be removed are isolated by gentle topography and ample ground cover from water. Nevertheless, sediment retention practices would also be applied along the margins of such areas. The asphalt surface would first be gathered and removed to the Champion pit or similar stockpile for later reprocessing. Fills below would then be removed to expose the original underlying soil and native topography. Where the underlying soils are missing or inadequate, additional soil amendments, such as locally derived compost or wood chips may be applied and mixed into the surface material, and/or commercial organic soil treatments, such as Biosol®, may be applied. Native seed and/or plantings may also be applied on segments where it is determined warranted to accelerate revegetation. Finally, large wood and forest debris from adjacent sources, as well as that salvaged from clearing the new alignment, would be laid on the surface in order to enhance moisture retention, prevent continued use by vehicles, and provide for the long-term productivity of the restored areas. In the sensitive and intensively used shoreline area, temporary irrigation (extended from the existing campground system) may be utilized to accelerate and assure rapid restoration.

The most productive (i.e., soil-like) fill removed would be taken to the former borrow site associated with the *Service Area* sitting northwest of the outlet for disposal and use in restoration of the site. Prescribed practices would be utilized to retain sediments within the restored area. Otherwise, excess fill would be removed from the action area for disposal within an existing or former material source area. New trail construction would typically be carried out in conjunction with the removal of the road and trail fills. Final surfacing with gravel or pavement would follow.

The new lift station is expected to be located outside the RCA, on the west side of the new bridge crossing, in upland vegetative types. The new sewer line would cross the creek attached to the superstructure. The potential long-term risks of pollutants associated with the O&M of the new system appear to have been carefully considered, both as technical standards and as locally applied. Several safe-guard, backup, and redundant systems would be applied within the design in order to assure the functional operation as intended, including double lined pipe at the bridge, double operating pumps, remote notification alarms, and a backup generator. This analysis assumes the generator would be diesel powered and fueled for emergency use only. And, since the generator would be for emergency *backup* use only, fuel storage would not be required on site. As such, the long-term potential for pollutants resulting from the intended route of the sewer line, the location of the required lift station, and the O&M of both, would be very low. This potential would be less than exists currently (no action), and similar to the potential with Alternative 3.

Aquatic functions are already achieved in Redfish Lake Creek, and long-term conditions would improve only in very specific locations, such as where the lower bridge, and the slight channel encroachment, would be removed. Bridge #2 would remain essentially as is, with respect to the stream, with two in-channel piers. The action would heighten the possibility of long-term improvement and sustainability of the lakeshore by establishing a formal and hardened pedestrian travel way through the area. That is, the action would further improve and secure a well functioning stream system, and assist a desperate lakeshore area towards improvement.

RCAs would experience few temporary effects as a result of Alternative 2, and primarily long term benefits. The new bridge crossing would require new permanent occupancy within the RCA, but would be more than offset both locally, and overall within the action area, by the removal and restoration of former road and trail surfaces currently within the RCA. As a result of Alternative 2, the footprint of road and trail surfaces within RCAs, including their cuts and fills, would be reduced from 8.1 acres to 3.3 acres. These reductions would be concentrated in the area of former Bridge 1, and in the North Shore area. Benefits would be realized over the long-term, as former habitats of complex understory and overstory vegetation reestablish. Floodplains would also be fully accessible and fully functional with time. Though currently meeting objectives, along Redfish Lake Creek the interaction of wood and streams would improve even further and eventually return to near natural conditions.

At North Shore, implementing the action would set the stage for improved conditions, but not guarantee them. By removing the several abandoned road fills within the lakeshore RCA, improvement would be both possible and more probable. Wetland water regimes would be improved and former habitat potentials restored from where they were buried under fills. The

deliberately designed and established trail system would serve to formally focus shoreline pedestrian travel and reduce some of the intensive dispersed damage that occurs currently. While full natural shoreline functionality will never be possible within such a popular area, the Alternative 2 would provide the means to improve conditions and arrest the chronic slow degradation currently occurring. The timing of action would also be opportune, immediately following the dramatic loss of the overstory within the North Shore area.

For removal of Bridge #1 and the associated abutments, practices would be applied to both reduce and limit the potential effects, as well as to avoid any influence to spawning or incubating TES fish. During the period during which removal could occur (July 7 to September 1 per Design Features, Practices, and Mitigations) it is very unlikely that any TES fish would spawn in the affected reach downstream of Bridge #1, and migratory corridors would be unaffected. Nevertheless, when intended actions may overlap with potential spawning periods, surveys would confirm their absence downstream prior to, and during, such periods. If observed, activities and the potential effects would stop. As such, potential effects to TES fish would be minimal.

The new bridge location would be situated within a steep, turbulent, boulder substrate stream segment of Redfish Lake Creek. As such, no spawning would be anticipated within this reach, thus providing slightly higher security to the potential spawning areas than under Alternatives 1 or 3.

At both Bridge #1 and the proposed bridge location, adult sockeye have been observed to seek cover during daylight hours during their ongonig migration upstream. According to Mike Peterson, IDFG's lead sockeye biologist (per comm), sockeye begin arriving at the weir in mid July. The peak of the run, as demonstrated in just the last few years of relatively abundant returns, occurs between roughly August 10 and September 5. During removal of Bridge 1, and if construction activities occur during this period associated with the new bridge, adult sockeye could be disturbed within, or from, cover within these segments. Practices would be applied to minimize this disturbance.

The potential effects of Alternative 2 on TES fish has been further described and quantified in a biological assessment contained within the project record.

Alternative 2 Cumulative Effects. Recent past actions have consistently emphasized the restoration of damaged resource conditions within the Redfish Lake complex, while continuing to provide visitors with the experiences and opportunities they desire. The relocation of the Fishhook Creek Trail in 1998, the installation of recreation fences (2002 – 2004), and the reconstruction of Outlet (1996), Point (2008), and Sockeye (2009) Campgrounds have all proved initially effective in achieving this delicate balance. The greatest gains have occurred within the RCA lakeshore areas. Nevertheless, popular *beach* conditions still persist at waters edge. It is doubtful that vegetated shoreline banks, as can be seen in undeveloped areas elsewhere, will ever be possible with such concentrated use.

With the recent mortality/turnover of the lodgepole pine forest, several vegetation, hazard, and hazardous fuels treatments have occurred in recent years. The most substantial has been the

Redtree fuel treatments which have removed dead and dying lodgepole from approximately 300 acres within the drainage. In many locations these prescriptions have required clearcuts. RCAs were not treated, rehabilitation was initiated on all temporary skid trails and roadways, and abundant woody debris was retained on site. In addition, the gentle to rolling topography also typically serves to limit, isolate, or disperse any overland flow prior to reaching waterways. As such, no measureable influence to stream habitats or water quality is known to have resulted from the treatments.

The anticipated *Stanley to Redfish Trail* constitutes a foreseeable action with the potential to influence the resources considered here. As conceived, the trail would formally establish a linking pedestrian trail throughout the complex, as well as a connecting trail to the City of Stanley. Alternative 2, at the North Shore treatments, would provide a small segment of this eventual network. At this time, no new stream crossings are anticipated within the Redfish drainage. The trail would utilize existing pedestrian travel routes where they exist, though the surface and/or template may be revised. The connecting trail to Stanley would require new construction, however a substantial segment within the action are is anticipated to follow a long abandoned roadway. The width would be similar to those within Alternative 2 of 10 to 12 feet. As conceived, segments would pass through RCAs, with perhaps 0.4 acres of new occupancy. However, nearly half of this area would fall on the former roadway where RCA functions have yet to fully re-establish. Given the topography and vegetation conditions through which the trail would pass, no measureable effects to stream habitats or water quality would be anticipated with the application of standard practices.

Alternative 3 Direct and Indirect Effects. Short term effects are also possible as a result of implementing Alternative 3, where activities associated with the bridge replacements would be immediately adjacent to water, beds, and banks of Redfish Lake Creek. Replacement of both bridges would present more substantial risks to Redfish Lake Creek than those of Alternative 2. Under Alternative 3, two temporary bridges would be constructed, two existing bridges would be removed, two new bridges would be constructed, and finally two temporary bridges would be removed. As such, Alternative 3 would entail eight major streamside objectives, compared to just two (install and remove) with Alternative 2. Alternative 3 would also require the construction of two temporary roadways around the existing bridge alignments, essentially doubling the streamside area disturbed. Though the same careful practices for containment and stabilization of these disturbances would limit the potential entry and effects to Redfish Lake Creek, the scale of the objectives, as well as their duration and extent, would present considerably greater risk than Alternative 2. All temporary and permanent bridges would span the active channel, having no influence to instream functions. Permanent bridges would also be designed to pass the 100 year flood. At the same time, the sewer line at Bridge #1 would also be revised and raised into the new bridge structure, also fully spanning the active channel. A new lift station would be required, situated nearly 500 feet from the bridge crossing, and 100 feet from Redfish Lake Creek, but on the opposite side of the roadway.

Removal of the existing bridges and their in-channel features would follow essentially the same process and sequence described with Alternative 2 except that there would be two bridges to remove. In addition, since the removal of the bridges is prerequisite to the construction of the new bridges in the same locations, there may be less flexibility than with Alternative 2 in timing

for the removal – that is, it is likely to occur earlier in the season when flows are slightly higher and rehabilitation conditions are less favorable (e.g. willows not yet in dormancy).

The road and trail construction and removal under Alternative 3 would occur within the lakeshore area, isolated from Redfish Lake and particularly Redfish Lake Creek by flat topography. The methods utilized would be identical to those of Alternative 2. The former borrow within the Service Area would also be rehabilitated using the same methods and practices prescribed under Alternative 2. In order to raise the elevation of the sewer line above Redfish Lake Creek with the new bridge, a lift station would also be required. The lift station for Alternative 3 may be required to reside near the margin of the RCA of Redfish Lake Creek, but in a setting with low vulnerability. The anticipated location would reside in transitioning habitat (upland–wetland), on the opposite side of the roadway from Redfish Lake Creek. Though the station could be located as close as 100 feet from Redfish Lake Creek (on the other side of the road), it would be nearly 500 feet from the creek following gravity (i.e., on the same side of the roadway) through vigorous wetland vegetation. This, combined with the same protections and practices described with the effects of the Alternative 2, would result in extremely low potential for pollutants to ever reach the creek, from either the temporary construction, or the long-term or operation of the lift station. Temporary sediments from the installation of the new sewer line and lift station are possible within the adjacent wetland habitats, but standard erosion control and containment practices would minimize these effects.

As with Alternative 2, long-term conditions in Redfish Lake Creek (where objectives are already achieved) would improve further only in very specific locations under Alternative 3 – where the existing bridges currently encroach and sit within the channel, which would be slightly better than with Alternative 2 (i.e., Bridge 2 would remain). The alternative would also provide long-term benefits, and potential benefits, to shoreline conditions nearly identical to Alternative 2. However, the risks of temporary effects to water quality as a result of the complex and intensive objectives required in order to replace the two bridges in place would be much greater than with Alternative 2.

Under Alternative 3, RCAs would experience some temporary effects as a result of Alternative 2, and some long term benefits. Temporary effects to RCAs would occur where temporary road alignments are routed to the temporary bridges. At least 1 acre of RCA (perhaps half in wetlands) would be impacted by these short-term needs. When complete, the fill and former topography would be removed and rehabilitation initiated. In time, the former RCA functions would return to these affected areas.

The long-term occupancy of the RCAs of Redfish Lake Creek by travel ways would remain essentially unchanged by Alternative 3. Access to the new lift station would be primarily on existing routes outside the RCA. RCA benefits would be derived in the North Shore area through implementation of the secondary objectives associated with realigning the curve and the other alterations. As a result of Alternative 3, the footprint of road and trail surfaces within action area RCAs, including their cuts and fills, would be reduced from 8.1 acres to 6.3 acres, all in the North Shore area. As with Alternative 2, the benefits would be realized in the long-term. The functionality of the floodplain along Redfish Lake Creek, particularly near Bridge 1, would still be compromised to a degree by the lengthy road fill that would persist within it. Similarly, the

minor influence to RCA functions (e.g. diminished nutrient and wood recruitment) currently resulting from this lengthy streamside fill would remain.

As with Alternative 2, implementing the action would set the stage and potential for improved RCA conditions, should the future management of the intensively used North Shore area facilitate it. However, unlike Alternative 2, the continued need for use of Bridge #2 as the main transportation route would require the majority of the new North Shore parking area to be located within the RCA, as it is now, thus having slightly less potential benefits than with Alternative2.

For the replacement of both bridges, including the installation and removal of the temporary bridges and road alignments, practices would be applied to both reduce and limit the potential effects, as well as to avoid any influence to spawning or incubating TES fish. However, given the magnitude of the objectives and the limited season for construction, there would likely be either greater indirect effects as a result of early season construction (e.g., high water levels and soil moisture), or greater direct effects later in the season from extended influence to migrating, spawning, or incubating fish, primarily endangered sockeye salmon, which have consistently spawned near Bridge #1 in recent years. As discussed above, though practices would be applied to avoid and minimize such effects, given the scale of the objectives, and their spatial and temporal realities, the risk of impacts to TES fish would be both more probable and more substantial than with Alternative 2.

