3300 FLOOD REPAIR PROJECT

Final Environmental Assessment

United States Department of Agriculture
United States Forest Service
Okanogan– Wenatchee National Forest

Cle Elum Ranger District
June 2014

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Introduction

This Environmental Assessment (EA) in its entirety includes an outline of legislative requirements and relevant environmental documents. The environmental analysis completed finds its basis in the Wenatchee National Forest Land and Resource Management Plan (USDA Forest Service, Wenatchee National Forest, 1990) as amended. The decisions to be made, based on the proposed action analysis and possible alternatives, are also reviewed. The EA will include a summary of scoping and public involvement for this project. It will also describe anticipated effects associated with the proposed action. Chapter I describes the project area, existing condition, and the Purpose and Need for the 3300 Flood Repair Project.

In June 2011, the Okanogan Wenatchee National Forest applied for and was later granted Federal Lands Highway funding. Emergency Relief for Federally Owned Roads, known as ERFO, has made it possible for the Cle Elum Ranger District to plan and implement multiple flood repair projects. The intent of the ERFO program is to pay the unusually heavy expenses in the repair and reconstruction of Federal roads as a result of damaged sustained by a natural disaster over a wide area or by a catastrophic failure (Federal Highway Administration, 2013).

Proposed Action

The Cle Elum District is proposing to repair Forest System Road (FSR) 3300 at mile post 3.9 and 4.4. The repair would return the road to its pre-flood condition with a two lane capacity. The original scoping letter can be found in its entirety in Appendix A.

Background

The May 2011 flood event resulted from approximately three to four inches of rainfall occurring within a 24 hour period. The peak stream flow levels were estimated to be at a greater than 100 year return interval. During the flood, portions of the gabion baskets and road bank failed along Forest System Road (FSR) 3300. This road is also known as Taneum Road. The bank and portions of the road collapsed into the stream at mile post 3.9 and 4.4 resulting in the road width being narrowed from a double lane to a single lane.

This road accesses a large portion of the Cle Elum Ranger District (Figure I-1) and is travelled all year long; including use as a groomed snowmobile route in the winter.

Figure I-1: 3300 Flood Repair Project Location

Project Area

Mile post 3.9 and 4.4 on FSR 3300 are located along the Taneum Creek. This is a Maintenance Level Four road and is currently opened with a narrowed travel way at each damage site. A Maintenance Level Four road is designed for moderate traffic volumes and speeds. It is typically a double lane road with some level of dust control. The travel way for this type of road is intended to provide for a moderate degree of use comfort and convenience and for the protection of investment and resource values.

Mile post 3.9 site is directly across from the Taneum Campground on the Cle Elum Ranger District in Township 19N, Range 16E, Section 28 within Kittitas County. The damaged area spans approximately 250ft along the road (Figure I-2 and I-3 on next page).

The project area includes the damaged area, the road along the damaged area, the Taneum Campground, and the corridor between the campground and the road including the stream.

Figure I-2 and I-3: Flood damage at FSR3300 mile post 3.9 taken May 16, 2011

Mile post 4.4 is located on Washington State Department of Natural Resources land adjacent to the Cle Elum Ranger District in Township 19N, Range 16E, Section 29 within Kittitas County. The damaged area spans approximately 100 ft (Figure I-4 and I-5). The project area includes the damaged area, the road along the damaged area, and a 100ft corridor along the road segment extending into the creek.

Figure I-4 and I-5: Flood damage at FSR 3300 mile post 4.4 taken May 16, 2011

Land Management Areas

According to the *Northwest Forest Plan* (USDA 1994) land allocations, the project area at mile post 3.9 is designated Riparian Reserve (See Figure I-6). The Northwest Forest Plan was developed for Forest Service and Bureau of Land Management Planning Documents Within the Range of the Northern Spotted Owl. Riparian Reserves are portions of the watersheds where riparian-dependent resources receive primary emphasis and where specific standards and guidelines apply. The Standards and Guidelines prohibit and regulate activities in the Riparian Reserve that retard or prevent attainment of the Aquatic Conservation Strategy objectives. This project will be consistent with outlined objectives. Mile post 3.9 also is designated Matrix land. Matrix consists of federal lands outside the other six categories of designated areas in the Northwest Forest Plan. A mix of use can be found on Matrix lands.

Consistent with the *Wenatchee Land and Resource Management Plan* (USDA 1990), the Cle Elum Ranger District also manages a portion of the project area as Developed Recreation RE-1 (See Figure I-6 on the next page). Developed Recreation areas are locations on the forest with an existing or potential recreation site, in this case, the Taneum Campground at mile post 3.9. In these areas the forest objective is to manage sites to provide high quality facilities and recreation opportunities.

When Land Management Areas overlap, management activities tier to the most constrictive direction, which in this case is the Riparian Reserve.

Although mile post 4.4 is located on Washington State Department of Natural Resources land (See Figure I-6 on the next page), it is necessary for the U.S. Forest Service to complete the NEPA process because there will be construction on a Forest System Road (USFS has easement) and federal funding will be spent. Land allocations from the USFS direction and guidance are not directly applicable, however, relevant standards from the Wenatchee National Forest Land and Resource Management Plan (USDA 1990) as amended by the Northwest Forest Plan (USDA 1994) will be applied. The IDT determined that the most relevant land management classification is Riparian Reserves as the project location is in close proximity to the stream and riparian areas. Both sites will meet the standards in guidelines for Riparian Reserves and will be consistent with the Aquatic Conservation Strategy objectives.

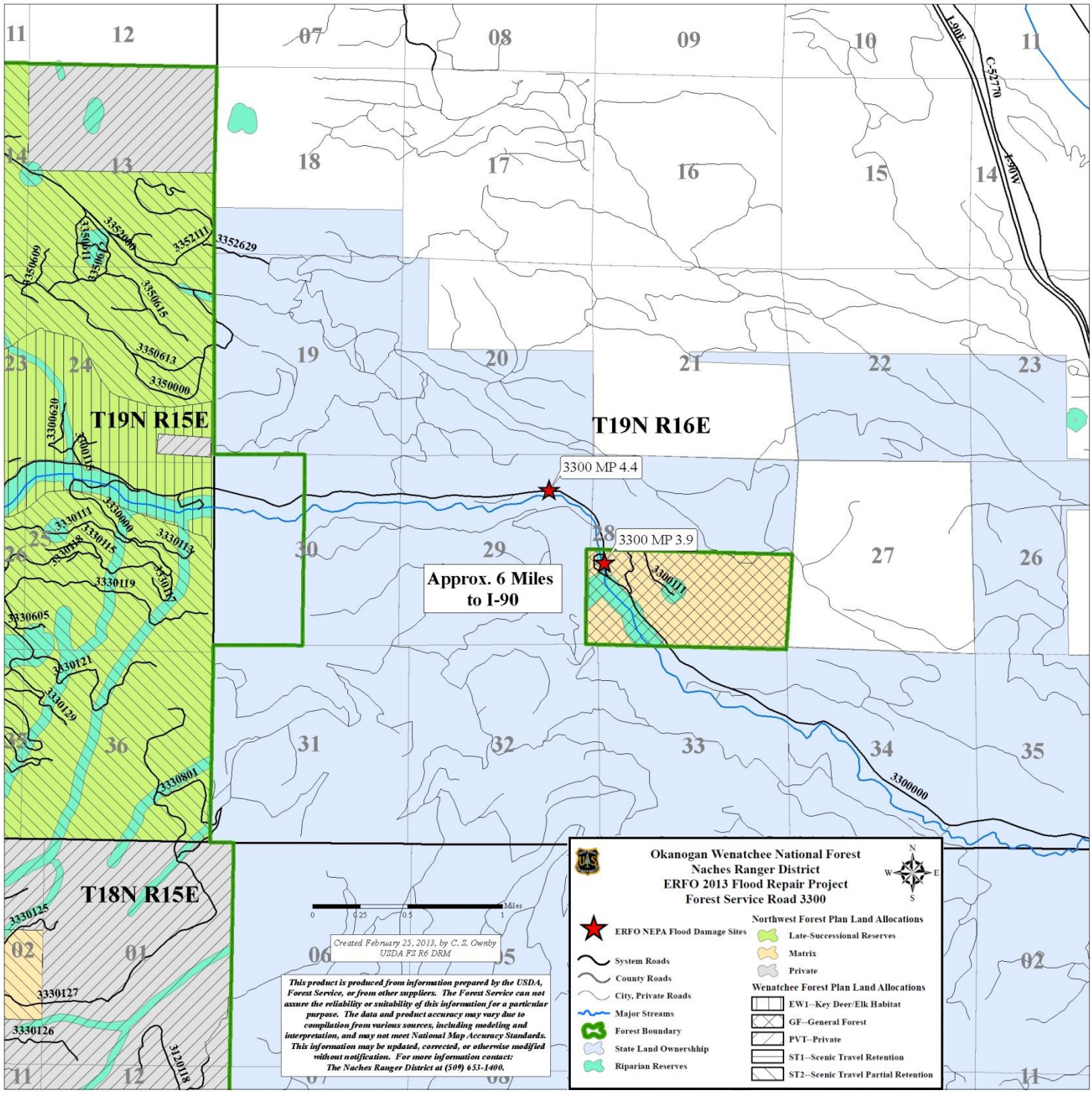


Figure I-6: Management Areas and Land Allocations for FSR 3300 project areas

Additional Management Direction

The following acts, laws, analyses and decisions are some of the important documents that provide the Cle Elum Ranger District resource specialists with guidance and direction in addition to the standards and guidelines found in the Wenatchee Land and Resources Management Plan and the Northwest Forest Plan:

The National Environmental Policy Act of 1969 (NEPA) as amended establishes the basic process for conducting and documenting environmental analyses, including public participation. The Council on Environmental Quality (CEQ), 40 Code of Federal Regulation (CFR), Forest Service Handbook and Forest Service Manual are the implementing tools of NEPA that the Forest Service must follow. This Environmental Assessment meets the NEPA standards.

The Endangered Species Act of 1973 as amended (16 USC 1531) requires a Biological Assessment (BA) for review of activities for possible effects on endangered, threatened, and proposed species. A formal consultation process will be completed to adhere to the Act.

The Magnuson-Stevens Fishery Conservation and Management Act of 1996 (MSA§303 (a)(7)) as amended directs that each Federal agency shall consult with the Secretary with respect to any action authorized, funded, or undertake, or proposed […] that may adversely affect any essential fish habitat identified under this Act. Specifically the agencies must consult with National Marine Fisheries Service (NMFS).