In the long-term, the bridge locations would remain identical to their existing locations (i.e., no action). Bridge #1 would also remain situated within suitable sockeye spawning habitat, providing easy public access, and thus the slight additional security risk to spawning or incubating fish would persist.

Alternative 3 Cumulative Effects. Alternative 3 would continue to contribute some cumulative benefits to those derived from recent restorative actions described with the effects of Alternative 2. As also described with the effects of Alternative 2, the cumulative effects from recent vegetation treatments would be negligible, and the future *Stanley to Redfish Trail* would be expected to add some minor additional occupancy of RCAs within the action area.

Effects Comparative Summary. The potential effects to stream and lake shore conditions from either action alternative would primarily be temporary and could be minimized and/or avoided with careful implementation of design practices and project objectives. Nevertheless, Alternative 3 would require eight major streamside objectives (i.e. installing and removing bridges), compared to just two with Alternative 2. Alternative 3 would also require the construction of two temporary roadways through areas around the existing bridge alignments, essentially doubling the streamside RCA area disturbed. As such, Alternative 3 would present considerably greater risk of consequential effects than Alternative 2. Table 3-1 provides a coarse comparison between the alternatives.

Table 3-1. Comparative ranking of Alternatives with respect to Water and Fish resources

	Alternative 1	Alternative 2	Alternative 3
Current instream functions	f u n c t i o n i n g		
potential temporary effects	none	some	most
potential long-term effects	most	some	some
Risks from sewer system	most	few	some
Current stream RCA functions	f u n c t i o n i n g		
potential long-term benefits	none	most	few
Current lake RCA functions	functioning at unacceptable risk		
potential long-term benefits	none	most	some

Although Alternative 3 would have some temporary effects on RCAs, the primary outcome of either action alternative would be long-term benefits. Available evidence suggests that riparian objectives are currently being achieved within Redfish Lake Creek, but are far from attainment within the lakeshore areas. Both action alternatives would include objectives to address this recognized need. Alternative 2 would yield the greatest benefits to RCAs, since it would permit the new North Shore parking area to be located outside the RCA. It would also remove ½ mile of the lower roadway from the RCA of Redfish Lake Creek. The action alternatives would primarily re-establish much of the natural topography and hydrology of the North Shore area and return the capability of the habitats. However, meaningful long-term benefits to this intensively used area will still require dedicated and creative solutions in the future. Table 3-2 contrasts the occupancy of travel ways within RCAs resulting from implementation of the alternatives.

Table 3-2. Acres of travel surfaces, including their footprints (cuts and fills), within RCAs of the action area

	Alternative 1	Alternative 2	Alternative 3
boardwalk	0.1	0.1	0.1
native/gravel surface	1.5	0.3	0.3
paved surface	6.5	2.8	5.9
total	8.1	3.3	6.3
Stanley-Redfish Trail (foreseeable)	0.4	0.4	0.4
grand total	8.5	3.7	6.7

Issue 2: Wildlife Habitat

The second issue identified for the project was related to wildlife habitat. Relocating the road may result in additional disturbance to wildlife habitats (e.g., esa-listed and sensitive species, management indicator species, and migratory birds).

Indicator: habitat condition from road/bridge construction and other improvements, road/bridge restoration, and pit expansion.

Affected Environment

The Sawtooth NRA provides habitat for one Endangered Species Act (ESA) listed wildlife species (Canada lynx) and three candidate species (wolverine, yellow-billed cuckoo and greater sage-grouse).

No lynx populations have been documented recently within the Sawtooth NRA. The most recent confirmed sightings of lynx tracks in the Sawtooth NRA occurred during the winter of 1997 near the Fishhook Creek drainage and in the Alturas Lake Creek drainage. The project area is located in the Redfish Lynx Analysis Unit (LAU) within the Sawtooth Valley Biological Assessment area.

Population trend for wolverine is unknown within the Sawtooth NRA. Wolverines occur in all the mountain ranges in the Sawtooth NRA. A study of wolverines in central Idaho was conducted from 1992-1995 by the Idaho Department of Fish and Game. The study area contained much of the Sawtooth NRA, including the project area. During this study, wolverines were documented in many locations in the Sawtooth NRA including within two miles of the project area. Numerous observations of animals and tracks have been reported in and near the Redfish Lake Complex. The developments in the Complex can result in both avoidance and attraction by wolverines. While they likely avoid human activity they may be attracted by human food. The project area contains wolverine habitat but not reproductive denning characteristics.

A small, remnant population of greater sage-grouse is present within the Sawtooth Valley which includes the area of the Champion Creek material source. The status of this population is unknown, but thought to be small and stable to declining. Observations of greater sage-grouse in the Sawtooth Valley have been made as recently as 2005 (R. Garwood, pers. obs. 2005). Sage-grouse habitat occurs in Sawtooth Valley including the area of the Champion material source. Past use of the Champion Creek material source has resulted in the removal of approximately 20 acres of native vegetation including sagebrush and native forbs and grasses. Part of the disturbed area has been seeded with nonnative forbs that may be used by sage-grouse; however there is no sagebrush present to provide cover for sage-grouse. The area proposed for expansion includes sagebrush cover and native bunchgrasses and forbs desirable for sage-grouse such as yarrow and sego lily.

It is unknown if yellow-billed cuckoos occur on the Sawtooth NRA. Portions of the NRA contain habitat for the western subspecies of the yellow-billed cuckoo within riparian woodlands along the Salmon River below Stanly where cottonwood trees occur. An unconfirmed sighting of yellow-billed cuckoo in 2003 was reported in the Fisher Creek drainage approximately 18 miles southeast of the project area. No potential habitat for this species occurs within the project area due to the lack of contiguous deciduous forests along streams.

The Sawtooth NRA also provides habitat for 19 wildlife species on the Regional Forester's sensitive species list. The Redfish Lake area provides habitat for two management indicator species (pileated woodpecker and greater sage-grouse) and several species of migratory birds.

Population trend of pileated woodpecker within the project area is unknown, but habitat for pileated woodpeckers occurs in the project area. Point count surveys were conducted for woodpeckers from 2004 to 2010 along permanently established transects throughout the Sawtooth NRA. While none of the transects are located within the project area, one is approximately two miles away. Pileated woodpeckers have been detected on this transect. Additionally pileated woodpeckers have been observed within two miles of the project area on the moraine west of Redfish Lake. Systematic surveys began just five years ago so trend data is weak for the Sawtooth Forest. The five year trend is roughly stable. Breeding Bird Survey Data for Idaho show a slight decreasing trend over the past 25 years (-0.9 %/year), though the sample size for this species is very small in Idaho. Populations of the Northern Rockies Bird conservation Region, which includes the Sawtooth NRA, show an increasing trend of 3.2 %/year (Sauer et al. 2008). Most of the project area contains habitat for pileated woodpeckers.

The developments within the Redfish Lake Complex likely have reduced foraging habitat for pileated woodpeckers. The adjacent moraines may contain nesting and foraging habitat where large Douglas-fir trees occur on the moraines adjacent to the project area. Pileated woodpeckers often tolerate human activity near their nests, so human activity does not necessarily preclude use of the area by them.

The existing developments discussed in Chapter Two occupy approximately 19.5 acres of land. Most of this area is forest or recently harvested forest. These developments have caused a decrease in potential forest habitat for birds of concern of approximately 19.5 acres and a decrease in potential wetland habitat of birds of concern of approximately 2.7 acres.
The Champion Creek material source currently occupies approximately 20 acres of potential sagebrush habitat which has decreased habitat for birds that use this habitat.

Environmental Consequences

Alternative 1 (No Action). Under the no action alternative, there would be no change from current condition for any of the endangered or candidate species. Refer to Table 3-3 for a summary of habitat changes by alternative. There would be no change from current condition for migratory bird species.

Alternative 2 (Proposed Action). Disturbance during construction and restoration activities may result in lynx temporarily avoiding the areas of activity. Approximately 1.0 mile of new Road #214 would be located in a relatively undeveloped area. The disturbance and developments associated with the road may result in a lower probability of lynx using this area. The restoration of approximately 0.5 miles of the old alignment may result in less avoidance of that area by lynx, however this area is within 0.1 miles of the new alignment so may still not provide sufficient security for lynx.

Under this alternative approximately 6.9 acres of foraging habitat would become permanently unsuitable from developments and approximately 3.9 acres would become suitable in the long-term (>15 years) from restoration of existing developments for a total change of approximately -3.0 acres. This would result in a loss of habitat for snowshoe hares, red squirrel, and forest grouse, though it would not likely result in a measurable population change of prey species based on home range sizes of these prey species.

Under this alternative there would be an approximately 3.3 acre decrease in habitat for wolverine in the long-term. Though the project would result in a decrease in foraging habitat, this small amount of long-term habitat change would not measurably change foraging habitat condition in relation to a wolverine home range. The new alignment on the east side of Redfish Lake Creek may alter movements of wolverines in this area and may result in avoidance by wolverines during high human use periods. No disturbance within reproductive denning habitat would occur.

The Champion Creek material source expansion would remove 10 acres of greater sage-grouse habitat in the long-term. Additionally, the human activity associated with the use of the site would likely result in sage-grouse avoiding the area during this period. Based on home range size and seasonal use, this amount of habitat loss may affect 1-2 individual sage-grouse. Removal of vegetation for the expansion would take place after September 1 so there would be no possibility of destroying active nests.

Due to a lack of potential habitat, implementation of Alternative 2 is expected to have no effect on yellow-billed cuckoo.

Under this alternative pileated woodpecker foraging habitat would decrease approximately 3.3 acres in the long-term. This small amount of habitat change would not affect the likelihood of pileated woodpeckers nesting or using the project area. Tree falling for construction of the developments and restoration work would take place late summer and fall, outside of the pileated woodpecker nesting season so that no active nest would be disturbed.

Under this alternative there would be an approximately 3.3 acre decrease in forest habitat, a 2.7 increase in wetland habitat, and a 10 acre decrease in sagebrush habitat in the long-term (Table 3.3). These habitat changes would be detrimental to bird species of concern that require forest and sagebrush and beneficial to those species that require wetlands. The forest and wetland habitat changes are small and would not likely effect species numbers. The sagebrush change may measurably decrease the number of Brewer's sparrows and sage thrashers in this area. These species have breeding home ranges of 1.5-4.0 acres so numbers may decrease by 2-7 breeding pairs. Tree falling for construction of the developments and restoration work and clearing of vegetation for the Champion Creek material source expansion would take place late summer and fall, to avoid nesting season so that no active nest would be disturbed.

Table 3-3. Miles of road and long-term habitat effects

	Alternative 1	**Alternative 2**	**Alternative 3**
Miles of Road 214	3.4	4.3	3.4
Permanent Forest Habitat Change (acres)	0	-3.3	+0.5
Permanent Wetland Habitat Change (acres)	0	+2.7	+0.7
Permanent Shoreline Habitat Change	0	+0.6	+0.6
Permanent Sagebrush Habitat Change (acres)	0	-10	-10

Alternative 3. Disturbance during construction and restoration activities may result in lynx temporarily avoiding the areas of activity. The new road alignment in the curve and the new parking lots would be located in an area already disturbed. There would not likely be any change in the probability of lynx using this area. Under this alternative approximately 2.0 acres of foraging habitat would become permanently unsuitable from developments and approximately 2.1 acres would become suitable in the long-term (>15 years) from restoration of existing developments for a total change of approximately 0.1 acre. Additionally approximately 0.9 acres of foraging habitat would be lost in the short-term due to the use of the temporary bridges and bridge approaches during installation of the new bridges. This would result in a small loss of habitat for snowshoe hares, red squirrel, and forest grouse, though it would not likely result in a measurable population change of prey species.

Under this alternative there would be an approximately 0.5 acre increase in habitat in the long-term. This small amount of long-term habitat change would not measurably change foraging habitat condition in relation to a wolverine home range. No disturbance within reproductive denning habitat would occur.

The Champion Creek material source expansion would remove 10 acres of pronghorn antelope habitat in the long-term. The human activity associated with the use of the site would likely result in pronghorn antelope avoiding the area during this period. It is unknown how this habitat change may affect pronghorn antelope numbers in this population due to the limited habitat that is available to them in the Sawtooth Valley currently.

Effects to sage-grouse would be the same as under Alternative 2.

Due to a lack of potential habitat, implementation of Alternative 3 is expected to have no effect on yellow-billed cuckoo.

Under this alternative there would be an approximately 0.5 acre increase in forest habitat, a 0.7 increase in wetland habitat, and a 10 acre decrease in sagebrush habitat in the long-term (Table 3-3). These habitat changes would be beneficial to bird species of concern that occur within the Redfish Lake Complex. The forest and wetland habitat changes are small and would not likely effect species numbers. The sagebrush change may measurably decrease the number of Brewer's sparrows and sage thrashers in this area. These species have breeding home ranges of 1.5-4.0 acres so numbers may decrease by 2-7 breeding pairs. The changes would be detrimental to species that require sagebrush due to the expansion of Champion Creek material source (Table 3-3). Tree falling for construction of the developments and restoration work and clearing of vegetation for the Champion Creek material source expansion would take place late summer and fall, to avoid nesting season so that no active nest would be disturbed.