The Clean Water Act, as emended (33 USC 1251) requires Federal agencies to comply with all substantive and procedural State water quality requirements.

Executive Order 12962, Recreational Fisheries (1995) states that federal agencies shall, to the extent permitted by law and where practicable, and in cooperation with States and Tribes, improve the quantity, function, sustainable productivity, and distribution of U.S. aquatic resources for increased recreational fishing opportunities.

Executive Order 11988, Floodplains requires government agencies to take actions that reduce the risk of loss due to floods, to minimize the impact of floods on human health and welfare, and to restore and preserve the natural and beneficial values served by floodplains.

Executive Order 11990, Wetlands requires government agencies to take actions that minimize destruction, loss or degradation of wetlands. Streamside Riparian Reserves, seeps and other wet habitats are to be assessed.

Okanogan and Wenatchee National Forests Roads Analysis: Upper Yakima Sub-Basin, (Cle Elum Ranger District 2004) provides information to develop road systems that are safe and responsive to public needs and desires, are affordable, and efficiently managed, have minimal negative ecological effects on the land, and are in balance with available funding for needed management actions.

Taneum and Manastash Watershed Analysis (Cle Elum Ranger District 1995) provides guidance for meeting long-term ecosystem management objectives including the goal of the Aquatic Conservation Strategy to restore and maintain the ecological health and aquatic ecosystems within the watershed.

Existing Condition

The Existing Condition helps tell the story of the proposed action. The District looks at the difference between the existing condition and the desired future condition and develops the purpose and need for the project.

The existing state of FSR 3300 is a concern for the aquatic habitat, the road structure, and for vehicle travel. In its current condition, the exposed and damaged gabion baskets and road continue to erode into the channel. The road continues to be reclaimed by the Creek causing chip seal asphalt and road fill material to be delivered into Taneum Creek. The exposed damaged areas are also more susceptible to sustain damage in future flood seasons. The existing concrete barricades limit safe travel through the damaged sites for both Forest Service personnel and the public. At each site, the road is narrowed from two-lanes to one-lane.

Hydrology, Fisheries, Fire and Public Safety, and Recreation are the resources that are most affected by the existing condition of FSR 3300 and are described here in more detail. For information on the current conditions of all of the resources, please see the project file.

Hydrology

The Taneum Creek drainage is approximately 36,100 acres in area above Taneum Campground and is a tributary to the Yakima River. Elevation ranges from 2410 feet at the campground up to 6270 feet at the headwaters near Mt. Clifty. The average annual precipitation is 53 inches for the watershed.

The hydrology of the Taneum Creek watershed is dominated by snow accumulation in winter, spring snowmelt with the rise in stream flow and late summer low flow periods. Peak streamflow from snowmelt normally occurs during late-April thru mid-June. Some floodwater is stored in the flood plains along the creeks and adjacent riparian areas. The stored water contributes to later stream flow as well as base streamflow in the late summer, fall and winter. Streamflow drops rapidly, with summer low level in late-July or early August. Flow continues to slowly drop through September, as smaller tributaries and streams go dry. Maximum peak streamflows have resulted from rain-on-snow floods typically in the December to February period when warm winter-time storms with air temperatures over freezing promotes more rapid snowmelt along with the precipitation that immediately runs off. Summer convective storms may rarely occur in small localized areas and cause flooding or debris mobilization in more isolated areas.

Past storm events with flood levels on the order of 10 to 25 year return periods have typically resulted in minor road fill damage at various points along the 3300 Road. The previous major region wide storm event during the winter of 1995-96 was recognized as a greater than 100 year return interval and resulted in road damage at some of the current sites plus several other locations that were not damaged during the most recent flood events.

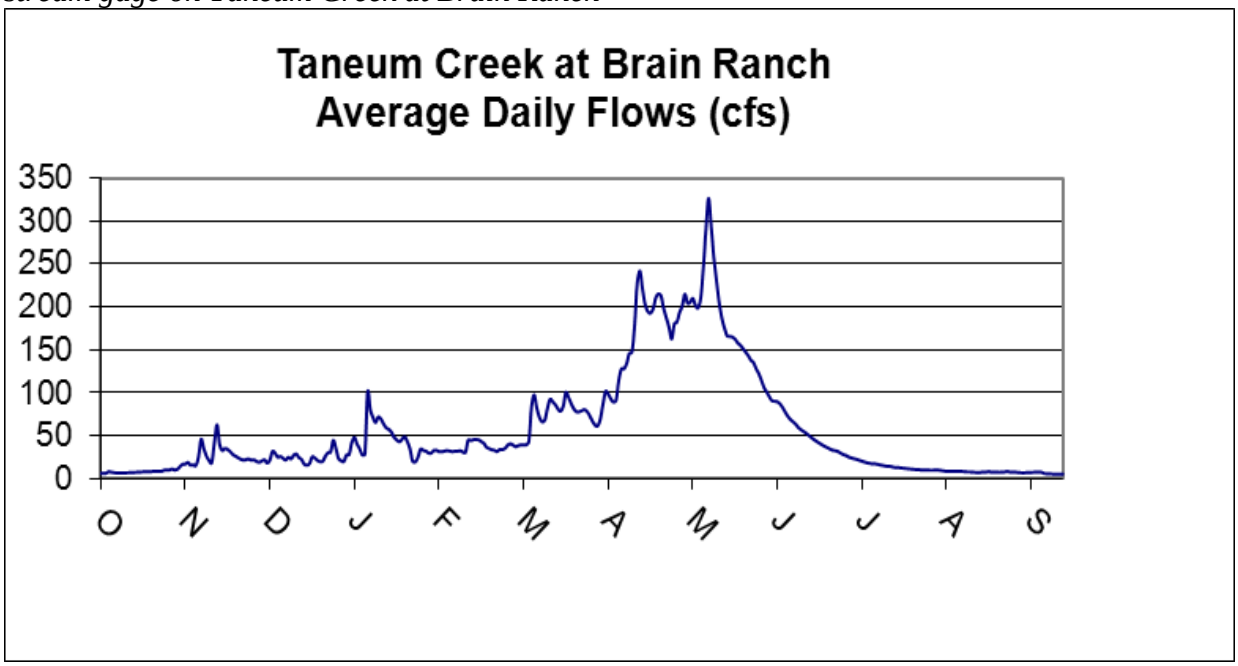
Streamflows for bankfull discharge (approximately two year return period) and 100 year peak flood levels are summarized in Table I-2 below.

Table I-1: Streamflow Summary

Location	Drainage Area (square miles)	Bankfull Flow (cfs)	100 Year Flood (cfs)
Taneum Creek below campground	56.4	393	1580

Average monthly streamflows as measured by the Washington Department of Ecology (WDOE) at a gage below the Taneum Campground are summarized below in Figure I-7.

Figure I-7: Average of daily flows for the period of record 2005 to 2011 at WDOE stream gage on Taneum Creek at Brain Ranch



Water Quality

All waters on Okanogan-Wenatchee National Forest lands are classified by the Washington State Department of Ecology in WAC 173-201A-200 fresh water designated uses and criteria. The general classification of WAC 173-201A-200 classifies all surface waters on National Forest system lands according to aquatic life uses and Taneum Creek within the project area is classified as core summer salmonid habitat. Water quality standards are listed in WAC 173-201A-200 (and summarized below in Table I-3). Water

quality standards are established for temperature and turbidity along with a number of other constituents. Some of these standards allow increases over background levels. Water quality parameters (which have a Washington State Water quality criteria) most likely impacted by the proposed activities are stream temperature and turbidity (stream sedimentation).

All streams on National Forest lands have additional designated uses of: Core summer salmonid habitat, and extraordinary primary contact recreation, unless otherwise designated in table 602, of WAC 173-201A-602, "Use designations for fresh waters by water resource inventory area (WRIA) (State of Washington, 2006).

Table I-2: Water Quality criteria for waters on National Forest, and in the analysis area.

Category	**Default Criteria for waters on National Forest**	**Criteria for waters designated as Char Spawning/Rearing**
Temperature	16 C (60.8 F) (7-day average of maximum daily temperature)	12 C (53.6 F)
Dissolved oxygen (DO)	9.5 mg/L	12 C (53.6 F)
Turbidity	Turbidity shall not exceed: 5 NTU over background when the background is 50 NTU or less; or 10 percent increase in turbidity when the background turbidity is more than 50 NTU.	12 C (53.6 F)
Total Dissolved Gas	Total dissolved gas shall not exceed 110 percent of saturation at any point of sample collection.	12 C (53.6 F)
pH	pH shall be within the range of 6.5 to 8.5, with a human-caused variation within the above range of less than 0.2 units.	12 C (53.6 F)
Fecal Coliform Critera are based on the Water Contact Recreation Criteria – which is "Extraordinary primary contact recreation" on National Forest Lands, and applicable for all waters in analysis area.		
Fecal Coliform	Fecal coliform organism levels must not exceed a geometric mean value of 50 colonies/100 mL, with not more than 10 percent of all samples (or any single sample when less than ten sample points exist) obtained for calculating the geometric mean value exceeding 100 colonies/100 mL	

The water quality criteria most likely to be affected by road repair activities are turbidity (via increased sediment in streams) and temperature (via riparian vegetation removal and compaction of shallow groundwater aquifers). Turbidity is a measure of optical clarity of water, and is measured in NTUs. Nephelometric Turbidity Units readings increase as a function of particle size distribution and concentration, so sediment delivery to streams will increase NTU measures. State water quality criteria for waters on National Forest

call for less than a 5 NTU increase (or 10% above background for streams greater than 50 NTU background). Generally, most streams in the area will have a lower than 50 NTU background.

303(d) Listings of Impaired Water Bodies

Water quality in Washington State is classified into five categories, in order to comply with the Clean Water Act, category 5 waters are considered "impaired", and are placed on the state 303(d) list. Within the analysis area, Taneum Creek is listed on the current 303(d) list as impaired for stream temperature. The segment which is listed includes the MP 3.9 project site but the MP 4.4 site is above the listed segment. Only approximately 0.6 miles of the total 1.25 mile listed segment is on National Forest Lands with the remaining on private lands. Water temperature is an important water quality parameter for this project. Water temperatures in the lower reaches of Taneum Creek typically do not meet the state standard for several days in the mid-July to mid-August period.