Under this alternative there would be an approximately 0.5 acre increase in pileated woodpecker habitat in the long-term. This small amount of habitat change would not affect the likelihood of a pileated woodpecker nesting or using the project area. Tree falling for construction of the developments and restoration work would take place late summer and fall, outside of pileated woodpecker nesting season so that no active nests would be disturbed.

Cumulative Impacts. The north end of the Sawtooth National Forest is considered the cumulative effects boundary for Canada lynx and gray wolf based on the home ranges size and wide-ranging nature of these species (Aubry et al. 1999; U.S. Fish and Wildlife Service 2003). The north end of the Sawtooth National Forest is considered the cumulative effects boundary for wolverine based on home range size, the wide-ranging nature of this species, and information on the wolverine population in this area from Copeland (1996). The north end of the Sawtooth National Forest is also considered the cumulative effects boundary for fisher based on home range size of these species (Powell and Zielinski 1994). The Sawtooth NRA is considered the cumulative effects boundary for spotted bat, Townsend's big-eared bat, pygmy rabbit, common loon, bald eagle, northern goshawk, peregrine falcon, greater sage-grouse, mountain quail, yellow-billed cuckoo, great gray owl, flammulated owl, boreal owl, three-toed woodpecker, white-headed woodpecker, Columbia spotted frog, migratory bird species and management indicator species. The timeframe for effects from the action alternatives of this project are expected to be permanent where the new developments and bridges would be located and long-term (>15 years) where the restoration work would be done due to the time necessary for growth of vegetation to occur. The Champion Creek material source expansion effects are considered long-term as well.

The primary federal activities that have impacted terrestrial species of concern and their habitats on the Sawtooth NRA as well as within the north end of the Sawtooth Forest include construction and use of system and non-system roads, past and present livestock grazing, pesticide and herbicide application, recreation and nonrecreation special use permitted activities, developed recreation, water diversion structures, current and past timber harvest, current and past mining activity, personal use firewood cutting, and dispersed recreation (including skiing and snowmobiling). The cumulative effects area contains many potential human-caused sources of mortality for birds such as window strikes, power line collisions, fence collisions, vehicle collisions, house cat predation, and pesticide exposure.

Within the Redfish Lake Creek watershed, the primary federal activities that have impacted wildlife species of concern and their habitats are developed recreation, system and nonsystem roads, recent timber harvesting, dispersed recreation, backcountry skiing, special use permitted activities, firewood cutting, insecticide application, and hazard tree removal. Of these activities, the recent timber harvests, roads, and developed recreation have altered habitat the most in the area. Commercial harvest of approximately 250 acres has occurred over the past six years. Additionally during the same period, the salvage of mountain pine beetle-infested trees and snags within developed sites in the watershed has reduced forest habitat condition on approximately 235 acres. Spraying of the insecticide carbaryl to protect specific trees from mountain pine beetle at developed sites has occurred during the past six years. Spraying has occurred in the fall in all except one of the six years when spraying occurred in the late spring. The insecticide application likely has had some negative effect on insect availability for migratory birds and woodpeckers. Activities that have affected wildlife species of concern near the Champion Creek material source area include domestic livestock grazing.

Foreseeable future actions within the Redfish Lake Complex with potential effects to wildlife species of concern include Redfish Cabin rental to the public in spring and fall and construction of the Stanley-Redfish trail. The Redfish cabin rental would increase human activity over a longer period of time within the Complex. The Stanley-Redfish trail which is proposed to be

located on the east side of Redfish Lake Creek, but separated from the Road #214 location in Alternative 2, would increase use in previously undisturbed habitat.

Approximately 33,930 acres of private land and 9,575 acres of state land occur within the north end of the Sawtooth National Forest. Approximately 20,700 acres of private and 2,120 acres of state land occur within the Sawtooth NRA. State and private activities that occur throughout the north end of the Sawtooth National Forest, including the Sawtooth NRA, are: 1) activities associated with the Idaho Department of Transportation including operation of material sources for road construction and maintenance, road construction and maintenance, and snow plowing; 2) operation of the Sawtooth Fish Hatchery and Camp Stanley on state land within the Sawtooth NRA; 3) mining operations; 4) livestock grazing operations; 5) residential and commercial developments; 6) private land fuels reduction projects; 7) diversions and the associated irrigation.

One section of state land occurs approximately one mile east of the Redfish Lake Complex. Activities on this land that has effects to wildlife species of concern include timber harvest, fuelwood cutting, operation of a fish hatchery, and residences. The State also manages the right-of-way of Highway 75 to the east of the project area. State activities include highway maintenance in the right-of-way consisting of clearing of vegetation in the right-of-way, drainage cleaning and installation, weed treatment, sanding, and snowplowing. Additionally Idaho Department of Fish and Game operates a fish weir in the Redfish Lake Creek within the project area from April through October annually. This activity involves two people camping near the weir within the RCA of Redfish Lake Creek during July through October and has resulted in chronic negative impacts to the riparian area. Private lands occur approximately two miles east of the project area. Structures and activities associated with these private lands include residences, diversions and irrigation, livestock grazing, and hazard tree removal/firewood cutting.

One section of state land occurs adjacent to the Champion Creek material source area. Activities on this section that have effects to wildlife species of concern include livestock grazing and material source mining. Several thousands of acres of private land are near the material source area. Activities on these lands that have effects to wildlife species of concern include livestock grazing, water diversions and irrigation, residential developments and associated human activity.

There would be no cumulative effects from the No Action Alternative because no construction or restoration would occur.

The past, current, and future actions described above that cause the most negative impacts to wildlife species of concern are those that result in habitat removal or degradation of habitat quality and those that result in an increase in human activity in an area or add human activity into a previously undisturbed area. Because Alternative 2 results in both of those impacts for several species, there would be negative cumulative effects from implementation. Because Alternative 3 results in habitat removal for some species, there would be negative cumulative effects from this alternative, though not to the degree or affecting as many species as Alternative 3.

Implementation of the action alternatives would not result in negative cumulative effects to yellow-billed cuckoo, bighorn sheep, mountain quail, and white-headed woodpecker because these species do not occur in the project area.

Issue 3: Traffic Flow in the Area

Traffic flow within the Redfish Lake Complex was identified as the third issue. Relocating the road, adding a new road, and converting Bridge #2 to non-motorized use may result in increased travel time and distance between locations within the Redfish Lake Complex for both motorized and non-motorized users.

Indicator: distance between locations for both motorized and non-motorized users
Indicator: travel time between locations

Affected Environment

The Redfish Lake Complex receives some of the heaviest vehicle use on the Sawtooth National Forest. The Redfish Lake Road (#214) serves as the primary access into the Redfish Lake complex and branches to include the Redfish Point Campground Road (#213). The majority of the vehicles on the road are recreation traffic including vehicles pulling boat trailers, RV trailers, and large motor homes. There are a few delivery trucks on the roadway that deliver supplies to Redfish Lake Lodge. The traffic is seasonal with the majority of the traffic during the summer months and no traffic during the winter.

The Redfish Lake Recreation Complex can be separated into a few distinct areas; the east side of the lake, the west side of the lake, and the North Shore Area. The east side of the lake includes Outlet Campground, Mount Heyburn Campground, Sockeye Campground, and the boat launch. The west side of the lake includes Point Campground, and Redfish Lake Lodge. The North Shore Area includes Glacier View Campground, North Shore Day Use Area, and the Visitor's Center. The North Shore Area is mainly a day use area with traffic entering, parking and then leaving the area each night.

The current roadway system creates an imbalance in traffic, as a large portion of vehicles that have a destination on the east shore of Redfish Lake need to travel through the most congested and busy area on the north shore prior to reaching the east side of the lake. This imbalance results in congestion at the north shore of Redfish Lake. The roadway network imbalance is due to the road network geometry and the use of the two bridges across Redfish Lake Creek.

Environmental Consequences

Table 3-4 shows a comparison of the driving distance and travel time between points of interest by alternative. The table is based on a constant speed of 25 mph.

Table 3-3. Distances (miles) / travel time (minutes) between points of interest in the Redfish Lake Complex*

Travel Route	Alternative 1	Alternative 2	Alternative 3
Sockeye Campground to Road #213	1.5 mi / 4 min	2.0 mi / 5 min	1.4 mi / 3 min
Sockeye Campground to North Shore Day Use	1.0 mi / 2 min	2.4 mi / 6 min	1.0 mi / 2 min
SH 75 to Road #213	1.7 mi / 4 min	1.7 mi / 4 min	1.7 mi / 4 min
SH 75 to North Shore Day Use	2.2 mi / 5 min	2.1 mi / 5 min	2.1 mi / 5 min
SH 75 to Sockeye Campground	3.2 mi / 8 min	2.6 mi / 6 min	3.1 mi / 8 min
Road #213 to North Shore Day Use	0.5 mi / 1 min	0.4 mi / 1 min	0.4 mi / 1 min

*Travel time based on a constant speed of 25 mph and rounded to the nearest minute.

Alternative 1 (No Action). The traffic flow would remain as it currently exists. The congestion at the North Shore Area would remain a problem, as would parking in the area.

Alternative 2 (Proposed Action). Alternative 2 significantly re-distributes the traffic within the Redfish Lake Complex, creating better, more direct access to the east side of Redfish Lake, including the campgrounds and boat launch. Under this alternative, the traffic flow would continue to be the same up to the point where the new road splits with one road continuing on the east side of the creek leading to Outlet Campground, Mt. Heyburn Campground, Sockeye Campground, and the boat launch and the other road leading toward Redfish Lake Lodge, Point Campground, Glacier View Campground, the Visitor Center, and Redfish Lake Day Use Area. The driving distance from SH 75 to Sockeye Campground will be reduced by approximately 0.5 miles or almost 2 minutes. However once in the Redfish Lake Complex the driving distance from Sockeye Campground to the North Shore Area will be increased by almost 1.5 miles and the trip to Redfish Lake Lodge and Point Campground would increase by approximately 0.5 miles. The new traffic flow pattern would alleviate the traffic congestion around the North Shore Area as the people trying to get to the east side of the lake would now bypass the North Shore Area.

Non-motorized traffic flow in the Complex would be improved due to enhanced shoulders along the new route, a bike lane on the new bridge, reconfiguration of Bridge #2 to a non-motorized bridge, and the improved pathways in the North Shore area.

During construction of the new road and bridge crossing, the traffic would continue to use the roads as they currently do until the new road was finished. There would be slight driving delays when the construction of the new road makes the connection to the existing road. The construction of these connections would be timed to affect the least traffic possible. The connections should not take more than two to three weeks to construct. Most of the construction work would be on the opposite side of the creek from the existing road and traffic would not be affected.

The reconstruction of the curve near the Visitor's Center would be either early in the spring or late in the fall to avoid majority of traffic that is associated with the camping season. The existing curve would remain open to traffic while the reconstruction takes place. This alternative would have no effect on the traffic along Road #213 from the intersection with Road #214 to Redfish Lake Lodge.

The material source for gravel for the project is located at Champion Creek Pit approximately 17 miles south of Stanley, Idaho on SH 75. The gravel would be hauled in by dump truck so traffic could expect trucks along the Redfish Lake Road #214 from the intersection with SH 75 to the start of the new alignment and also around the new curve alignment.

Alternative 3. This alternative would continue to move traffic in a similar flow as it currently exists. The difference is the realignment of the sharp curve on Road #214 near the Visitor Center, which may slightly improve travel times in the North Shore area. This alternative would have no effect on the traffic along Road #213 from the intersection with Road #214 to Redfish Lake Lodge.

Non-motorized traffic flow in the Complex would be improved due to the attached bike lane along the replaced bridge and the improved pathways in the North Shore area.

Alternative 3 would require the construction of temporary bridges to allow for continued traffic flow during construction of the new bridges. There would be some traffic delays while the temporary bridges and bridge approaches are built. It is anticipated that each bridge would take one season to complete and the bridges would be replaced in consecutive years. Traffic would need to be slowed down through the construction zones near the bridges while construction was taking place.

The material source for gravel for the project is located at Champion Creek Pit approximately 17 miles south of Stanley, Idaho on SH 75. The gravel would be hauled in by dump truck so traffic could expect trucks along the Redfish Lake Road #214 from the intersection with SH 75 to each bridge site as well as the new curve alignment.

Issue 4: Economics

Economics was identified as the fourth issue for the project. Adding a new road may impact local businesses such as the Redfish Lake Lodge and horseback ride provider that rely, to some extent, on the visibility their business receives from travelers to and from the Redfish Lake Resort area. Additionally, the configuration of the intersection that leads traffic to the resort area or the campgrounds/boat launch may affect the amount of traffic that drives past local businesses. The following two economic indicators are provided to assess the issue.

> Indicator 1: estimates of visitors (vehicles) passing by the lodge and horseback ride facility.
> Indicator 2: number of turns required to access the lodge and horseback ride facility, from the east and west sides of the recreation complex.

Affected Environment

The social economic impact area for the Redfish Lake Complex Road and Bridge Reconstruction analysis includes a seven-county area (Ada, Blaine, Boise, Custer, Jerome, Lincoln, and Twin Falls counties, ID). This contiguous geographic area includes the functional economy that could potentially be impacted by this project. According to the special use permit holders that stand to be affected, most or all of the indirect supply chain supporting their businesses is located in these seven counties.

Within Custer County, Stanley, Idaho is the town where direct economic impacts are most likely. For the town of Stanley, the closest town to the project area, censuses during the 20th century reveal that the population of Stanley residents fluctuated between 75 during 1910, 155 during 1920, a low of 33 during 1950, 99 during 1980, and 71 during 1990. The 2000 census listed 100 residents, 45 households and 23 residing families. This community is based largely on travel and tourism, and one of the major draws is the Redfish Lake Complex, where summer population staying at the Redfish Lake Resort and campgrounds often exceeds the population of the town of Stanley.

There are two Sawtooth NRA special use permit holders operating in the Redfish Lake Complex, one concessionaire and one resort with a horseback riding operation. The Redfish Lake Lodge, LLC. special use permit, commenced operations in 1925 and was refreshed most recently in 1998. It now includes a lakefront resort with several facilities as well as a horseback riding business operated by Mystic Saddle Ranch. The Lodge has limited parking with cabin rentals, a store, food/beverage area, stage, walking path, a small beach, as well as docks with boat tours, and bike rentals.

Redfish Lake Lodge has 40 rooms, including cabins that together can accommodate a maximum of 182 guests with heads on pillows. It creates its own advertising because of its fame. It's prominent on the state of Idaho and Stanley websites and this contributes a significant number of new visitors each year. However, repeat guests can book in advance of new guests (early registration) and the owner estimates that 40% of guests and business at the restaurant, marina, and store are repeat visitors, meaning that the majority are new guests. Occupancy is roughly 80% on shoulder seasons and 98% during peak season; which together make up a 135 day season. The average stay is three to four days although some guests stay for two weeks. In September, it might be just one night. Lodge guests eat and recreate, and normally buy some supplies.

The Lodge owner cuts back employee hours, and when needed, he cuts employees during shoulder seasons when the Lodge is not fully occupied, although he would prefer to maintain full staff if demand warranted. From Memorial Day to June 10th each year the Redfish Lake Lodge employs 40-45 people; from June 10th to August 20th they employ 60 employees; from August 20th to Labor Day they retain 45 employees; and from Labor Day to Oct 1st they retain 28-35 employees. Employees are 60-70% from Idaho; the other 30-40% of employees are from other parts of the country. Employees are from Boise (50-60%), Idaho (60-70%), and other states /international (30-40%). Redfish Lodge houses 54-55 of employees (90%). The rest live in Stanley or have a second job.

The Mystic Saddle Ranch operates the outfitting and guiding operations for the Redfish Lake Lodge special use permit. There are two owners who maintain 4-5 employees and 30-40 horses at Redfish Corrals. They also provide horse rides at Galena (2-3 employees) and 6 major Sawtooth National Forest trailheads (2-3 employees). The season for all rides in the Sawtooth NRA is from June 1 to mid-September, with high use from mid-June to August 30th each year, employing 11 people.

Mystic Saddle Ranch owners stated that 30-40% of horses are being used on a busy day. They staff four guides plus one office person during July and August. In June, three to four people are on staff. The guide to guest ratio is 1:6 so depending on ridership, they adjust employment daily. But with the current patronage and horses/corral there is room for growth within the number of stock on site. If there were a 20% increase in business they wouldn't change the operations very much. They haven't changed operations in the last 10 years.

There are approximately 2,500 rider days each season (1/2 and full days combined) although three years ago business was down due to economy; revenues at Redfish corrals were off 25% from 2008 to 2009. Business data shows that 80% of use is 1 or 1.5 hour rides, and 20% of use is ½ day or all day rides. Roughly half of all riders are from Idaho, half from out-of-state, with a portion of those clients coming from other countries.

Owners shared that their business is sensitive to ups and downs, with very narrow profit margin (10-20%) and that a decrease of 20% would lead to a huge impact, translating to at least one less employee and fewer horses, fewer purchases of hay, less profit and smaller fees to the Forest Service. What they have noticed is that 20% of business in 2010 was from drive-bys, with 25% repeat customers and 75% new customers.

The total revenues for all Lodge operations, including the Mystic Saddle Ranch Outfitting / Guiding operations, and the special use permit fees from 1990 to 2009 increased roughly 4.8% per year, or 2.6% per year above national inflation. However, not all years saw increases in revenues as the growth rates ranged from -6.8 to 19.9% between successive years across this period.

The percent of total revenues produced by the horseback riding and corrals operated by Mystic Saddle Ranch ranged from 3.2 to 6.7%, averaging 4.9% of total Lodge revenues during this period. Similar to the total revenues, the Mystic Saddle Ranch revenues outpaced inflation across the period 1990 to 2009, averaging 4.1% growth for the period, or 1.9% more than national inflation each year. However, annual growth in revenues for Mystic Saddle ranged even more than the entire Lodge operation, from -24.4 to 44.2% per year in successive years across the period.

The developed campgrounds and picnic areas in the Redfish Complex are run by a special use concessionaire named Scenic Canyon Recreational Services. The campground concessionaire has no business connection to the Lodge, but they coordinate water supply and operate the RV dump station next to the General Store. Discussions with the special use permit holders indicate that lately campgrounds are always full on July 4th, but not usually on other days. As recently as three years ago, campgrounds were full most weekends during the peak season.

In anticipation of road and bridge reconstruction, the Sawtooth NRA installed temporary traffic counters for several weeks during the peak tourist season 2010. These counters tracked the number of axles traveling one-way in the complex from June 21 to July 14, 2010 at three locations (Redfish entrance, Redfish 2nd bridge, and Redfish Lodge). The results show that the majority of the traffic traveled across the first bridge and then headed towards the Lodge. Although vehicles, possibly including motorcycles and trailers, move about the complex in various patterns, and may cross counters multiple times, it appears that roughly two of every three users crossing the first bridge heads to the lodge or beyond to the Point Campground and beach. This pattern of most users heading towards the Lodge appears to hold for the season, with a minimum of 61%, an average of 74% and a maximum of 88% across all days examined. The percentage of second bridge crossings compared to first bridge crossings confirms these results, with a minimum of 25%, an average of 38% and a maximum of 48% across all days sampled.

Currently, there is one turn required by all visitors to access the Lodge. Inbound, visitors must turn right at the intersection of Roads #214 and #213. The Lodge is signed at this turn. All complex visitors proceeding beyond this turn would only need to make one left turn at this intersection as they are outbound to access the lodge from campgrounds, beaches, the sandy point boat ramp or the Visitor Center.

Environmental Consequences

Because it is impossible to predict with certitude the visitation response for the Lodge and the horseback riding facilities under the two action alternatives, short and long-term projections are made under three scenarios (best-case, expected-case, and worst-case). Table 3-4 displays the anticipated short and long-term impacts for the Alternatives based on the indicators.

Table 3-4. Economic Indicators

Effect	Alternative 1	Alternative 2	Alternative 3
Vehicles passing by the Lodge/Corrals (short term)	No change	Potential decrease in year 3	Decrease or traffic delays during construction
Vehicles passing by the Lodge/Corrals (long term)	No change	Up to 1/3 decrease	No change
Number of turns to access the Lodge and Corrals (inbound/outbound from the eastside)	1/1	1/2	1/1

Alternative 1 (No Action). Under the No Action Alternative there would be no impacts to the special use permit holders, Stanley, or the social economic impact would occur. However, by deferring improvements, possible problems may develop in the future and closure or emergency replacement may be disruptive to recreation and commerce in the Redfish Lake Complex. The

No Action Alternative would not achieve the purpose and need for this project, but would prevent future government costs. It could result in future loss of access to the Redfish Lake Complex and special use permit operations, and forgoes opportunities to improve recreation and resource related conditions.

The No Action Alternative would not affect the first economic indicator (number of visitors passing by the Lodge and horseback ride facility), unless the bridge is determined to be unsafe for travel in the future. In that case, visitors passing by could drop to zero temporarily. Indicator 2 (number of turns required to access the Lodge and horseback ride facility) would remain unchanged.

Alternative 2 (Proposed Action). Under Alternative 2, measures are included to reduce impacts to visitors and the special use permit holders. The window of opportunity to conduct construction work at this location, considering elevation, weather, and fisheries limitations would overlap with the 135 day permit season, starting after July 17th each year. However, because the new road would be built while traffic continues to use the old road there would be little to no change in visitors passing by the lodge/corrals until traffic is re-routed on the new road.

During the first two years there would be no change to Indicator 2, because visitors would still use the existing roads while the future road and bridge is constructed. Based on traffic count information, roughly two of every three visitors currently head toward the Lodge and Point Campground/Beach. For these visitors, there would be no change as the new road would continue to travel toward the Lodge. However, for the one in three visitors who are staying at the eastside of the lake, these visitors will need to make a left turn to access the lodge and horseback ride facility during their outbound travel. Therefore, for the long term, the number of turns for the eastside visitors to access westside facilities increases from 1 to 2 outbound. Although this would add mileage, the complex is relatively compact, and the added distance to travel to the most distant campground (Sockeye) and then return to the lodge is only about one mile.

Mystic Saddle Ranch estimates that long-term changes in visitation and patronage could lead to a reduction of as much as $20,000 in revenue per year. They derived this estimate based on the fact that drive-by business was 20% during 2010, ahead of referrals, and internet marketing. So considering the potential loss of much of this drive-by traffic and the indirect impact on future referrals and future repeat business the owners estimate lost revenue could be $20,000 per year. Traffic counter information shown above indicates that one third of all use would likely select to head to the eastern portion of the complex, bypassing the sign and corrals. Below three scenarios are described to help forecast possible impacts, a best-case, expected-case and worst-case scenario are each presented to describe the potential impacts to Mystic Saddle Ranch.

Best-Case: No decrease in visitation due to construction-related traffic; following construction, current long-term trends of increased use and revenues continue or even accelerate as more patrons visit the redesigned complex.
Expected-Case: Slight decrease in visitation due to construction-related traffic; following construction, a slight reduction in use and revenues if one third of the traffic normally headed to

the eastern portion of the complex does not pass the corrals to learn about the horseback riding option at the Redfish lake Lodge.
Worst-Case: Decrease (10-20%) in visitation due to construction-related traffic; following construction, declining patronage with a decrease of drive-by as well as repeat customers.

The input-output approaches estimating the economic contribution of the Redfish Lake Lodge and Mystic Saddle Outfitters in the affected environment suggest that these permits are responsible for as many as 65 direct and 105 total seasonal part and full-time jobs.
For the Lodge, where during the 135 day season the range of employees is generally from 25-60, there are 15-36 additional multiplier jobs in the seven-county social economic impact area associated with this work; for a total of 40-96 part or full-time jobs attributable to the Lodge operations during the summer season. There may be a slight short-term decrease in visitation to the Lodge associated with construction delays and temporary closures. Since this is planned, few jobs are expected to be affected during years 1-3. Because little or no negative impact is expected to the lodge under Alternative 2, these jobs are expected to increase slightly under the best-case scenario, persist at current levels under the expected case, and decrease by a few jobs under the worst case scenario.

Looking more specifically at the Other Amusement and Recreation Services sector in 2008 for the seven-county area, the employment multiplier for this industry, which includes horseback ride outfitting and guiding, suggests that for every 5 part and full-time jobs, there are 4 part or full-time indirect and induced jobs, totaling 9 jobs contributed by Mystic Saddle Ranch. Under the best-case scenario, there could be 1-3 additional seasonal jobs as improvements in the Redfish Lake experience draw more visitors to the entire complex in the future. Under the expected scenario, there may be a loss of 1-3 seasonal jobs during construction, continuing into the years beyond construction. Under the worst-case scenario, there could be a loss of 1-3 seasonal jobs during construction and a loss of all 9 direct and multiplier seasonal jobs several years after construction if the reduction in drive by traffic leads to a reduction in new and repeat customers and the business is no longer viable.

If decreases in revenues from the Lodge or the Mystic Saddle Redfish Corral operations did result from Alternative 2, it could affect business viability. Determining what level of negative impacts could make either special use operator no longer viable is challenging, since both seem able to scale employment and expenditures to patronage levels and both have maintained operations for several decades.

Total costs including placing a new sewer under the bridge, with a lift station and utility upgrades would be approximately $3.3 million for Alternative 2. This work is expected to generate 23 direct and 37 total part and full-time jobs and $930,197 in direct labor income and 1,511,452 in total labor income during these three years for people working in the seven-county economic impact area.