Under the Total Maximum Daily Load (TMDL) process for impaired streams, Washington State Department of Ecology prepared at technical report for listed streams on the Wenatchee National Forest (WDOE 2003). Minimum shade requirements to meet the Clean Water Act compliance for water temperatures were calculated based on geomorphic land type, site potential tree height, and stream channel size. The TMDL allocation for lower reaches of Taneum Creek is 55 percent effective shade; which is currently being met by existing riparian vegetation and topographic shading. Reduced riparian vegetation due to the proximity of FSR 3300 along the listed reach of Taneum Creek is entirely on the north or northeast side of the stream channel and does not measurably influence solar radiation input to the surface waters.

To meet the intent of the Clean Water Act, activities planned in tributaries and mainstem of the Yakima River Basin cannot further impair the water temperature in streams and should help restore water quality where possible. Activities in the Riparian Reserves and headlands should leave the structural shade that maintains the water temperature at current levels intact and improve vegetation and habitat features that will reduce stream temperatures in the long term. The effects analysis for Hydrology resources can be found on page III-1.

Soils

Soils within the planning area are primarily valley bottom alluvium and are mapped as the Patnish-Mippon-Myzel complex soil series on 0 to 3 percent slopes. This is a very coarse loam textured soil with rapid infiltration and permeability.

Fisheries

The following Threatened, Endangered and Sensitive species occur or are suspected to occur in the upper Yakima drainage. Proposed species area those species that the U.S. Fish and Wildlife Service (USFWS) or National Oceanic and Atmospheric Agency (NOAA) Fisheries have determined warrant listing as threatened or endangered. Forest Service Sensitive Species are those recognized by the Regional Forester as a species for which population viability is a concern. South and North Fork Taneum Creeks below the waterfall barriers provide Essential Fish Habitat for coho and Chinook salmon. Other fish in the project area include, but are not limited to brook trout, sculpin, and cutthroat trout.

Steelhead – rainbow/redband trout (Onchorhynchus mykiss) **–** The Middle Columbia Evolutionary Significant Unit (ESU) steelhead occupies the Columbia River Basin from above the Wind River in Washington and the Hood River in Oregon upstream to include the Yakima River, Washington (See Figure I-7). Steelhead of the Snake River Basin are not included. Major watersheds included along with the Yakima are the Deschutes, John Day, Umatilla, Walla Walla, and Klickitat. The population was listed as Threatened by NOAA-Fisheries in March 1999.

Steelhead trout exhibit an anadromous life cycle. They generally migrate to the ocean after spending one to four years in freshwater streams and rivers. The fish then spend one to three years maturing in the ocean before returning to spawn in natal streams. Unlike other Pacific salmon, steelhead are capable of spawning more than once before they die. However, the majority of fish only survive to spawn once.

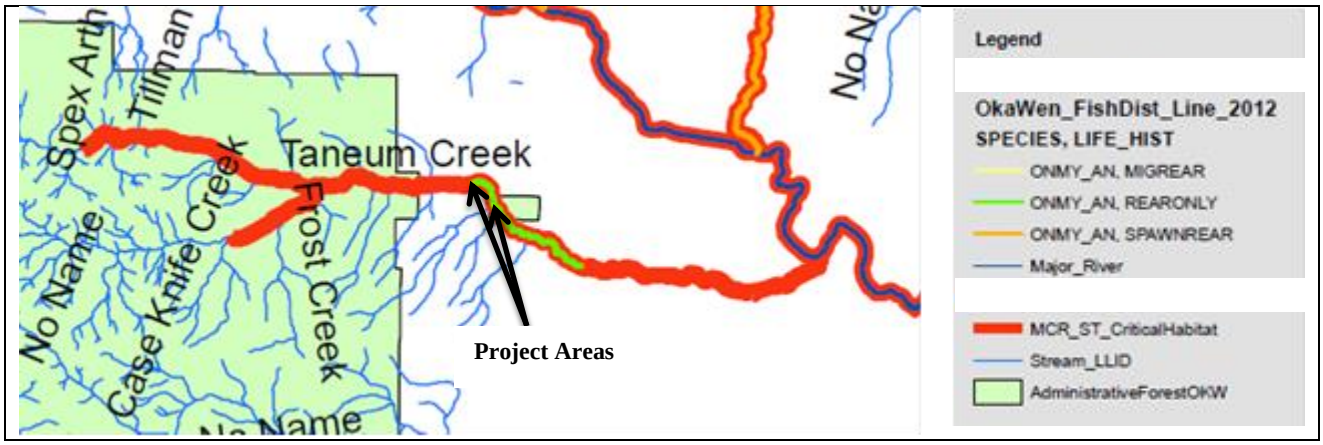


Figure I-8: MCR Steelhead distribution, usage, and Critical Habitat

Bull Trout (Salvelinus confluentus) – Bull trout populations (See Figure I-8) in the upper Yakima as a whole and in the Taneum watershed are functioning at unacceptable risk. Bull trout numbers in the Upper Yakima watershed appear to be very low.

Currently little is known about bull trout populations that may inhabit the Taneum watershed. As with steelhead access from the Yakima River has been restored as of 1994. This would allow bull trout to establish a population in the lower portion of North

and South Fork Taneum Creeks below the natural barriers downstream of the project area.

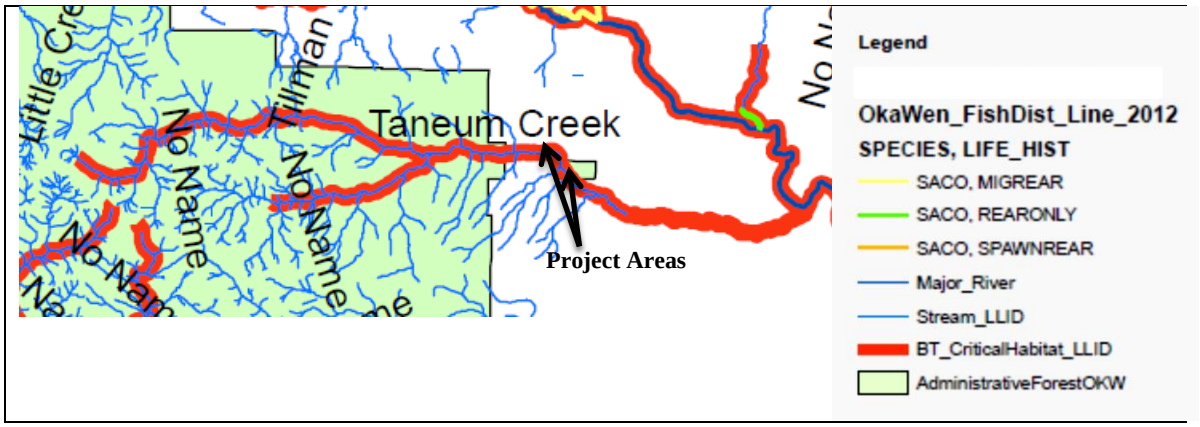


Figure I-9. Bull trout Critical Habitat and distribution and usage in Taneum Creek.

Water Quality for Fish

Stream temperatures in Taneum creek currently do not meet the criteria established by the state for water temperature. State water quality criteria for waters on National Forest lands call for less than a 5 Nephelometric Turbidity Units (NTUs) increase in turbidity (or 10% above background for streams greater than 50 NTU background). Generally, most streams in the area will have a lower than 50 NTU background. Sediment loads are within the natural range of variability for the subwatershed. During low storm activity in the wet months the turbidity levels are generally below 50 NTU's and during summer season typically less than 10 NTU. Turbidity levels seasonally exceed 500 NTU's during big storm events at the peak of the hydrograph. This high turbidity level can last from 12 to 24 hours in duration and is very dependent upon the flow regimes and storm type and intensity. Water quality is therefore expected to vary as a result of these sediments through the wet periods of the year. At this time there is no evidence that peak flows have changed to the extent that fish have gained or lost habitat. Some channels have been modified through peak flows occurring during extreme events.

Habitat Access

Physical Barriers: The Taneum drainage is currently functioning appropriately. There are four diversions on mainstem Taneum Creek. The Bruton ditch is located at river mile 1.6, the Taneum ditch diversion is at river mile 2.4 and two more diversions are located at river mile. 3.5. The Taneum ditch diversion had been a fish passage barrier since its construction in 1910. A fish ladder was installed in 1989 but was nonfunctional until 1994 when water flows were secured to provide adequate fish passage. Currently, the remaining diversions do not pose barriers to fish, providing fish passage through the two project sites. Natural waterfall fish barriers are found upstream of the project area on both the North and South Fork Taneum.

Habitat Overview

Substrate: The Taneum watershed is functioning at unacceptable risk. Surveys conducted for the Quartz Mountain watershed analysis found embeddedness levels ranging from 25-50% in six of nine sampled reaches and from 50-75% in two reaches (PCTC 1994).

Large Woody Debris: North Fork Taneum Creek is functioning at unacceptable risk and South Fork Taneum Creek is functioning at risk. The riparian reserves in these two subwatersheds are heavily roaded, there has been timber harvest adjacent to the creeks in the past, and they are popular areas for recreation. All of these activities are known to result in losses of woody debris or a reduction in recruitment potential of woody debris. A stream survey of South Fork Taneum Creek from its confluence to South Fork Meadows found down woody debris ranging from 38 pieces per mile to 123 pieces per mile (Cle Elum R.D. 1996). A stream survey conducted in 1993 in support of the Quartz Mountain watershed analysis (PCTC 1994) found that the majority of stream segments inventoried on the South Fork and North Fork Taneum were either poor or fair in terms of pieces of wood per channel width. Calls are based on pieces of woody debris per channel width. A good call is greater that two pieces per channel width, fair is one to two pieces and poor is less than one piece (Washington Forest Practices Board 1993).

There is current restoration work underway to increase the woody debris levels in Taneum Creek. The size of wood being placed is likely to be insufficient for long term retention but as transient medium and small sized woody debris will have positive effects on habitat. This work has improved the conditions in Taneum Creek.

Pool Frequency & Quality: Pool frequency and quality is functioning at risk in the Taneum watershed. The Quartz Mountain watershed analysis (1994) found eight of 16 segments surveyed in good condition. Of the remaining eight segments, seven were in the fair category and one was in the poor category. The parameters used to quantify conditions are percent pool and pool frequency. Calls are based on channel gradient and width. For Percent Pool, good ranges from > 30% to > 55% pool habitat, fair ranges from 20% to 55%, and poor from < 20% to < 40%. For Pool Frequency good condition is < 2 channel widths per pool, fair condition is 2 to 4 channel widths per pool and poor is > 4 channel widths per pool (Washington Forest Practices Board 1993). Also there was evidence that pool volume is being lost through filling with fine sediment (PCTC 1994).

Large Pools: Average pool depths in the North and South Fork Taneum subwatersheds range from 1.0 feet to 3.0 feet (PCTC 1994). Many of the tributary streams in the watershed are higher gradient with incised channels and would not be expected to have deep pools. However mainstem streams such as Taneum Creek are much larger in size and would be expected to have deep pool formation. The 1936 Bureau of Fisheries data identifies several times many more pools in the watershed than is currently found. The overwhelming majority of these pools area also identified as “resting pools.” Based on this information large pools are considered to be functioning at risk.

General Stream Channel Condition: This area is recovering from past natural and management induced changes that have resulted in lower quality fish habitat. In addition

to having reduced quality there is also reduced quantity of habitat. The historic morphological characteristics of the stream valley in the Taneum Creek are similar to the existing conditions and currently within the natural range of variation. The basic stream patterns, channel gradients, and physical channel complexities are largely influenced by the underlying geology. It is likely that the channels have not changed a great deal since the reference time frames, 100 years ago.

Off-Channel Habitat: Off-channel habitat is functioning at risk in the Taneum. Past management activities such as road construction, timber harvest and recreation had led to the loss of a portion of the naturally sparse quantity of off-channel habitat available.

Refugia: Refugia was assessed for the upper Yakima 4th order watershed. Throughout most of the watershed, habitat refugia is limited due to the presence of major roads within or adjacent to floodplains and the number of at risk or function at unacceptable risk elements.

Summary of Existing Condition for Fisheries

Roads, mining, logging and recreation have impacted riparian areas, reducing floodplain connectivity, increasing the drainage network, accelerating erosion and runoff processes. A high level of compaction may also be contributing to increased erosion and runoff. Channelization and confinement, loss of wood and beaver reduces the ability of the stream system to store floodwaters so flood waters are rapidly transported downstream. Stream bankcutting may be a symptom of increased stream power due to the loss of channel complexity, length and confinement. Much of the habitat degradation in the Taneum Creek Subwatershed is due to past and ongoing activities.

Steelhead numbers are very depressed in the Upper Yakima watershed. Many of the problems with steelhead numbers are out of basin, including historical access problems at Roza Dam and poor habitat conditions for juveniles and smolts in the lower Yakima, poor migration conditions in the Columbia River and poor ocean productivity. Taneum Creek historically supported several anadromous fish runs including steelhead (Bureau of Fisheries 1936). Anadromous access was blocked with the construction of the Taneum Ditch in 1910. Access was finally restored with the construction of a fish ladder and maintenance of sufficient flows in 1994.

Bull trout populations are also very depressed in the Upper Yakima. The only known spawning and rearing concentrations are isolated above dams. An extensive survey in 1993 observed no bull trout. A Yakima Nation survey crew collected a single fish identified as a “dolly varden” currently referred to as bull trout in eastern Washington in 1989 (Teske 1994). Access was restored with the construction of a fish ladder and maintenance of sufficient flows in 1994. It is not known the extent to which bull trout historically inhabited the Taneum watershed.

Designated Critical Habitat

Steelhead in the Yakima River basin are part of the Mid-Columbia Distinct Population Segment (DPS), which were listed as Threatened by the National Marine Fisheries

Service in 1999, and are federally protected under the Endangered Species Act (ESA). Critical Habitat was designated in 2005. MCR steelhead Designated Critical Habitat in the Taneum watershed includes the mainstem of Taneum Creek in the project area.

Columbia River bull trout were listed as Threatened by the U.S. Fish and Wildlife Service (FWS) in 1998. Critical Habitat was designated in 2004, and a final revised critical habitat was issued in October, 2010. Bull trout Designated Critical Habitat within the Taneum Creek-Yakima River watershed includes the Taneum Creek in the project area.

Fire and Public Safety

The Taneum drainage is a high use area throughout the year. Currently, the road, which provides access for fire apparatus and/or the general public, is not an issue as it is still in a condition of operability. Where the road narrows to a single vehicle width, some extra caution is needed to ensure safe passage. This is especially the case for larger fire engines/equipment, and recreational vehicles; however it does not limit access.

Recreation

Taneum Campground is located on the south side of Taneum Creek on Forest Road 3300, 18 miles south of Cle Elum. The campground is adjacent to the road damage at mile post 3.9. There are 13 campsites each with table, fire ring and parking spur. Roads and spurs are gravel. There are 2 single unit vault cement toilet buildings. Potable water is supplied by 3 water hydrants from a well, generator, pump and storage tank. The road spur to the campground requires crossing a paved vehicle ford over the Taneum creek. In addition, there is a foot bridge to the south end of the campground adjacent to the road damage.

This campground is one of the first to melt out in the spring providing an early season camping opportunity. The area provides a quiet (light/moderate use) camping experience. Taneum campground serves a general family campground experience for those with tents and small RVs/trailers. The campground has about 1,000 overnight campers each season. The campground operating season is from late May to early/mid-September.

In addition to camping, Taneum also has two large day use picnic areas. One includes a Civilian Conservation Corp (CCC) picnic shelter, tables, horse shoe pits and fire rings that are free for use by the public. Family reunions, church picnics, and other activities occur here on the weekends. The CCC picnic shelter is one of only three on the Cle Elum Ranger District and the only one south of I-90 with no other picnic facility available in the area. Directly across the stream from the road damage is another large day use picnic area with tables and fire rings for public use.

Taneum cabin, a recreation rental, is located about 1/4 mile East of Taneum Campground, on the North side of Taneum Creek, on Forest Road 3300, 18 miles south of Cle Elum. There is a single stall garage adjacent to the cabin. A site adjacent to the garage has been used as a host site. The host services the cabin as well as Taneum and Ice Water Campgrounds. The cabin is rented out most weekends and often during the week through the summer season.

Ice Water Campground is located on the north side of Taneum Creek on Forest Road 3300, 20 miles south of Cle Elum. It contains 12 single campsites and 3 double campsites each with table, fire ring and parking spur. Ice Water was developed for use by motorized trail users. This campground is popular with off-highway vehicle (OHV) users and allows users to access trails out of the campground. A footbridge stretches over Taneum Creek where there is a motorcycle practice trail. Access to several motorized multiple use trails are nearby. This campground serves a different recreationist group than Taneum Campground. The campground is operated by the concessionaire from late May to early/mid-September. The campground does not have a gate, so visitors will still use the campsites for both day and overnight use before and after the operating season.

Both Ice Water and Taneum Campgrounds are the only developed campgrounds in the area. Users come from nearby communities such as Ellensburg and Cle Elum. In addition, Ice Water Campground and Taneum Junction Trailhead have users from throughout Washington State.

Taneum Campground, Taneum Cabin, and Ice Water Campground are all currently operated by Thousand Trail Management Services, Inc. through a Granger-Thye Special Use Permit. The permit authorizes this concessionaire to manage and operate these sites for 5 years, expiring in December 2016.

Taneum Junction Trailhead is also accessed by FSR 3300. This is a major motorized trailhead that serves several multiple use trails. The area is popular with motorized recreationists from all over Washington State, including Moses Lake, Tri Cities, and Olympia. It is a fee trailhead that required a Northwest Forest Pass during the summer months. The trailhead has picnic tables, a concrete vault toilet (CXT), trash can, bulletin boards, and fire rings. The trailhead is large enough that some users will camp overnight at the site.

Between Taneum and Ice Water Campgrounds, dispersed camping occurs on LT Murray Wildlife Recreation Area, a State of Washington land. There are no developed camping or sanitation facilities available at these locations.

Desired Future Condition

Project objectives and the desired future condition for the 3300 Flood Repair project areas were derived from a variety of sources including federal and state laws and regulations. The desired future condition is one in which:

- Transportation system is maintained to be adequate for expected increases in all types of recreational use (*Wenatchee National Forest Plan*).
- Road access is provided to developed sites to a service level comparable with their development level (*Wenatchee National Forest Plan*)
- A well balance array of recreation opportunities will be provided across the breadth of the recreation opportunity spectrum in accordance with resource capability, public demands, and expectations for outdoor recreation (*Wenatchee National Forest Plan*).

- Fish habitat within the Forest will be in at least as good condition as the current situation and should be improving. (*Wenatchee National Forest Plan*)
- Maintain safe access to 'preattack' and other fire administration sites along FSRs (*Wenatchee National Forest Plan).*

Purpose and Need for Action

The Inter-disciplinary Team (IDT) compared the existing condition to the desired condition developed consistent with the amended Wenatchee National Forest Land and Resource Management Plan and other relevant guidance. Based on this comparison, the following purpose and need was developed (Table I-4).

Table I-3: Need of the project area and subsequent purpose of the proposed action.

Need	Purpose
Address roads with serious damage caused by a natural disaster or catastrophic failure (Federal Highway Administration, 2013). Damage was sustained by May 2011 100-year flood event.	The project will restore FSR 3300 to a two-lane width for motorized traffic.
Reduce road and stream interactions.	The project will strengthen the road embankment and road protection on FSR 3300. The project will minimize the release of sediment from the exposed damage areas.
Maintain aquatic and wildlife habitat standards in respect to the Forest Plan and national direction.	The project will reconnect a floodplain along mile post 3.9 and meet aquatic and wildlife standards during project implementation. The project will minimize the release of sediment from the exposed damage areas.

Original Proposed Action

The original Proposed Action for the 3300 Flood Repair project included the following:

- At mile post 3.9: replace failed gabion baskets and remove the berm between the stream and the campground, allowing the river to regain that portion of the floodplain. The historic structures of the campground will be protected; however, the picnic area and two campground locations will become part of the river floodplain.
- At mile post 4.4: replace failed gabion baskets with a wall. Road would be repaired to pre-flood conditions.

The original Proposed Action in detail can be found in the July 2012 scoping document located in Appendix A of this document.

Decisions to be Made Based on this Analysis

Based on the information contained in this environmental assessment, the Forest Service District Ranger for the Cle Elum Ranger District will make the following decisions:

- Whether or not to proceed with the 3300 Flood Repair project
- Which alternative will best meet the project's purpose and need
- If the project is to proceed, what design criteria, mitigation measures, and monitoring will best meet maintain riparian habitat, visual quality, recreation use, and various resource needs, objectives, and desired future conditions within the project area

Scoping Summary and Public Involvement

After the 2011 flood event, the sites along FSR 3300 were granted Emergency Relief of Federally Owned Roads (ERFO) funding and the project was assigned to the IDT planning for all of the 2012 and 2013 flood repair projects on the Cle Elum and Naches Ranger Districts.