It appears that the small volume of wood cleared to accommodate new routes under this alternative would not lead to many logging and processing jobs. If the logging to clear right-of-ways were contracted, the local silviculturist is not sure there would be enough volume to make it worth selling (maybe 50 MBF, including the parking lots). Part of the reason is that much of

this area was harvested recently (2006-2008) for bug kill and hazardous fuels reduction. There was a timber sale, and volume was sold as a commercial timber sale, some as saw-timber. In addition, the Sawtooth NRA may want to use the trees for rehabilitating the roads. If products were sold they would likely be used for post and poles, since those are the most valuable use right now.

Alternative 2 would provide positive employment opportunities during the construction phase, and would not interrupt special use permit operations until year 3. It could have positive, neutral or negative long-term impacts on special use permit operations and would be the highest cost to government ($3.3 million).

Alternative 3. Alternative 3 would involve some interruptions to the Redfish Lake Complex visitation and commerce. Because a second route would not be constructed, there would be a longer interruption in the highway vehicle traffic as temporary bypass bridges are constructed and traffic is managed on this one lane bridge; this would affect client access to operations. Because this analysis assumes that replacing the first bridge would cause no change in the number of vehicles passing by after construction is complete, effects on use and revenues for Mystic Saddle are expected to be restricted to the short-term 3-year construction phase. Essentially there could be some decrease in visitation due to construction-related traffic, but following construction, current long-term trends of increased use and revenues continue or even accelerate as more patrons visit the redesigned complex.

For the Lodge, where during the 135 day season the range of employees is generally from 25-60, there are 15-36 additional multiplier jobs in the seven-county social economic impact area associated with this work; for a total of 40-96 part or full-time jobs attributable to the Lodge operations during the summer season. There may be a slight short-term decrease in visitation to the Lodge associated with construction delays and temporary closures. Since this is planned, few jobs are expected to be affected during years 1-3. Because little or no long-term negative impact is expected to the Lodge under Alternative 3, these jobs are expected to increase slightly under the best-case scenario, persist at current levels under the expected case, and decrease by a few jobs under the worst case scenario.

Alternative 3 would provide positive employment opportunities during the construction phase, but would interrupt special use permit operations from year 1 until year 3. It could have positive, neutral or negative long-term impacts on special use permit operations and would be the second highest cost to government ($2.7 million).

As a result of Alternative 3, there would be no change in Indicator 2. Alternative 3 would not change the road layout in the complex and would not alter the views.

Other Resource Effects

Recreation Resources

Affected Environment

There are five highly developed campgrounds in the Redfish Lake Complex; Glacier View, Mt. Heyburn, Outlet, Point, and Sockeye. All campgrounds feature paved roads and camp spurs, flush or vault toilets, picnic tables, tent pads, garbage service and central water. Point campground is specifically for tent camping only while the others provide tent and RV camping. There is also a small boat or hike in campground at the inlet of Redfish. In total there are approximately 150 campsites that are available by either reservation or walk in basis.

Redfish Lake Lodge provides a restaurant, general store, cabins, and showers and laundry facilities. Perhaps the largest use, however, comes from the general public who use the lodge and lakeshore for a variety of outdoor activities. Many people use the beach or old paved road to the Visitor Center to walk and relax. The beach and waterfront are heavily used by sunbathers, swimmers, anglers and people just taking in the scenery. Pedestrians and bicyclists come to the area from the adjacent campgrounds and day use areas to utilize the services of the lodge. The dock and boating facilities also draw a large number of people who either rent boats or pull their own boats up to the dock. These people then use the lodge facilities or walk along the beach. The lodge operates a boat shuttle service to the Inlet of Redfish Lake and the trails that begin there. This service draws many hikers to the docks who either begin or end their hiking trips with the lodge shuttle service.

Redfish Lake offers multiple trail options that are popular with day hikers, backpackers, mountain bikers and horseback riders. The lake rests adjacent to the 230,000 acre Sawtooth Wilderness Area, and trails in this area provide access to the eastern boundary. The Sawtooth Wilderness is well known for its spectacular scenery, pristine high mountain lakes and jagged peaks which culminate into an ideal setting for backcountry enthusiasts. Within Wilderness mechanized conveyances are prohibited, including mountain bikes, so the vast majority of trail users in the area are on foot or horseback. Mountain bikes are allowed on the trails outside of Wilderness and there is a trail that circles the lake open to this use, albeit an advanced ride. Guided horseback riding is provided by a guide service from the Redfish Lake Corrals providing both day and multi-day trips. There are no summer motorized trails that leave Redfish Lake.

Redfish Lake is popular for motor boating, personal watercraft and the gamut of non-motorized boats. The Sandy Beach Boat Launch provides paved parking and ramp, restroom, potable water, garbage service, picnic tables, fire rings and handling docks for launching and retrieving boats. Trout fishing is very popular within the project area on the lake and its tributaries. Visitors routinely fish for rainbow trout on the lake from boats and from shore. Tributaries like Fishhook Creek and Redfish Lake Creek receives walk wade fishing.

There is a small parking area near Bridge #1 that provides access to Redfish Lake Creek. Visitors commonly use this site to fish and launch small non-motorized boats and float downstream to Little Redfish Lake.

North Shore, Outlet, and Point picnic areas provide for lakeside day use access. These sites are popular for picnicking and well suited for water play given their sandy beaches. Swimmers have an added security from motor boats within the boat exclusion buoys at Outlet and within the "U" shaped string of docks at Point. Each area provides restrooms, potable water, garbage service, fire rings and parking. Picnic tables are available at North Shore and Outlet. Reservations are available at North Shore for up to 150 people.

Central to the development along the north shore is the Redfish Lake Visitor Center. Perched atop a small knoll over-looking the lake, the 2000 square foot plus building is the venue for a variety of educational and interpretive programs throughout the summer season. A 250 seat amphitheater facing the lake provides an ideal setting for evening programs that focus on the history and the natural environment of the area. Unfortunately the Visitor Center parking lot was located in a wet area and floods each year limiting access to the facility. Additionally, the path leading from the parking lot to the Visitor Center is too steep resulting in accessibility issues for the mobility impaired.

The existing network of roads within the project area provides vehicle access to all developed recreation sites. All road surfaces open to motorized vehicles are paved, with the exception of three graveled parking lots at the lodge, Fishhook trailhead and North Shore Picnic Area. Use on the road ranges from pedestrian to large RVs and service trucks. Many vehicles are pulling either boats or campers and can routinely exceed 50 feet in length. The State of Idaho also allows double-trailering, so it is somewhat common to see vehicles pulling a camp trailer with a boat also in tow. While the road has a narrow feel due to minimal shoulder surface, most of the road is easily negotiated by these larger vehicles. The exception to this is the corner just passed the visitors center which is extremely tight for large vehicles with trailers. This is the site of numerous accidents and a source for stress to drivers meeting oncoming traffic or pedestrians/bicycles.

Pedestrian and bicycle traffic is heavy along roads and trails throughout the summer months, with the majority of use occurring between the lodge and Outlet campground. Navigating this distance can be challenging since there are no directional signs, a variety of surface types ranging from native to paved, and at times redundant trails crisscross the route. More importantly, is visitor safety given that a section of this trail is the road traveled by full sized vehicles. Of particular concern is the area around bridge #2. At this location the trail leaving the Outlet day use parking lot joins the road at a steep angle with very limited sight distances and virtually no shoulder to the road.

There are other sections of road necessary to travel in order to connect all of the developed sites, but they don't seem to pose the same health risks. Generally speaking, the roads have minimal shoulder surfaces, which forces pedestrian and bicycles on to the motor vehicle traffic lanes. This situation is undesirable from both a safety and recreational experience standpoint.

Currently there are some directional signs on the roads informing visitors of how to get to recreation sites within the project area. However, directional signing is somewhat random with no consistent format. The North Shore trail does not have any signing so visitors don't know which way to go and how far they are from other recreation sites.

The project area is outside of Idaho Roadless Areas, Research Natural Areas, and Wilderness.

Environmental Consequences

None of the alternatives change existing recreation sites in terms of development level. The alternatives primarily differ in how you access the sites. The exceptions are 1) moving the existing parking lots at the Visitor Center and North Shore Picnic areas, and, 2) realigning the North Shore trail.

None of the alternatives will affect how winter access is managed. Road #214 will remain a groomed winter route from State Highway 75 to the boat launch.

None of the alternatives will affect the foreseeable action of developing a trail from Stanley to Redfish.

Alternative 1 (No Action). This alternative does not address the lack of accessibly at the Visitor Center. Currently the path connecting the parking lot with the Visitor Center is too steep for mobility impaired individuals.

This alternative does not follow Forest Plan direction for visitor safety. The current alignment of the curve by the Visitor Center has had many accidents and is tough to negotiate with large vehicles, especially when pulling trailers. Furthermore, this alternative does not provide for either wider bridges with pedestrian/bicycle lanes or newly constructed road segments with pedestrian/bicycle lanes.

Since this alternative does not address circulation in the Redfish Lake Complex, there will be continued problems with the lack of directional signing and conflicts between motorized and non-motorized users as identified during scoping.

Alternative 2 (Proposed Action). Under this alternative the Visitor Center parking lot is relocated from a wet area which floods each spring causing the center to close. By moving the

parking lot it will expand the availability of the facility. An accessible path will be developed from the parking lot to the center to provide better access for the mobility impaired.

The Sawtooth NF Recreation Niche is best supported under Alternative 2 by providing the most trails that accommodate a variety of motorized and non-motorized uses. By improving the North Shore trail and moving a major road further away from the lake shore, this alternative concentrates use along corridors that allow for a sense of remoteness. Interpretive programs are improved with better access to the Visitor Center for mobility impaired visitors and the center will not need to close when the parking lot floods. Success Factors for increased visitor satisfaction and being environmentally sound are maximized under this alternative because it provides the best trail system and restores the most road mileage found in RCAs.

Under this alternative, the small parking area along Road #214 and adjacent to Bridge #1 will no longer exist. Therefore, fishing or float boat launching from this location will no longer be available, but local fishing and water play opportunities could exist at the new bridge.

This alternative offers the most improvement to public safety by 1) Realigning the sharp curve near the Visitor Center, 2) Closing Bridge #2 to vehicle traffic and converting it to a pedestrian/bicycle pathway, 3) Realigning the trail from Outlet campground to the Lodge and eliminating any sharp curves or steep slopes, 4) Providing an attached bicycle lane on the new bridge, and 5) Providing enhanced shoulders on new roadways.

This alternative addresses circulation shortfalls in the Redfish Lake area. Directional signing for both roads and trails will be improved by signing all recreation sites in a consistent format. Conflicts between motorized and non-motorized will be alleviated on the North Shore trail by separating uses. Furthermore, removing redundant routes along the North Shore Trail will lessen confusion regarding navigation.

Under this alternative an overlook will be created along the newly aligned Road #214 providing a resting stop for visitors and interpretive information.

Alternative 3. Under this alternative the Visitor Center parking lot is relocated from a wet area which floods each spring causing the center to close. By moving the parking lot it will expand the availability of the facility. An accessible path will be developed from the parking lot to the center to provide better access for the mobility impaired.

Under this alternative the Sawtooth NF Recreation Niche is supported by providing trails that accommodate a variety of motorized and non-motorized uses. By improving the North Shore trail this alternative concentrates use along corridors that allow for a sense of remoteness. Interpretive programs are improved with better access to the Visitor Center for mobility impaired visitors and the center will not need to close down when the parking lot floods. Success factors for increased visitor satisfaction and being environmentally sound are bettered under this alternative since it provides an improved trail system and restores the additional road mileage found in RCAs.

This alternative offers improvements to public safety by 1) Realigning the sharp curve near the Visitor Center, 2) Realigning the trail from Outlet campground to the Lodge and eliminating any sharp curves or steep slopes, and 3) Providing an attached bicycle lane on Bridge #2.

Alternative 3 addresses circulation shortfalls in the Redfish Lake area. Conflicts between motorized and non-motorized will be alleviated on the North Shore trail by separating uses. Furthermore, removing redundant routes along the North Shore Trail will lessen confusion regarding navigation.

Wild and Scenic Rivers

Affected Environment

The Wild and Scenic Rivers Act (W&SR) (Public Law 90-542; 16 U.S.C 1271-1287) was enacted by Congress to address the need for a national system of river protection on October 2, 1968. The W&SR seeks to protect and enhance a river's natural and cultural values and provide for public use consistent with its free flowing character, water quality, and outstandingly remarkable values. To be eligible for inclusion into the National System, a river or river segment must be free-flowing and possess at least one outstandingly remarkable value in any of the following resource categories: scenery, recreation, geology, hydrology, fish, wildlife, botany, ecology, history, and culture.

Redfish Lake Creek from the Redfish Lake outlet to the confluence with the Salmon River was determined to be eligible (Recreational classification) for further study under the W&SR Act: This section of creek was determined to have two Outstanding Remarkable Values associated with this segment are:

> Fish: The river provides spawing and rearing opportunities for westslope, cutthroat, and bull trout. It also provides water quality to Redfish Lake, a key habitat for sockeye salmon. Records show that Chinook and steelhead may have historically used this stream for spawing.
>
> Heritage: The river area contains the Redfish Archaeological District which consists of two sites: Redfish Overhang and Dancing Cat. Both sites provide important data on the lifestyles and activities of prehistoric peoples. Artifacts have been carbon dated to 9860 B.P.