The 2013 Flood Repair Project Proposals (scoping letter in Appendix A) contained the proposal for FSR 3300. The tribal scoping letter was sent to the Yakama Nation on July 10, 2012 and on July 20, 2012 the public scoping letter was sent to over 1,000 recipients. A complete summary of scoping efforts can be found in Chapter IV.

In December 2012, Washington Fish and Wildlife, Yakama Nation, NOAA Fisheries, and U.S. Fish and Wildlife Service expressed concern over not being able to provide adequate fish habitat along the side of the roadway and suggested to provide a greater flood plain area. At mile post 3.9, they specifically suggest relocating or abandoning the campground. For more information, see Unresolved Conflicts below.

Unresolved Conflicts

The inter-disciplinary team (IDT) discussed comments and information gathered during scoping and determined that concerns raised by Washington Fish and Wildlife, Yakama Nation, NOAA Fisheries, and U.S. Fish and Wildlife Service warranted an additional alternative to be developed in detail. This new alternative will address the concerns of fish habitat and flood plain availability while also still meeting the purpose and need of the project. This alternative will include the complete abandonment of the campground at mile post 3.9. See Alternative B in Chapter II for more details. Chapter III presents the full effects analysis for Alternative B.

CHAPTER II

Alternatives Considered

Introduction

This chapter is intended to describe the alternatives and how they were formulated. This chapter provides readers and the line officer with an executive summary of the entire project, displaying the alternatives and required mitigation and monitoring.

Alternative Formation

Issues identified during scoping are used to analyze the need for alternative development and potentially generate a new alternative. As this project is prepared under the most current Forest Service National Environmental Policy Act (NEPA) regulations, an additional alternative was analyzed to address an unresolved conflict required as per [40 CFR Part 1501.2 (c)]. This alternative will be referred to as Alternative B.

Please note the letter organization of alternatives (Alternative A vs. Alternative B) does not suggest which alternative is preferred. Both alternatives reasonably meet the Purpose and Need and are developed in detail.

No Action Alternative

Under the No Action Scenario, no road shoulder or road reconstruction would occur at either location. This would result in the continued use of road barricades and a narrowed road width. The 3300 road is a two-lane paved road that is currently reduced to one-lane at both sites. For more information on taking no action, see the existing condition section in Chapter I.

P&N 1: Address roads with serious damaged caused by a natural disaster or catastrophic failure.

No action would result in concrete barricades and flagging to remain at both sites. This would potentially limit safe travel through the site. The narrowed roadway at both sites may pose problems to trailers, vegetation management vehicles, fire fighting vehicles, and other large vehicles. As mentioned in the Recreation and Fire and Public Safety Existing Conditions (Chapter I), this is a popular travel route accessing a large portion of the Cle Elum Ranger District.

P&N 2: Reduce road and stream interactions.

No action would leave the damaged road shoulder at both locations exposed and highly susceptible to more damage in the next flood season. The river will continue to degrade the shoulder and cause additional damage to the road. The existing gabion wall would likely have more failures and would lead to high levels of erosion. For more information, see Hydrology Existing Condition in Chapter I.

P&N 3: Maintain aquatic and wildlife habitat standards in respect to the Forest Plan and national direction.

No action would allow continued erosion of the road into the channel contributing asphalt and road fill at the two damage sites. The road would continue to be reclaimed by the creek and erosion of chip seal asphalt road surface and fill material would be delivered into Taneum Creek. The existing gabion wall would likely have more failures and would lead to higher levels of erosion. Furthermore, the full campground would persist in the sub watershed and would continue to affect Taneum Creek. There would be a continued constriction of the flood plain, a reduced opportunity for Taneum creek to access and develop potential wetland and floodplain habitat, continued changes to natural sediment inputs, continued altered flow paths, and continued changes to alter temperature. For more information, reference the Fisheries Specialist Report in the project file.

Alternatives Developed in Detail

- Alternative A (Refined since Draft EA)

Mile post 3.9

Road: Replace missing gabion baskets with welded wire mesh bins to provide support for road structure. Damaged gabions will be removed and new wire mesh bins will be bound to the existing baskets. The bottom mesh bins will be set below the bottom of the channel. Rebuild the road in the pre-flood alignment.

Stream: Remove the levee like structure on the opposite stream bank (river right) from the road. This berm currently cuts off the floodplain between Taneum Creek and the campground. Removing the berm will decrease the amount of stream channel and floodplain constriction and allow peak flows from Taneum Creek to dissipate over the floodplain. This will necessitate decommissioning a portion of the campground (removal of 2-3 campsites and a picnic area) that is located below the footbridge near Taneum Creek (this is indicated by the color yellow on the Figure II-1 below).

In addition, three rock vortex weirs that are designed to transfer velocity away from the FSR 3300 and dissipate stream flow energy will be placed within the Taneum Creek between the existing drivable ford (entrance to the campground) and the downstream footbridge. These rock weirs will also provide additional pool habitat within Taneum Creek that fish can more effectively utilize. During the placement of these structures the stream will be temporarily de-watered. Standard dewatering procedures and Best Management Practices for instream work will be followed and are summarized in Appendix B. Rock vortex weirs will be designed by Forest Service engineers and fit in the field by Forest Service watershed specialists working with the contractor.

Campground: Roads within the campground adjacent to the decommissioned portion will be raised 1’ to 2’ to protect the remaining portion of the campground from high flood flows and create a clear delineation between the vehicle accessible areas and the floodplain. Sections of campground roads within the floodplain will have surfacing removed and returned to natural floodplain surface. The waterline running from the footbridge will be protected by a hardened

foot path preventing erosion of the line. Two to three campsites and one picnic area would be removed. Up to seven trees would be removed during this process. (See Figure II-1 below)

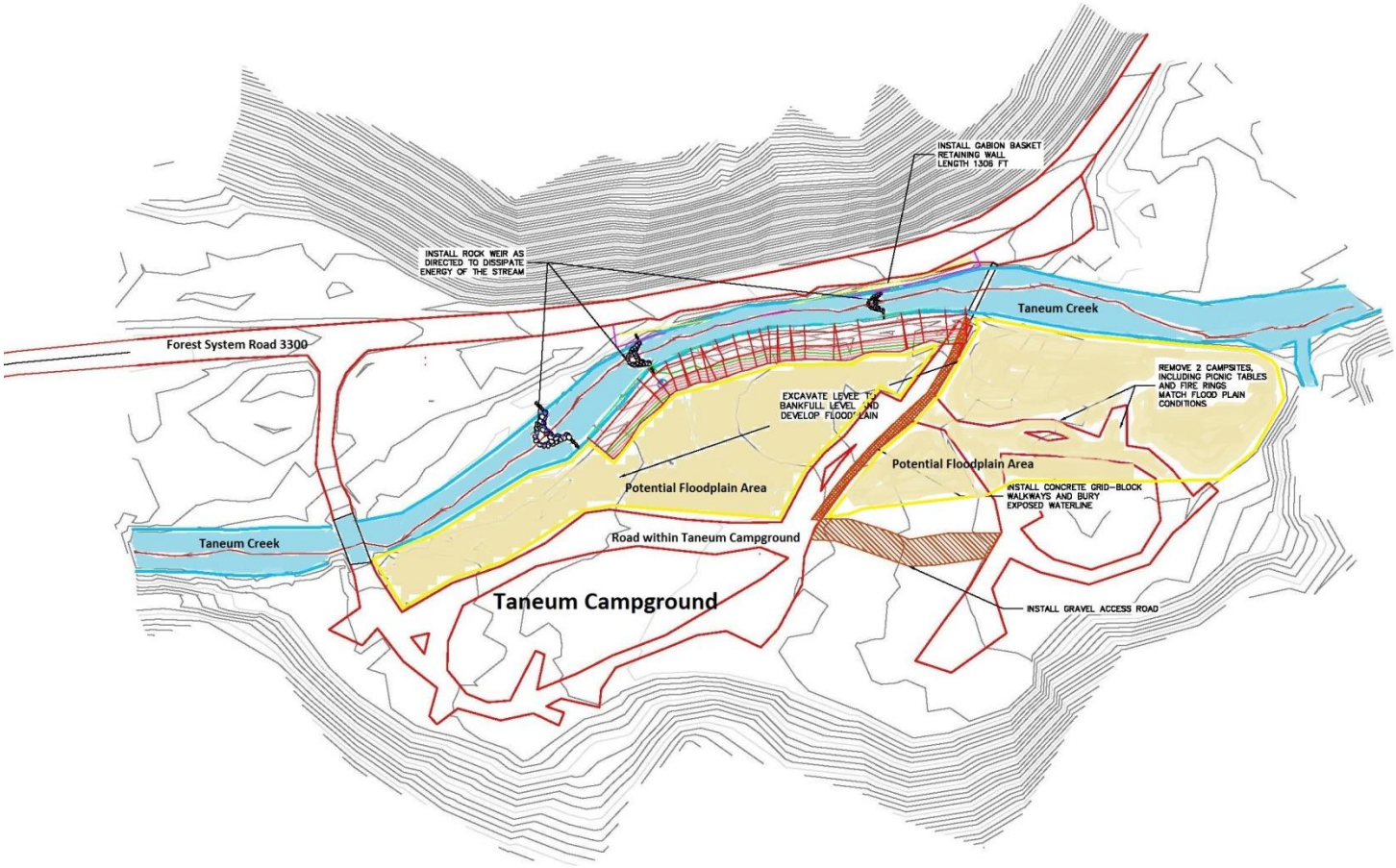


Figure II.1: Conceptual design of road, stream, and campground proposed at mp 3.9 under Alternative A.

Mile post 4.4

Road**:** Install welded wire mesh bins along the stream face adjoining the remaining gabion baskets. Remove damaged gabion baskets and bind new mesh bins to existing gabion baskets. Back fill behind the wall creating a stable fill to rebuild the road on. Construction will require worksite isolation to minimize turbidity, sediment release, and to prevent injury to resident fish. See site survey Figure II-2 below.

Stream: Build a "swale" on the south side of the floodplain that would be sized to a general stream channel dimension that would allow it to undergo adjusting as a range of flows pass through it. This will allow facilitation of moving Taneum Creek away from the FSR 3300 and allowing it to make better use of its floodplain. Multiple trees and shrubs would be removed during this process on the south side of the floodplain.

Install a large woody debris structure at the upstream point where Taneum Creek meanders away from FSR 3300. This will ensure Taneum Creek will not re-occupy a position that directly abuts FSR 3300.

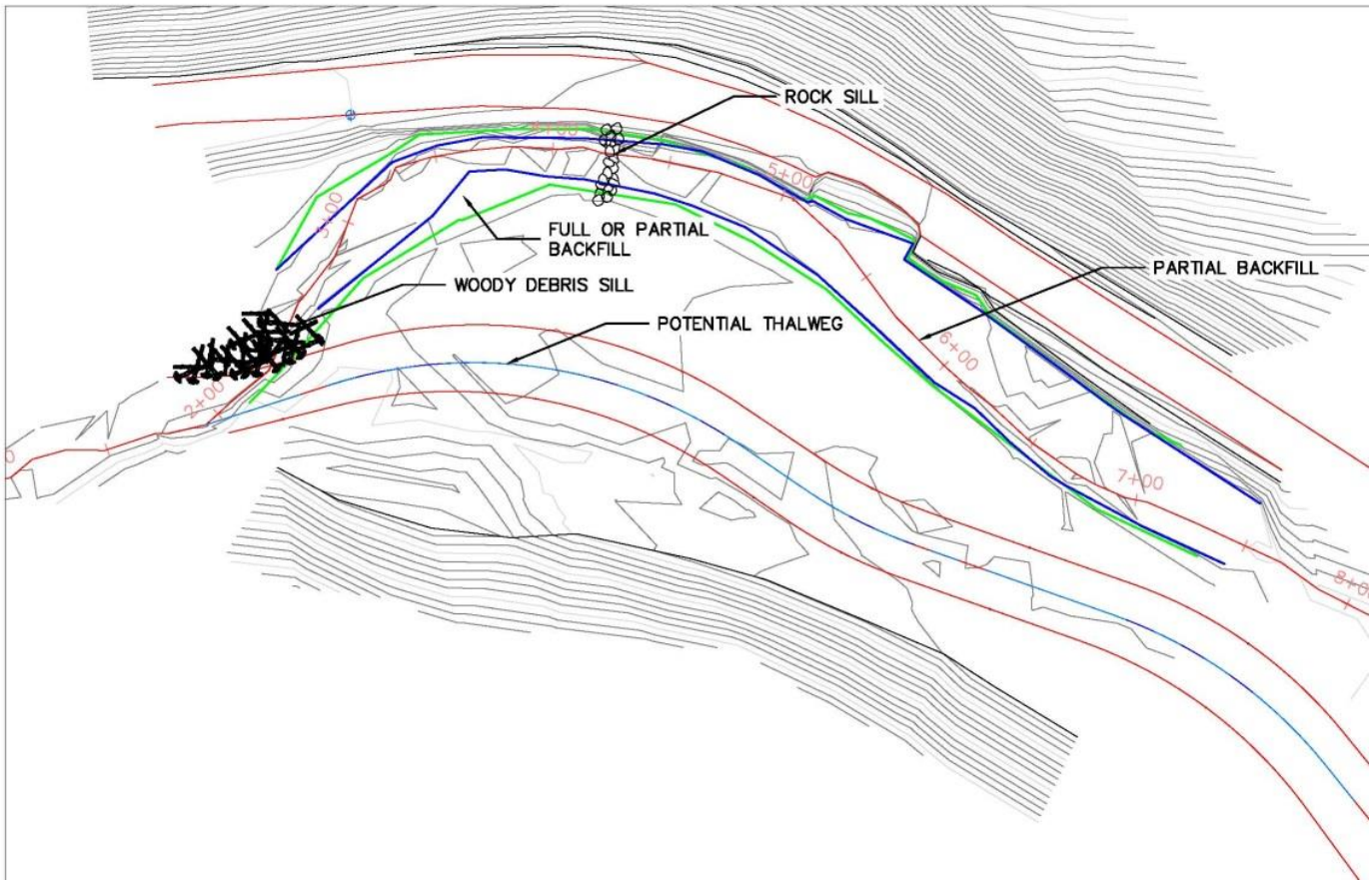


Figure II.2: Conceptual design of road and stream at mp 4.4 for Alternative A.

All trees removed during construction would be re-placed in the floodplain at either mile post 3.9 or in the woody debris sill at mile post 4.4.2

*Full-size images are located in the project file or can be provided by the Cle Elum Ranger District.

- Alternative B- Action Developed from Scoping

  Mile post 3.9

  Road: Replace gabion baskets with precast concrete block wall or other engineered wall to provide support for road structure. Place large rocks along the toe of the wall to create a small inset floodplain. Rebuild the road in the pre-flood alignment.

Stream: Remove the levee like structure on the opposite stream bank (river right) to allow flood flows to dissipate over the floodplain.

Campground: Remove all structures and road surfacing. Seed and mulch disturbed areas. The Taneum Campground would be officially closed.

Mile post 4.4

Road: Install an engineered wall along the stream face adjoining the remaining gabion baskets. Back fill behind the wall creating a stable fill to rebuild the road on.

Applicable Standards, Guidelines, and Best Management Practices

A summary of applicable Forest Service Standards and Guidelines and Best Management Practices is included in Appendix B of this analysis. This includes relevant standards from the 2005 USDA Forest Service Final Environmental Impact Statement and Record of Decision for Preventing and Managing Invasive Plants, the 2002 USDA Forest Service Okanogan and Wenatchee National Forest Weed Management and Prevention Strategy and Best Management Practices, the National Historic Preservation Act of 1966, and the USDA National Best Management Practices for Water Quality Management on National Forest System Lands.

In the event that Alternative B is chosen, further survey, consultation with the State Historic Preservation Officer, and/or possible mitigation measures would need to be completed before the Taneum Campground was completely reclaimed by the flood plain in reference to Cultural Resources within the campground.

Implementation Timeline

The Cle Elum Ranger District plans to begin construction in July 2014. In-stream work will only occur during the approved window of July 16th- September 30th. Construction is estimated to be completed by October 2015. During the construction periods, the road will remain open at night and all day on the weekends.

Summary of Alternatives and Accomplishment of Purpose and Need

Table II-1: Purpose and Need Alternative Summary

Need	Purpose	Alternative A	Alternative B
Address roads with serious damage caused by a natural disaster or catastrophic failure (Federal Highway Administration, 2013). Damage was sustained by May 2011 100-year flood event.	The project will restore FSR 3300 to a two-lane width for motorized traffic.	At both sites, the road surface will returned to its two-lane width and will be consistent with Level IV Federal Road standards.	At both sites, the road surface will returned to its two-lane width and will be consistent with Level IV Federal Road standards.
Reduce road and stream interactions.	The project will strengthen the road embankment and road protection on FSR 3300. The project will minimize the release of sediment from the exposed damage areas.	Increased floodplain from campground at mile post 3.9 would reduce road and stream interactions. Stable structure at mile post 4.4 would reduce risk of future road failures. Rock vortex weirs placed in the stream will also dissipate stream flow energy. Swale and large woody debris structure at mile post 4.4 would also assist in moving Taneum Creek away from FSR 3300.	Allowing the river to reclaim the entire campground at mile post 3.9 would increase the floodplain. Stable structure at mile post 4.4 would reduce risk of future road failures.
Maintain aquatic and wildlife habitat standards in respect to the Forest Plan and national direction.	The project will reconnect a flood plain along mile post 3.9 and meet aquatic and wildlife standards during project implementation. The project will minimize the release of sediment from the exposed damage areas.	At both sites design criteria and best management practices would be followed to protect aquatic organisms and limit degradation of aquatic habitat. Additional floodplain and rock vortex weirs at mile post 3.9 would enhance aquatic habitat. Swale and large woody debris structure at mile post 4.4 will make better use of the available floodplain.	At both sites design criteria and best management practices would be followed to protect aquatic organisms and limit degradation of aquatic habitat. Additional flood plain at mile post 3.9 would enhance aquatic habitat.

CHAPTER III

Environmental Consequences

Introduction

This Chapter identifies the probable consequences of implementing Alternative A and Alternative B to the resources affected and the impacts of no action being taken (the No Action Alternative). Chapter III summarizes the direct, indirect, and cumulative effects the alternatives may have to a reasonably foreseeable extent. Each resource area will emphasize the project's consistency with relevant environmental laws and guidance and outline if there are any impacts to Threatened, Endangered, Sensitive, or Survey and Manage species. For more information, the project record will contain specialist reports for each of the respective resources. The resource areas detailed in this section are Hydrology, Fisheries, Wildlife, Botany, Range, Fuels and Vegetation Management, Fire and Public Safety, Recreation, Special Uses, and Cultural Resources.

The effects of past activities are represented in the baseline for issue area consistent with the President's Council on Environmental Quality's guidance on the Consideration of Past Actions in Cumulative Effects Analysis (June 24, 2005). This guidance states that "Generally, agencies can conduct an adequate cumulative effects analysis by focusing on the current aggregate effects of past actions without delving into the historical details of individual past actions". Noteworthy past and present activities include the previous closure of the South Meadow Campground (discussed in the Recreation analysis), the repair of FSR 3100 (Manastash), and ongoing invasive species treatment (discussed in the Botany analysis).

Present and future foreseeable actions that would impact resources in the project area consist of maintenance and continued use. These activities include campground use and maintenance, road maintenance, hazard tree management, and vehicular use of FSR 3300. The area around the project sites includes private and State land, totaling 55% of the entire Taneum Creek watershed (see Figure I-6). There no future foreseeable proposed actions that would have effects overlap in time or space with the 3300 Flood Repair project.

HYDROLOGY

Effects of No Action on Hydrology

With the No Action Alternative, continued erosion of fill material would occur at both project sites. Average annual high flow levels would continue to erode fine grained fill material, increase the undercutting of existing pavement and further reduce the width of the travel way. Fine sediment input to Taneum Creek would increase and opportunities to improve habitat features and streamside vegetation would not occur. Other locations along the lower 5 miles of the 3300 Road would continue to be susceptible to future flood damage because of the proximity of the road to the stream channel.

Effects of Alternative A on Hydrology

Direct and Indirect Effects

Mile post 3.9

This Alternative includes design and habitat features which should reduce the risk of future road fill erosion at the M.P. 3.9 site. Repairing the gabion wall with a more durable wire mesh would extend the life expectancy of the replaced section. By removing the levee and lowering the streambank on the campground side of the channel a much wider floodplain area would be available to accommodate flood events. Approximately 2 acres of additional floodplain area in the existing campground would be accessible and restored. Road fill and surfacing material within the campground floodplain area would be removed thus reducing the risk of future sediment input during flood events. The two rock vortex weirs would reduce stream velocities and energy along the road fill intersection which would help reduce the risk of future flood damage to 3300 Road prism. Risk of future damage to the remaining campground facilities would be reduced in the long-term because of the expanded floodplain capacity and slowing of water velocities.