Environmental Consequences

Redfish Lake Creek has been found to be eligible for the further consideration under the Wild and Scenic Rivers Act. Additional studies must be conducted before the rivers could be recommended to Congress for actual designation. Until these studies are completed, the Outstanding Remarkable Values must be protected. None of the alternatives will affect the potential eligibility, classification, listing, or Outstandingly Remarkable Values under the Wild and Scenic Rivers Act. The heritage sites associated with the Redfish Archaeological District are outside the project area.

Botanical Resources

Affected Environment

The majority of the area in the Redfish Lake Recreation Complex is forested by lodgepole pine in various stages of succession with an elk sedge dominated understory. The mountain pine beetle has caused a major die off of the lodgepole overstory, however, seedling trees are abundant in these areas for stand replacement. Douglas-fir, Englemann spruce, and subalpine fir are present with various associations of understory plants. On the moraines, Douglas-fir is associated with elk sedge and snowberry, pinegrass, and lodgepole pine.

Redfish lake shore habitats include overstory of Englemann spruce, subalpine fir and lodgepole associated with pinegrass, grouse whortleberry, rusty menziesia, western Labrador tea, and Sitka alder. Refer to the Botanical Field Report included in project file for a more comprehensive list of plant species.

Champion Creek Borrow pit is located approximately 12 miles southeast of the Redfish Lake Recreation Complex. The borrow source is an existing site that was rehabilited in late 1980s by drill seeding non-native species including smooth brome, crested wheatgrass, intermediate wheatgrass and alfalfa. There are non-native invasive and noxious plant species currently growing in the borrow site. These species include yellow toadflax, Canada thistle, cheatgrass, field brome, bulbous bluegrass, yellow sweet clover, and mullein.

The Sawtooth NRA provides habitat for one federally listed threatened species (Ute ladies'-tresses orchid) and one candidate terrestrial plant species (Whitebark pine). Ute ladies'-tresses orchid is not known to occur within the project area. The project area is within whitebark pine's range, but below the elevation which this species occurs.

The Sawtooth NRA has known occurrences and/or provides habitat for 34 Sensitive and Watch plant species. Records do not indicate any known occurrences of Regional Forester's Sensitive plant species within the area of Redfish Lake Creek Bridge and Road Project. Forest Watch species Buxbaum's sedge has known occurrences within the analysis area.

In the Redfish Lake Complex there are non-native invasive species growing in areas that have ongoing disturbances such as trails, parking areas, campgrounds, and along roads. Forest Road #214 at the intersection of SH 75 has a spotted knapweed infestation. Forest Road #210 which accesses Redfish Lake Recreation Complex has spotted knapweed infestations and isolated patches of Cheatgrass. Redfish Lake Creek has localized infestation of Canada thistle. All sites with noxious weeds have viable seed in the soil and movement of this soil scarifies the seed and aids in germination as well as moving seed to other locations.

Environmental Consequences

Alternative 1 Direct and Indirect Impacts. Alternative 1 would have no direct effects on the Ute ladies'-tresses orchid assuming there are none with current management. Indirect effects could occur from current maintenance and recreational use activities. These could potentially introduce non-native invasive and noxious species in potential habitat that could alter community composition and successional pathways. Chemical pesticide treatments of noxious plant species

could be lethal to pollinators, soil invertebrates, mycorrhizal fungi all associated with this species and native plant community conditions.

Alternatives 1would have no direct or indirect effects on existing whitebark pine or its habitat due to lack of individuals or habitat within the project area.

Under the No Action Alternative, no direct impacts to Regional Forester's Sensitive or Forest Watch plant species would occur. Indirect impacts include the current maintenance and recreation uses which could potentially introduce non-native invasive and noxious species that could alter community composition and successional pathways.

Current levels of risk of introduction or spread of non-native invasive and noxious plant species would continue to exist, under the no action alternative. Treatment of noxious weeds within the project area would continue as it has in the past.

Alternative 2 Direct and Indirect Impacts. There are no occurrences of Ute ladies- tresses orchid in the project area; therefore Alternative 2 would have no direct effects on this endangered species. Indirect effects on the Ute ladies'-tresses orchid potential habitat would be the introduction and/or spread of non-native invasive and noxious species in potential habitat altering community composition and successional pathways. Chemical pesticide treatments of noxious plant species could be lethal to pollinators, soil invertebrates, mycorrhizal fungi all associated with this species and native plant community conditions.

Alternatives 1would have no direct or indirect effects on existing whitebark pine or its habitat due to lack of individuals or habitat within the project area.

Alternative 2 could have direct impacts to unoccupied potential habitat located in the project area for slender moonwort, least moonwort, Stanley thlaspi mustard, and bugleg goldenweed, as well as direct impacts to Buxbaums sedge individuals. Actions contributing to these effects include ground disturbances, alteration of hydrological regimes and sedimentation in the occupied habitat. Indirect impacts to these species include introduction and spread of non-native invasive and noxious species altering community composition and successional pathways. Use of chemical pesticides to treat noxious weeds that are lethal to pollinators, soil microbes, and microrhizal associtated with these species and native plant community condition.

Alternative 2 has the highest risk of introducing non-native invasive plant species or spreading existing infestations. This alternative has the most ground disturbing activities associated with road building, and the risk of introducing existing non-native plants species and noxious weed (Yellow toadflax, Canada thistle, Cheatgrass) infestations from the Champion pit borrow source to Redfish Lake Recreation Complex.

Alternative 3 Direct and Indirect Impacts. There are no occurrences of Ute ladies- tresses orchid in the project area; therefore Alternative 3 would have no direct effects on this endangered species. Indirect effects on the Ute ladies'-tresses orchid potential habitat would be the introduction and/or spread of non-native invasive and noxious species in potential habitat altering community composition and successional pathways. Chemical pesticide treatments of

noxious plant species could be lethal to pollinators, soil invertebrates, mycorrhizal fungi all associated with this species and native plant community conditions.

Alternatives 1would have no direct or indirect effects on existing whitebark pine or its habitat due to lack of individuals or habitat within the project area.

Under Alternative 3, the bridge replacements could have direct impacts to unoccupied potential habitat located in the project area for slender moonwort, least moonwort, Stanley thlaspi mustard, and bugleg goldenweed, as well as direct impacts to Buxbaums sedge individuals. Actions contributing to these effects include ground disturbances, alteration of hydrological regimes and sedimentation in the occupied habitat. Indirect impacts to these species include introduction and spread of non-native invasive and noxious species altering community composition and successional pathways. Use of chemical pesticides to treat noxious weeds that are lethal to pollinators, soil microbes, and microrhizal associtated with these species and native plant community condition.

Alternative 3 has a lower risk of introducing non-native invasive plant species or spreading existing infestations into new areas, due to no new roads. This alternative does have a risk of spreading existing non-native plants species and noxious weed (Yellow toadflax, Canada thistle, Cheatgrass) infestations from the Champion pit borrow source to Redfish Lake Complex.

Cumulative Impacts. The primary federal activities that have impacted plant species of concern and their habitats on the Sawtooth NRA as well as within the north end of the Sawtooth Forest include construction and use of system and non-system roads, past and present livestock grazing, pesticide and herbicide application, recreation and nonrecreation special use permitted activities, developed recreation, water diversion structures, current and past timber harvest, current and past mining activity, personal use firewood cutting, and dispersed recreation (including skiing and snowmobiling). The cumulative effects area contains many potential human-caused sources of mortality for plant such as trampling by humans and vehicles, habitat disturbance and soil compaction, and pesticide use.

Within the Redfish Lake Creek watershed, the primary federal activities that have impacted plant species of concern are developed recreation, system and non-system roads, recent timber harvesting, dispersed recreation, backcountry skiing, special use permitted activities, firewood cutting, insecticide application, and hazard tree removal. Of these activities, the recent timber harvests, roads, and developed recreation have altered habitat the most in the area. Commercial harvest of approximately 250 acres has occurred over the past six years. Additionally during the same period, the salvage of mountain pine beetle-infested trees and snags within developed sites in the watershed has reduced forest habitat condition on approximately 235 acres. Spraying of the insecticide carbaryl to protect specific trees from mountain pine beetle at developed sites has occurred during the past six years. Spraying has occurred in the fall in all except one of the six years when spraying occurred in the late spring. The insecticide application could negatively affect pollinator availability for plants. Activities that have affected plant species of concern near the Champion Creek material source area include domestic livestock grazing and pesticide application.

Approximately 33,930 acres of private land and 9,575 acres of state land occur within the north end of the Sawtooth National Forest. Approximately 20,700 acres of private and 2,120 acres of state land occur within the Sawtooth NRA. State and private activities that occur throughout the north end of the Sawtooth National Forest, including the Sawtooth NRA, are: 1) activities associated with the Idaho Department of Transportation including operation of material sources for road construction and maintenance, road construction and maintenance, and snow plowing; 2) operation of the Sawtooth Fish Hatchery and Camp Stanley on state land within the Sawtooth NRA; 3) mining operations; 4) livestock grazing operations; 5) residential and commercial developments; 6) private land fuels reduction projects; 7) diversions and the associated irrigation.

One section of state land occurs approximately one mile east of the Redfish Lake Complex. Activities on this land that has effects to wildlife species of concern include timber harvest, fuelwood cutting, operation of a fish hatchery, and residences. The State also manages the right-of-way of SH 75 to the east of the project area. State activities include highway maintenance in the right-of-way consisting of clearing of vegetation in the right-of-way, drainage cleaning and installation, weed treatment, sanding, and snowplowing. Additionally IDFG operates a fish weir in the Redfish Lake Creek within the project area from April through October annually. This activity involves two people camping near the weir within the RCA of Redfish Lake Creek during July through October and has resulted in chronic negative impacts to the riparian area. Private lands occur approximately two miles east of the project area. Structures and activities associated with these private lands include residences, diversions and irrigation, livestock grazing, and hazard tree removal/firewood cutting.

One section of state land occurs adjacent to the Champion Creek material source area. Activities on this section that have effects to plant species of concern include livestock grazing, pesticide application, and material source mining. Several thousands of acres of private land are near the material source area. Activities on these lands that have effects to plant species of concern include livestock grazing, water diversions and irrigation, residential developments and associated human activity.

Past management activities and disturbances have contributed to the establishment and distribution of non-native invasive and noxious plant species in the project area. Past forest activities, such as grazing, vegetation treatments, recreation uses, road maintenance and travel along roadways, including gravel and paved roads probably affected the abundance and distribution of noxious or invasive weeds in the project area. However, without information on known distribution of non-native invasive and noxious plant species, the past effects of management actions are unclear.

There would be no cumulative effects from Alternative 1 because no construction or restoration would occur.

The past, current, and future actions described above that cause the most negative impacts to plant species of concern are those that result in habitat removal or degradation of habitat quality and those that result in an increase in human activity in an area or add human activity into a

previously undisturbed area. Alternatives 2 and 3 may result in habitat degradation for some species, and there would be negative cumulative effects from these alternatives.

Implementation of Alternatives 2 and 3 would result in negative cumulative effects to Buxbaums sedge in the project area. Actions contributing to cumulative effects include alteration of hydrological regimes and sedimentation, introduction and spread of non-native invasive and noxious species altering community composition and successional pathways

Past management activities and disturbances have contributed to the establishment and distribution of non-native invasive and noxious plant species in the project area. Past forest activities, such as grazing, vegetation treatments, recreation uses, road maintenance and travel along roadways, including gravel and paved roads probably affected the abundance and distribution of noxious or invasive weeds in the project area. However, without information on known distribution of non-native invasive and noxious plant species, the past effects of management actions are unclear.

The past, current, and future actions described above that cause the most negative impacts to plant species of concern are those that result in habitat removal or degradation of habitat quality and those that result in an increase in human activity in an area or add human activity into a previously undisturbed area. Alternative 3 may result in habitat degradation for some species, there would be negative cumulative effects from this alternative, though more habitat degradation would occur in undisturbed areas as a result of Alternative 2.

Visual Resources

Affected Environment

The Visual Management System has been used by the Forest Service since the early 1970's and provides the basis for describing acceptable degrees of landscape alteration within the Sawtooth NF. This system describes a range of desired conditions; but more importantly provides a means of assessing the potential visual effect of various proposals, relative to prescribed management objectives found within our current Forest Plan. Natural landscape features and viewer sensitivity (both physical numbers and concern for the environment) help to establish visual management objectives for any given area. All public lands within the Sawtooth NF were first inventoried in the early 1980's. This Visual Management System (VMS) has been routinely used on the SNF to evaluate proposed activities and determine visual compatibility since that time.