Short-term input of fine sediment would increase as a result of construction activities during repair of road segments adjacent to the stream channel. In the long-term as vegetation is reestablished in riparian areas, sediment input would decrease. The loss of shade due to removal of trees or vegetation during construction of the new floodplain would not have a measurable effect on stream temperatures. Increased shading from restored riparian vegetation in the long-term would maintain and slightly reduce stream temperatures. Increasing the floodplain capacity at the campground site would help dissipate flood flows and reduce the risk of damage in downstream reaches of Taneum Creek during high runoff events.

Mile post 4.4

This alternative would repair only the damaged section of gabion baskets with welded wire mesh material. Replacement gabion material would be heavier gage and longer lifespan than the existing material in the non-damaged section of wall. The remaining sections of gabion wall would remain vulnerable to future flood damage. The constructed swale channel on the south side of the floodplain would direct the majority of streamflow away from the existing gabion wall surface. The LWD structure would be designed to divert water into the newly constructed channel. Water would be diverted away from the construction area to minimize input of fine sediment during any in channel work. Access to the base of the wall would require removal of road fill for equipment to reach lower areas.

Summary of Effects Alternative A

Increases in fine sediment levels are expected to be minimized by dewatering of in-channel work areas during construction activities.

Temporary increases in stream turbidity are expected during periods of in channel construction. Background levels of turbidity in Taneum Creek during the summer in channel work window are expected to be 10 NTU's or less. Construction of the repair walls at both sites on the 3300 Road will require dewatering the base of the fill slopes. While diverting streamflow away from the base of the wall, turbidity can be expected to increase up to a maximum of 250 NTU's but more typically in the 50 to 100 NTU range. The duration of this increase would be approximately 3 to 4 hours at the M.P 4.4 site and 2 to 3 hours at the M.P. 3.9 site. This time would be minimized by the use of sand bags or super sacks and plastic lining depending on flow levels at the time of construction (consistent with Best Management Practices). Based on past monitoring of similar type construction activities, measurable increases in turbidity would not be expected to extend more than 1000 feet below the work sites. Turbidity levels at the work sites would return to background levels immediately after the completion of any in water excavation during the coffer dam construction. Any seepage water in the dewatered construction area would be pumped to a vegetated off-channel location to filter out fine sediments. Temporary increases in turbidity would occur again when the coffer dam materials were removed and water flows returned to the repaired wall area. The duration and levels of these increases would be less than during the initial construction of the dewatering structures.

Turbidity increases are not expected to be measurable beyond a distance of approximately 1000 feet or less below a particular work site and only for the period of time when actual in-channel work is occurring. If both sites on the 3300 system are being constructed at the same time, measurable turbidity increases are not expected to overlap because of the approximately 0.5 miles of stream length between sites. Dissipation and settling of fine sediment will occur between sites so that increases in turbidity would still not be measurable more than 1000 feet below the each site. In the short term during higher flow events, some increase in fine sediment levels may occur until vegetation is established on newly constructed fill slopes. For both of these sites with this action alternative, no measureable change in sediment or turbidity is expected as a result of construction activities downstream in the mainstem Yakima River either in the short term or long-term.

Monitoring was conducted recently in the summer of 2012 during construction repair of a similar flood damage site on the Naches Ranger District along the Little Naches River. This site had much higher flows (25 to 35 cfs) and was more difficult to dewater the in channel construction area than is expected in Taneum Creek. Turbidity levels in the Little Naches River did not exceed state standards at any points further than 850 feet below the construction site during the repair activities.

In the long-term with this action alternative, sediment increases in Taneum Creek are expected to be reduced due to the improved floodplain capacity planned for both repair sites.

In the short term, stream temperature increases are not expected to be measurable due to construction activities. In the long-term, stream temperatures may slightly decrease due to improved riparian vegetative shading following planting and stabilization of streambanks.

Risk of future flood damage to road systems is expected to be reduced with the design features planned at these sites. Stream channel structures are designed to meet the 100 year flood event with associated debris which will reduce the risk of future failures.

Cumulative Effects

Soil and Watershed Resources

Cumulative effects from past, current and foreseeable future activities are an important concern in the Yakima Basin and can be affected by actions on private lands as well as National Forest System lands. The cumulative effects analysis boundary for this project is the 6th field watershed scale. For the 3300 Flood Repair Project there are private lands within or immediately adjacent to the analysis area and there are approximately 30,500 total acres of private lands or 55 percent of the entire Taneum Creek watershed. The time scale for cumulative watershed effects is considered the time required for vegetation to achieve hydrologic recovery. For riparian vegetation, this is achieved when greater than 90 percent ground cover and a closed canopy is established typically within 10 to 15 years.

The improved road fill stabilization designs at both sites with this action alternative would result in an incremental benefit to overall watershed condition and improvement to water quality. However, at the 6th field watershed level the incremental change in sediment yield or stream temperatures due to this project would most likely be not measurable either as a short-term (1 to 5 years) increase or long-term (10 to 15 year) decrease.

Effects of Alternative B on Hydrology

Direct and Indirect Effects

Mile post 3.9

This Alternative would restore safe travel access by replacing the gabion wall with a more vertical precast concrete block wall. By removing the levee and lowering the streambank on the campground side of the channel a much wider floodplain area would be available to accommodate flood events. Approximately 5 acres of additional floodplain area in the existing campground would be accessible and restored. All road fill, surfacing material, and facilities within the campground area would be removed thus reducing the risk of future sediment input during flood events. Stream velocities along the road fill intersection would be reduced which would help reduce the risk of future flood damage to 3300 Road prism. Other locations along the lower 5 miles of the 3300 Road would continue to be susceptible to future flood damage because of the proximity of the road to the stream channel.

Short-term input of fine sediment would increase as a result of construction activities during repair and decommissioning of road segments adjacent to the stream channel. In the long-term as vegetation is reestablished in riparian areas, sediment input would decrease. Increased shading from riparian vegetation in the long-term would maintain and slightly reduce stream temperatures.

Mile post 4.4

This alternative would repair only the damaged section of gabion baskets with some type of block or gabion type material. Replacement gabion material would be heavier gage and longer lifespan than the existing material in the non-damaged section of wall. The remaining sections of gabion wall would remain vulnerable to future flood damage. Water would be diverted away from the construction area to minimize input of fine sediment during any in channel work. Access to the base of the wall would require removal of road fill for equipment to reach lower areas.

Summary of Effects Alternative B

Increases in fine sediment levels are expected to be minimized by dewatering of in-channel work areas during construction activities.

Temporary increases in stream turbidity are expected during periods of inchannel construction. Background levels of turbidity in Taneum Creek during the summer inchannel work window are expected to be 10 NTU's or less. Construction of the repair walls at both sites on the 3300 Road will require dewatering the base of the fill slopes. During construction of a coffer dam to divert streamflow away from the base of the wall, turbidity can be expected to increase up to a maximum of 250 NTU's but more typically in the 50 to 100 NTU range. The duration of this increase would be approximately 1 hour at the M.P 4.4 site and 2 to 3 hours at the M.P. 3.9 site. This time would be minimized by the use of sand bags or super sacks and plastic lining depending on flow levels at the time of construction. Based on past monitoring of similar type construction activities, measurable increases in turbidity would not be expected to extend more than 1000 feet below the work sites. Turbidity levels at the work sites would return to background levels immediately after the completion of any in water excavation during the coffer dam construction. Any seepage water in the dewatered construction area would be pumped to a vegetated off-channel location to filter out fine sediments. Temporary increases in turbidity would occur again when the coffer dam materials were removed and water flows returned to the repaired wall area. The duration and levels of these increases would be less than during the initial construction of the dewatering structures.

Turbidity increases are not expected to be measurable beyond a distance of approximately 1000 feet or less below a particular work site and only for the period of time when actual in-channel work is occurring. If both sites on the 3300 system are being constructed at the same time, measurable turbidity increases are not expected to overlap because of the approximately 0.5 miles of stream length between sites. Dissipation and settling of fine sediment will occur between sites so that increases in turbidity would still not be measurable more than 1000 feet below the each site. In the short term during higher flow events, some increase in fine sediment levels may occur until vegetation is established on newly constructed fill slopes. For both of these sites with this action alternative, no measureable change in sediment or turbidity is expected as a result of construction activities downstream in the mainstem Yakima River either in the short term or long-term.

Monitoring was conducted recently in the summer of 2012 during construction repair of a similar flood damage site on the Naches Ranger District along the Little Naches River. This site had much higher flows (25 to 35 cfs) and was more difficult to dewater the in channel construction area than is expected in Taneum Creek. Turbidity levels in the Little Naches River did not exceed state standards at any points further than 850 feet below the construction site during the repair activities.

In the long-term with this action alternative, sediment increase in Taneum Creek is expected to be reduced due to the improved floodplain capacity planned for the M.P. 3.9 repair site.

In the short term, stream temperature increases are not expected to be measurable due to construction activities. In the long-term, stream temperatures may slightly decrease due to improved riparian vegetative shading following planting and stabilization of streambanks.

Risk of future flood damage to road systems is expected to be reduced with the design features planned at these sites. Stream channel structures are designed to meet the 100 year flood event with associated debris which will reduce the risk of future failures.

Cumulative Effects

Soil and Watershed Resources

Cumulative effects from past, current and foreseeable future activities are an important concern in the Yakima Basin and can be affected by actions on private lands as well as National Forest System lands. The cumulative effects analysis boundary for this project is the 6th field watershed scale. For the 3300 Flood Repair Project there are private lands within or immediately adjacent to the analysis area and there are approximately 30,500 total acres of private lands or 55 percent of the entire Taneum Creek watershed. The time scale for cumulative watershed effects is considered the time required for vegetation to achieve hydrologic recovery. For riparian vegetation, this is achieved when greater than 90 percent ground cover and a closed canopy is established typically within 10 to 15 years.

The improved road fill stabilization designs at both sites with this action alternative would result in an incremental benefit to overall watershed condition and improvement to water quality. However, at the 6th field watershed level the incremental change in sediment yield or stream temperatures due to this project would most likely be not measurable either as a short-term (1 to 5 years) increase or long-term (10 to 15 year) decrease.

Consistency Findings for both Alternatives A and B

The following Consistency Findings are similar for all action alternatives at the M.P. 3.9 site and at the M.P. 4.4 site.