Visual Quality Objectives (VQOs) used on the Sawtooth National Forest are:

- Preservation – reserved for Wilderness or Wilderness study areas, etc. Not present in the project area.
- Retention – provides for management activities which are not visually evident to the casual Forest visitor. Activities may only repeat form, line, color, and texture which are frequently found within the characteristic landscape. Changes in size, intensity, patterns etc. should not be evident.
- Partial Retention - provides for management activities which remain visually subordinate to the characteristic landscape. Activities may repeat form, line, color or texture common

to the characteristic landscape but changes in their qualities of size, amount, intensity, direction, pattern, etc., remain visually subordinate.

- Modification - provides for management activities may visually dominate the original characteristic landscape. Activities which are predominately introduction of facilities, such as buildings, signs, roads, etc., should borrow naturally established form, line, color, and texture so completely and at such scale that its visual characteristics are compatible with the natural surroundings.
- Maximum Modification represents the lowest visual quality objective within our management system and is not present within the project area or within the Sawtooth National Recreation Area.

The mapped/adopted Visual Quality Objectives for the project area include Retention and Partial Retention. The mapped/adopted VQO for the Champion Creek gravel pit is Partial Retention.

The entire project area (including the Champion Creek pit) will be visible within the immediate foreground because the project is reconstruction and/or reorientation of travel routes from which the project will be reviewed.

Affected primary travel routes include Roads # 214 and #313, the North Shore, Alpine Way and Fishhook Creek Trails, and Redfish Lake Creek. Affected use areas include the Redfish Visitor Center, North Shore Day Use Area, Outlet Campground, Glacier View Campground, the IDFG Fish Weir, and the Service Area Administrative Site. The travel routes associated with the Champion Creek gravel pit include SH 75, and Forest Roads #458 and #194.

Because this is a National Recreation Area, it is understood that the general public has a high sensitivity to Forest Management activities in this area. People use the project area to recreate and to access other recreational opportunities. Due to the very high level of recreation use the Redfish area receives, users will likely display a high-level of sensitivity to the landscape character, equating to a Sensitivity Level of '1' or highest (out of 3) as inventoried, mapped and adopted in the Sawtooth Forest Plan.

Environmental Consequences

VQO Updates. For all alternatives, areas that will be changed from Retention to Partial Retention (219 acres) are primarily low-level developed recreation sites and many were developed prior to the initial establishment of the Sawtooth VQOs in the 1980s (Figure 3-2). Because the typical developments associated with these recreation facilities (hydrants, dump stations, pull-offs, bulletin boards, bridges, restrooms, hardened/cleared areas, picnic tables, etc.) often occur en mass, it is typically very difficult for these facilities to meet a VQO of Retention especially considering that these are also public use areas and are therefore viewed in the immediate foreground (i.e., very difficult to screen). As a result, these sites are typically afforded a VQO of Partial Retention, which would allow current management to continue as it has in the past. Note: the extents of the update from Retention to Partial Retention in the vicinity of Bridge #1/New Bridge vary depending upon the Alternative and are each independently called out on Figure 3-2.

Under all alternatives, areas that will be changed from Retention to Modification (28 acres) are the Redfish Lake Lodge permit area and the Redfish Visitor Center (Figure 3-2). These areas are confined to the more highly developed sites within the Redfish Area – all involving structures of significant size. These sites are also identified as public use areas and are therefore viewed in the immediate foreground by the public and, due to their scale are nearly impossible to screen. As a result, the appropriate/correct VQO for these sites is Modification, which would also allow current management of these sites to continue as it has in the past.

No update to the VQO for the Champion Creek gravel pit is proposed or required. The existing mapped/adopted VQO of partial retention is accurate based on a project-level analysis.

The future visual condition of the affected landscape within the project area is primarily represented by the adopted/updated VQOs and their descriptions in the Forest Plan and the Management Area 02 description. Overall effects will very similar between Alternatives because each includes a road and bridges, with the differences being in the individual details. Several factors contribute to the magnitude of the visual impact associated with the Alternatives, and they include: the location from where road/bridge is visible, the distance at which it is observed, the vegetative composition of the surrounding landscape, and the proposed design outcome of the Alternative.

Alternative 1 (No Action). The visual effects of the No Action Alternative are minimal because, as a result of the VQO update described above, the pre-existing impacts to the visual resource will then come into compliance with the updated Forest Plan VQOs. The analysis of the recommended VQO level updates presented the rationale and need for bringing these sites into VQO compliance. Furthermore, the developments associated with this Alternative were previously reviewed for visual impacts through either NEPA, Recreation Opportunity Spectrum development levels, or through Recreation Development Level design sensitivity.

Alternative 2 (Proposed Action). Under Alternative 2, the realignment and new road into the Redfish complex modifies the travel routes from which the visual resource is viewed by the public. As a result, a change of perspective can be expected. The visual site-approach 'experience' provided by the new road alignments will be markedly different than that provided by the existing alignment. Currently, visitors entering the Redfish area are provided a 'framed' view (by road alignment/vegetation) of Mt. Heyburn, complete with sign, before dropping down to cross Redfish Lake Creek for the first time. While this experience does not exist with the new alignments, the new route will instead bring visitors higher on the adjacent moraine slope and provide a vast/expanded view of the Sawtooth range not afforded by the existing route. In doing so, a roadside pull-off/interpretive opportunity is provided and integrated into this Alternative.

The new bridge will both carry and cross a travel route and will thus, receive visual scrutiny from all angles. The bridge will be 32'+ wide and will incorporate visually sensitive design features such as the use of natural colors and materials wherever possible (guardrail, sidewalls, girders, piers, etc.) in order to better blend with the site.

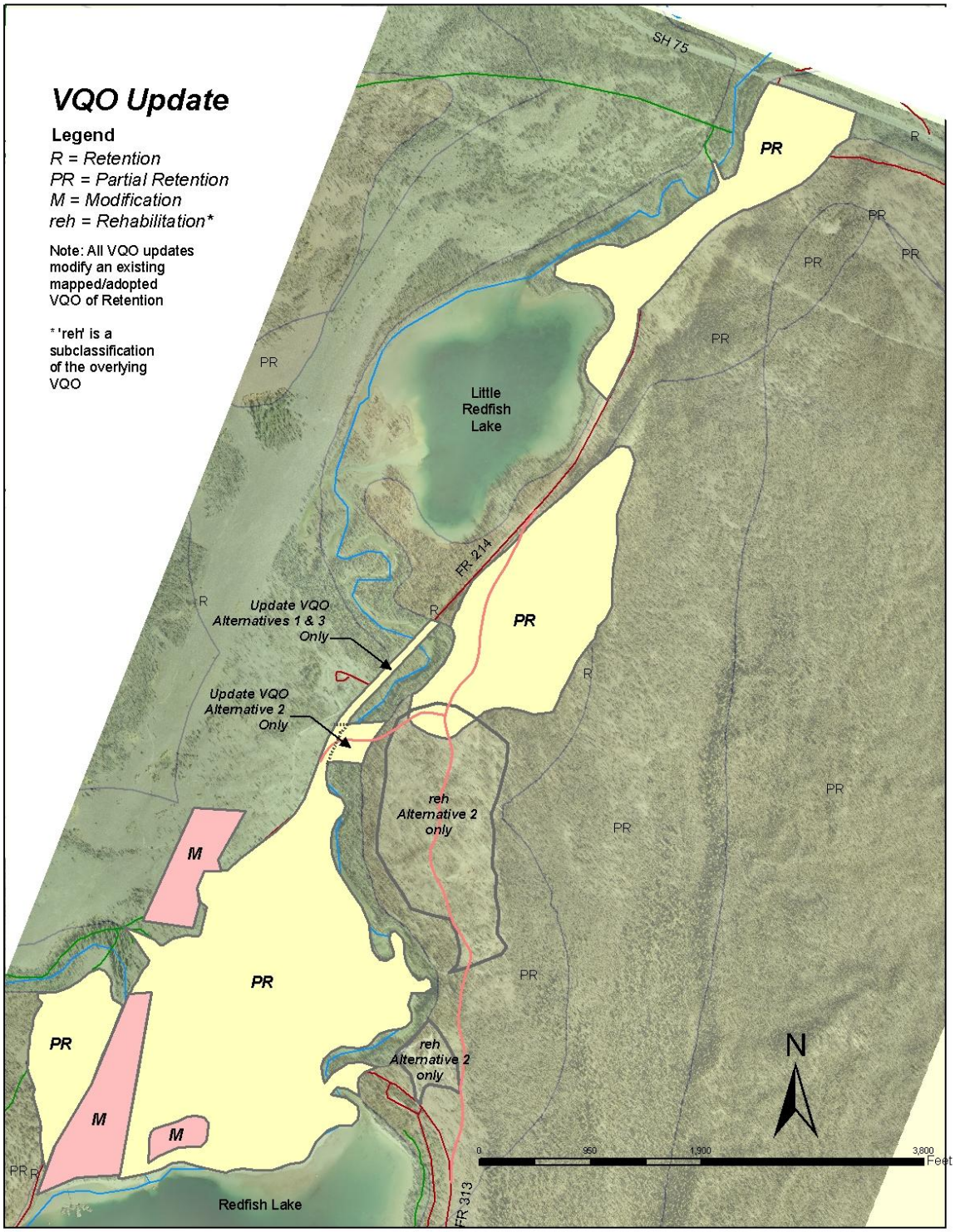

Figure 3-2: VQO Update Map

The North Shore area will receive a number of minor reroutes for roads and trails intended to improve travel, recreational experience, and reduce duplicate trail routing. The visual benefits of these actions are that both the road and North Shore parking area are pulled away from the primary use area – the lakeshore. This is beneficial visually by further screening these features from the lake/lakeshore through increased distance, and eventually, vegetation It is anticipated that this area will regenerate a substantial degree of screening in the short term – within three years. The site for the relocated North Shore parking lot provides particular visual benefits in that it will be moved from directly adjacent to the lakeshore and developed within an established forested area with both vegetative and landform screening. Other visual benefits are realized by removing/reclaiming 'duplicate' trails, which reduce hardened (paving surface area) impacts and thereby allows for more area in which to establish native vegetation/screening. In addition, other significant developments to be rehabilitated include the removal of the substantial fills created for the aforementioned to-be-removed roads/trails.

For this alternative, utilities affecting visuals include the utility lines to be placed beneath the new bridge crossing and the new lift station. All other utilities will be buried in the new road alignment or as existing. These utility features would meet the updated VQO of Partial Retention.

Under Alternative 2, staging areas are provided for contractor construction use during the life of the project. At the primary staging area (the new roads intersection), the topsoil will be stockpiled and re-spread over the disturbed area, post-use, by the contractor after pre-existing grades have been re-established. The other two staging areas will be confined to existing hardened surface areas and no new disturbance will be permitted. Alternative 2 for this feature is designed to meet the updated VQOs.

The existing service area administrative site, previously not visible from travel routes and use areas, would be visible from the immediate foreground in this Alternative along the new road. As a result, the service area will be moved to a site than can be screened from the new road and the existing site rehabilitated. The existing service area restoration will include filling the 'pit' with materials from the North Shore restoration to establish pre-existing grades and removal of all on-site materials/structures/trash, obliteration of roads and cleared/hardened areas, re-establishing pre-existing grades throughout and aggressive revegetation, including a temporary (three year minimum) above-ground irrigation system, to facilitate the effort, which would include topsoil, native seeding and native planting.

The proposed new service area, approximately 1 acre in size, would be located along the new road route, sited to provide vegetative and landform screening. The access road would be located and aligned to not provide direct views into the service area from the road and will be gravel surface.

Under Alternatives 2 and 3, the existing Champion Creek pit will be expanded by 10 acres for gravel requirements of this and other projects. Associated overburden will be temporarily removed, set to the side as a berm, and replaced into the pit as extraction is completed in that section. The pit is potentially visible from SH 75 and from Forest Roads 458 & 194. Currently, the pit is not visible to the casual observer from the primary travel route (SH 75) and meets the

Partial Retention VQO. The use on the Forest Roads noted above is predominantly ranch access and thus does not have the heightened viewer sensitivity that the highway does – this permits for a slightly higher level of visual impacts for this proposal as viewed from those travel routes.

There is potential that, as this pit is expanded, that it could become visible from SH 75, the degree of which, could fail to meet Partial Retention. Short term VQO reduction is permitted while the pit is active, assuming reclamation is initiated once completed.

Alternative 3. Because some elements of this Alternative are similar to those of Alternative 2, those elements will not be reviewed below. Only Alternative elements that differ from those discussed above are analyzed below.

The two road bridges that cross Redfish Lake Creek would be replaced in place. Because the bridges both carry and cross a travel route, they will thus receive visual scrutiny from all angles. The bridges will be 32'+ wide and will incorporate visually sensitive design features such as the use of natural colors and materials wherever possible (guardrail, sidewalls, girders, piers, etc.) in order to better blend with the sites. Bridge #1 will have a bike lane and Bridge #2 will have a detached multi-purpose path for pedestrians/bicyclists.

Associated with the reconstruction for these two bridges will be short adjacent reroutes and temporary bridges to accommodate traffic during their construction. Tree removal and grading will be associated with the temporary reroutes. After completion the pre-existing grade will be established and the site rehabilitated w/native topsoil and seeding if necessary.

The visual analysis for the developments at the North Shore area for Alternative 3 is virtually identical to that of Alternative 2, with the singular exception of the North Shore parking lot location. In this Alternative, this lot is located a bit further down the slope (upon which, Glacier View campground is located). As a result, the lot is slightly closer to the lakeshore and also located within an area affected by a timber sale and wind event, the effect being, a virtually denuded site. This makes the site difficult to screen. The lot will need to be constructed upon a small bit of fill in order to level the site and ensure that it remains above the adjacent lower area which can become wet during the spring.

Staging areas are provided for contractor construction use during the life of the project's construction. At the lower staging area (near Bridge #1), the topsoil (if any) will be stockpiled and re-spread over the disturbed area, post-use, by the contractor after pre-existing grades have been re-established. The other staging area in the service area will serve the southern portion of the project and reclamation will consist of filling the 'pit' with material removed for the North Shore work – the service area will otherwise remain.

The Champion Creek pit visual impacts are the same as those described above for Alternative 2.

Cumulative Effects. The spatial extent from which to consider cumulative effects for the scenery resource can be represented as a viewshed, and specifically, the amount of land area that can be viewed at one time from a particular location. Also relevant in this measurement is whether or not the activity is viewed from a priority viewing area. Those land areas not viewed

from priority viewing locations are classified as "not seen", for which the degree of visual alteration is permitted to be greater. The cumulative effects of past, present, and reasonably foreseeable effects of activities as it relates to the scenery resource is relative from the area viewed collectively at one time from any particular point along a primary travel route or use area. If the cumulative effects of activities are not viewed at the same time they can be considered as separate actions.

The associated impacts of this project with relation to the Redtree Timber Sale are visually evident in the vicinity of the sharp curve near North Shore and along the new road up on the moraine bench. A small degree of rehabilitation (slash removal/scatter, individual tree 'whips' removal, timber removal) has occurred in the area impacted adjacent to the sharp curve at North Shore as recently as last year and natural vegetative regeneration of the site has begun to take hold. The area along the new road alignment associated with the Redtree sale has been identified in this project as an area requiring rehabilitation and will be addressed visually through this project if Alternative 2 is implemented in whole or in part.

The proposed Stanley to Redfish trail will traverse through this project area and was considered in the new road alignment for this project in terms of providing as much separation as would be reasonably possible between the trail and the road for recreation experience and visuals. Because this was considered in the layout phase of the project, Visual impacts will be mitigated by design by any of the Action Alternatives.

The blow down within this project area primarily affected Glacier View campground and the North Shore day use area. The result was the (in some areas complete) loss of vegetative screening in and around these sites. Last year, crews began the rehabilitation of these small areas by placing logs on the ground, removing slash, and cutting stumps lower. The North Shore area displays more regeneration because it is lower/wetter.

Cultural Resources

The Redfish Lake Complex contains cultural resources. These resources include known and unknown historic, architectural, and archaeological sites, as well as traditional lifeway values and places of traditional cultural use. For the project area, field survey and an Historic American Engineering Record (HAER) evaluation determined that no known historic properties will be adversely affected by any of the alternatives. If cultural resources are located during the Section 106 field review, avoidance and or mitigation of potential impacts would be developed in consultation with appropriate Tribes and the Idaho State Historic Preservation Office.

Utilities

Affected Environment

Salmon River Electric Cooperative, Inc. (SREC) is authorized by US Forest Service permit to provide electrical service to Redfish Lake Lodge and other Forest Service developments within the Redfish Lake Complex. The power line consists of underground cable and associated above ground transformers that run alongside the Redfish Lake Road south from SH 75 to Redfish Lake Lodge and Point Campground. An underground spur runs from near the RV Dump Station

to Glacier View Campground. An overhead spur crossing Fishhook Creek from Redfish Lake Lodge connects the Redfish Lake Visitor Center.

MTE Communications (Midvale) is authorized by US Forest Service permit to provide telephone service to Redfish Lake Lodge and other Forest Service developments within the Redfish Lake Complex. The telephone line consists of underground cable and associated above ground remote pedestals that run alongside the Redfish Lake Road south from SH 75. The telephone line is currently a 25-pair cable with very little opportunity for an expansion of the system. The telephone line has been damaged in some places and Midvale Telephone would like to expand the system in the future. Expansion could include upgrading the line to fiber optic.

The utilities (sewer, electric, and telephone) are buried beneath the Redfish Lake Road corridor from State Highway 75 to the intersection with the #213 road. At Bridge #1, the utilities are attached to the side of the bridge to cross Redfish Lake Creek. Currently the telephone line runs in a galvanized conduit that is suspended from the bridge on the upstream side. The sewer and power lines are suspended from the bridge on the downstream side. The sewer line is of particular concern as it hangs close to the water elevation especially during high flows in the spring. The sewer line has frozen in the past due to insufficient insulation at the bridge crossing.

At the intersection of the Redfish Lake Road (#214) and Redfish Point Campground Road (#213), the utilities follow Redfish Point Campground Road to Redfish Lake Lodge and Point Campground. The current sewer system is a gravity based system relying on the line to continually drop in elevation along its length.

There are two galvanized water lines suspended from Bridge #2 leading from the North Shore Area to the East Side Area for Outlet Campground, Mt Heyburn Campground, and Sockeye Campground. No underground power conduit was noted however there was signage nearby suggesting buried power.

Environmental Consequences

Alternative 1 (No Action). Under this alternative, the utilities would continue to exist in their current condition. Without upgrades, the sewer line will continue to deteriorate especially at the bridge crossing and would continue to pose a potential hazard during high flows in the spring and run the risk of freezing in the winter. The power and telephone line would continue to deteriorate.

Alternative 2 (Proposed Action). Under Alternative 2, the utilities would be installed in the new road corridor. The sewer line would have improved insulation at the bridge crossing, the phone and power line would have the opportunity to be improved and expanded. There would need to be a new lift station in the vicinity of the bridge to allow the sewer line to function properly as a gravity flow system.

The sewer line would need to be relocated along the new road and bridge crossing to allow access for maintenance. Relocating the sewer line would provide the opportunity to better insulate the sewer line at the bridge location and bury it deeper under the road to reduce the possibility of freezing during the winter. The current configuration of the sewer line would no

longer be a possibility as the roadway fill would be removed leaving the sewer line without any cover for insulation and access to the line for maintance would no longer exist. The crossing currently is attached to Bridge #1, after the bridge is removed the sewer line would be free standing across Redfish Lake Creek. The removal of the sewer line as part of the roadway fill removal would be the best option. The sewer line situation/configuration would be improved by moving it out of harm's way (suspended below the bridge), and modernizing the infrastructure. The line and lift stations would have multi-layered protection systems to avoid the release of pollutants.

The telephone line would need to be relocated to the new road so that continued vehicle access to the line, for repairs and maintenance, would remain. After the roadway fill is removed near Bridge #1, the existing telephone line would be exposed with out any cover. With out any cover the telephone line would slowly deterioate until it could no longer be patched.

The power line would need to be relocated so that there is access to the line for maintenance purposes.

Alternative 3. Under this alternative the utilities would remain in their current condition with the exception around the new Bridge #1. All of the utilities in this location would need to rise in elevation near the bridge to allow them to be attached to the new Bridge #1. The utilities would be placed in between the new bridge girders, above the high flow elevation. The adjustments to the sewer line would include insulating the sewer line across the bridge to make prevent freezing in the winter. The sewer line would require a new lift station south of Bridge #1 to allow the elevation adjustment at the bridge.

Costs

Table 3-6 displays the estimated cost for each of the alternatives. Alternative 2 has the highest cost, but the maintenance costs associated with the single roadway bridge under Alternative 2 will be approximately half that of Alternative 3. Under Alternative 2, the cost includes relocating and upgrading the sewer line and telephone lines which would be beneficial to both the Forest Service and Redfish Lake Lodge.

Table 3-5. Estimated Costs for Each Alternative

Element for Construction	Alternative 1	Alternative 2	Alternative 3
Bridge Work	$0	$966,400	$1,590,800
Road Work	$0	$930,500	$313,000
Sewer Work	$0	$359,000	$99,000
Other Utility Work	$0	$88,442	$10,000
Parking Lot Work	$0	$224,000	$224,000
Mobilization	$0	$179,584	$156,576
Other Costs	$0	$513,668	$335,520
Total	**$0**	**$3,261,795**	**$2,728,896**

Chapter Four **CONSULTATION AND COORDINATION**

The Forest Service consulted with the following individuals, Federal, State, and local agencies, and non-Forest Service persons during the development of this Environmental Assessment:

Interdisciplinary Team Members:

Brenda Geesey	Team Leader and Writer/Editor
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Federal, State, and Local Agencies:

US Fish and Wildlife Service
National Marines Fisheries
Idaho Department of Fish & Game
Idaho Department of Lands
Idaho Department of Parks & Recreation
Idaho State Historic Preservation Office
Custer County Commissioners

Others:

Redfish Lake Lodge
Mystic Saddle Ranch

Chapter Five **REFERENCES**

Arp, C. D., J. Schmidt, M. Baker, and A. Myers. 2007. Stream geomorphology in a mountain lake district: hydraulic geometry, sediment sources and sinks, and downstream lake effects. Earth Surface Processes and Landforms 32, 525–543

Aubry, K.B., G. Koehler, and J.R. Squires. 1999. Ecology of Canada lynx in southern boreal forests. Pages 373-396 In Ruggiero, L.F., K.B. Aubry, S.W. Buskirk, G.M. Koehler, C.J. Krebs, K.S. McKelvey, and J.R. Squires (Tech Eds.). Ecology and conservation of lynx in the United States. Gen. Tech. Rep. RMRS-GTR-30WWW. 480 pp.

Copeland, J.P. 1996. Biology of the wolverine in central Idaho. M.S. Thesis, University of Idaho, Moscow. 138 pp.

DJ&A, P.C. 2010. Redfish Lake Road Transportation, Bridge and Utility Engineering Report

FEMA 1998. FIRM Flood Insurance Rate Map, Map Number 16037C0725

IDEQ. 2009 Department of Environmental Quality Working Principles and Policies for the 2008 Integrated (303[d]/305[b]) Report. State of Idaho, Department of Environmental Quality

Quigley, Thomas M. and Sylvia J. Arbelbide, Tech. Eds ., 1997, An Assessment of Ecosystem Components in the Interior Columbia Basin and Portions of the Klamath and Great Basins, Vol. III, Chapter 4, Broadscale Assessment of Aquatic Species and Habitats, General Technical Report PNWGTR- 405, Portland, Oregon, USDA Forest Service, Pacific Northwest Research Station

Powell, R.A., and W.J. Zielinski. 1994. Chaper 3 *in* The scientific basis for conserving forest carnivores: American marten, fisher, lynx, wolverine in the western United States. Ruggiero, L.F., K.B. Aubry, S.W. Buskirk, J.L. Lyon, W.J. Zielinski, tech eds. Gen. Tech. Rep. RM-254. Ft. Collins, CO: USDA Forest Service, Rocky Mountain Research Forest and Range Experiment Station. 184 pp.

Rahm, G. and K. Larson. 1972. Land characteristics and soil and hydrologic evaluation for the Sawtooth, White Cloud, Boulder, and Pioneer Mountains. USDA Forest Service, Intermountain Region

Sauer, J. R., J. E. Hines, and J. Fallon. 2008. The North American Breeding Bird Survey, Results and Analysis 1966 - 2007. Version 5.15.2008. USGS Patuxent Wildlife Research Center, Laurel, MD.

Sawtooth Forest. 2009. Redfish Lake digital imagery (0.5 foot/pixel) and topography electronic data disk, flown and prepared by Mapcon Mapping Inc., Salt Lake City Utah Sawtooth NRA. 2002. Redfish Lake Creek R1/R4 Fish Habitat Inventory. Data on file, Sawtooth National Recreation Area

Sawtooth NRA. 2008. Effects of Recreational Use on Lake Shore Conditions in the Sawtooth National Recreation Area. Report on file, Sawtooth National Recreation Area

Schoby, Gregory P. 2007. Seasonal Migrations of Bull Trout, Westslope Cutthroat Trout, and Rainbow Trout In the Upper Salmon River Basin, Idaho, Report 2003, 2004, 2005. Idaho Department of Fish and Game Report # IDFG 07-12

Spence, Brian C., Gregg A. Lomnicky, Robert M. Hughes, Richard P. Novitzki, 1996, An Ecosystem Approach to Salmonid Conservation, TR-4501-96-6057, ManTech Environmental Research Services Corp., Corvallis, OR (available from the National Marine Fisheries Service, Portland, Oregon)

Technical Oversight Committee. 1998. Stanley Basin Sockeye Technical Oversight Committee Meeting Summary, November 18, 1998

USDA Forest Service, Intermountain Region. 2003. Sawtooth National Forest Land and Resource Management Plan