Taneum Creek within and downstream of the planning area has exceeded the state temperature standard of 61 degrees daily maximum for several days during the summer sampling period.

Taneum Creek has been designated as water quality limited (category 5) for temperature on the current (2012) Washington State 303(d) list. This project would have no effect on the stream temperatures within the planning area or the downstream segments of Taneum Creek. With design features for re-vegetating disturbed areas, none of the treatments will effect streamside vegetation or shading to measurable levels and therefore treatments will not affect this parameter or exacerbate the 303(d) listings downstream. The current TMDL allocation of 55 percent effective shade is expected to be met with all action alternatives.

Because the Best Management Practices (BMP's) summarized in Appendix B would be fully implemented, water quality standards and the anti-degradation policy (Chapter 173-201A WAC) are expected to be met with the Proposed Action. The Proposed Action is not expected to substantially alter the water quality. Full implementation of BMP's has been shown to be an effective method in preventing and controlling nonpoint source water pollution (Rashin, 2006), (USDA Forest Service, 2000). Monitoring would be conducted during the project in order to validate implementation and effectiveness of BMP's and assure compliance with the Clean Water Act, State water quality regulations and forest plan standards.

Implementation of design features for Riparian Reserves will ensure compliance with EO 11988 Floodplain Management (11988, 1977), and EO 11990 Wetland Protection (11990, 1977). Design features are expected to improve and restore the function of this area and will meet the intent of these executive orders.

To meet the intent of the Clean Water Act, activities planned in tributaries and mainstem of the Yakima River Basin cannot further impair the water temperature in streams, and should help restore water quality where possible. Activities in the Riparian Reserves and headlands will leave the structural shade that maintains the water temperature at current levels intact and improve vegetation and habitat features that will reduce stream temperatures in the long term. This project will not impair water temperature in streams and is in compliance with the Clean Water Act and the Wenatchee National Forest Water Temperature TMDL Technical Report.

For the complete Hydrology Specialist Report, please see the project file.

FISHERIES

Taneum Creek is a tributary to the Yakima River that enters near river mile (RM) 166 near the town of Thorp. Taneum Creek historically supported steelhead and bull trout, however unscreened irrigation diversions and dams (Bruton at RM 1.6, Taneum Canal at RM 2.4 and Knudson at RM 3.0) built in the 1960's effectively eliminated fish migration into Taneum Creek. Diversions were built without fish screens and dams were built without fish passage. Multiple diversions also created reduced stream flow (de-watering Taneum Creek during certain years) and increased stream temperature conditions in the lower reaches of Taneum Creek. Installation of fish ladders and screened diversions began in the late 1980's. Water right acquisitions and exchanges to increase base flows within Taneum Creek have recently been successfully negotiated between water rights users and the Bureau of Reclamation (BOR) as well as other entities (Yakima Nation, Washington Water Trust, etc). Recent steelhead radio-tagging studies

indicate that adult steelhead are now moving into Taneum Creek during the spawning season and are spawning in Taneum Creek as far upstream as RM 9.0. Bull trout have not been identified in Taneum Creek in recent years. Bull trout are highly sensitive to stream temperature and require cold (<51 degrees F) water to spawn and are therefore limited by low flows and high stream temperatures in lower Taneum Creek. Other fish species found in Taneum Creek and its tributaries include; rainbow trout, eastern brook trout (non-native species), cutthroat trout ("essentially pure" westslope cutthroat trout in upper reaches of the North Fork of Taneum Creek) and sculpin species. Natural migration barriers in the form of waterfalls are found in both North and South Fork Taneum Creeks and naturally limit steelhead distribution within these tributaries. The North Fork barrier is located approximately 2.4 miles upstream from the confluence with the South Fork and the South Fork barrier is located approximately 3.4 miles upstream from the confluence with the North Fork. Resident rainbow trout, cutthroat trout and brook trout are located above these barriers.

Listed below are the aquatic species that are to be considered in this fisheries analysis. The full Biological Evaluation for Fish Species is available in the project file.

Table III-1. List of Proposed, Endangered, Threatened, or Sensitive (PETS) and Management Indicator Species (MIS) Fish Species found on the Okanogan Wenatchee National Forest.

Endangered Species Act Listing by Evolutionary Significant Unit (ESU)	**Date of Listing**	**Suitable Habitat Present**	**Species Present**	**Critical Habitat**
Threatened				
Columbia River Bull Trout* (*Salvelinus confluentus*)	6/98; 11/99	Yes	No	Yes
Middle Columbia River steelhead* (*Oncorhynchus mykiss*)	3/99	Yes	Yes	Yes
Region 6 Forester's Sensitive Species				
River lamprey *(*Lampetra ayresii*)*	12/11	Yes	No	N/A
Pygmy whitefish *(Prosopium coulterii)*	12/11	No	No	N/A
Umatilla dace (*Rhinichthys umatilla*)	12/11	Yes	No	N/A
Management Indicator Species (MIS) within project area				
Cutthroat trout	N/A	Yes	Yes	N/A
Rainbow trout	N/A	Yes	Yes	N/A

*Bull trout and Steelhead are also MIS on the Okanogan-Wenatchee NF

Aquatic Resource Indicators

The following indicators will be used as measures of project effects on aquatic habitat and fish species and are addressed specifically throughout the remainder of this analysis:

Length stream bank stabilized (feet)
Area of floodplain restored (acres)
Downstream distance of temporary increased turbidity during construction (feet)
Magnitude of increased turbidity (increased number of NTUs)

An analysis of potential pathways for project related effects on the fisheries resource identified three areas needing to be addressed. They include;

1. Fish habitat complexity
    a. Habitat frequency and quality,
    b. Substrate condition
    c. Distribution barriers
2. Water quality
    a. Temperature
    b. Turbidity
    c. Chemical contamination
    d. Peak and base flow
3. Fish biological parameter's
    a. Life history stages affected
    b. Effects to Population Size, Density, Importance to the ESU
    c. Food supply

The indicators described above informed the fisheries analysis. The values (feet, acres, NTU's) included with these indicators provide a means to measure and compare effects of the No Action, Alternative A and B on Threatened, Endangered and Sensitive (TES) fish species and Management Indicator Species (MIS), within Taneum Creek. Potential water quality degradations such as increases in temperature, turbidity/sediment, or chemical contaminants have biologically relevant effects to fish depending on the proximity, magnitude, and duration of the exposure of fish species to these impacts. Water temperature is a key component of fish habitat and aquatic ecology. Cold water fish species such as trout and salmon are particularly sensitive to very high and very low temperatures. Water temperature criteria set by the State (Class AA Streams <60.8ºF, Class A Streams <64.4ºF) are designed to provide appropriate stream temperature for fish species, particularly salmonids. The effects of excessive sedimentation on egg-to-fry survival of salmonids are well-documented in the scientific literature and include; suffocation and metabolic-waste-poisoning of eggs; decreased egg survival to emergence; and increased fry mortality due to entrapment and suffocation. Accelerated sedimentation rates can also lead to channel widening and down-cutting and loss of important pool habitat. Decreases in bank stability and increases in areas of active erosion negatively affect aquatic species. In this analysis the indicator of number of miles of stream bank restored informs changes to bank stability and the area for which active erosion is occurring. The expected increases in turbidity and distance downstream for which those disturbances are expected to occur can inform the

analysis by providing context to identify proximity, magnitude and duration of exposure to aquatic species. The area of floodplain restored allows for a direct measurable indicator to inform the analysis as to how much area will be improved through implementation of different alternatives.

Effects of No Action on Fisheries

Mile post 3.9 and 4.4

Under the No Action Alternative no road shoulder or road reconstruction would occur at either the 3.9 or 4.4 site. The 3300 road would continue to erode into the channel contributing asphalt and road fill (fine sediment) from along approximately the 250' feet of failed road/stream interface at MP 3.9 and 100 feet at MP 4.4. Additional erosion above and below the currently affected sites could be anticipated as well due to the 3300 road, which closely parallels Taneum Creek within the valley bottom in the lower 5 miles. The existing gabion wall, which extends upstream and downstream of the 3.9 and 4.4 sites, would likely have more failures and would lead to higher levels of erosion because of the proximity of the road to the stream channel. The extent of both upstream and downstream future erosion would be limited by the ability of the gabion baskets and geologic features to retard the erosion process.

Under the no action alternative there would not be any stream channel restoration at either the 3.9 or 4.4 site. The Taneum Creek campground would remain in place in its current configuration and the man-made levee between the campground and creek would not be removed at the 3.9 site. Channel and floodplain constriction would be maintained and would continue to limit Taneum Creek's access to and development of its floodplain. No construction related impacts would occur on the campground side of the creek. Access to the floodplain would not be enhanced, and the existing opportunities and limitations for flooding would not be altered. No additional habitat would become available for utilization by fish and aquatic species during high water events. The channel would not be altered, and no active restoration would occur. The campground has flooded in the past and will continue to do so.

The 3300 road would persist in the sub watershed and continue to have long-term negative effects on Taneum Creek. Road related effects include constriction of the flood plain, reduced opportunity for Taneum creek to access and develop potential wetland and floodplain habitat, increases to natural sediment inputs, altered flow paths, and potential increases to water temperature. This would result in a variety of negative impacts to TES and MIS fish species and their habitat, as well as other aquatic species.

<u>Summary</u>

No road shoulder or road reconstruction would occur at either the 3.9 or 4.4 site and there would not be any stream channel restoration at either the 3.9 or 4.4 site. The 3300 road would continue to erode into the channel contributing asphalt and road fill. Additional erosion above and below the currently affected sites could be anticipated as well due to the location of the 3300 road, which closely parallels Taneum Creek within the valley bottom. The Taneum Creek campground would remain in place in its current configuration. Channel and floodplain

constriction would be maintained and would continue to limit Taneum Creek's access to and development of its floodplain. This would result in a variety of negative impacts to resident and anadromous fish species, as well as other aquatic species and would not meet the three purpose and need statements addressed in Chapter 1.

Effects of Alternative A on Fisheries

Under Alternative A, the 3300 road would be repaired in place at both the 3.9 and 4.4 sites. In-channel restoration work will also occur at both sites. At the 3.9 site, channel restoration work will include: removal of the man-made levee, removal of two campsites at Taneum Creek campground and construction of three rock vortex weirs for stream flow dissipation and creation of pool habitat. At the 4.4 site, channel restoration work will include: construction of a new channel located away from the road (within a relic channel), placement of large woody debris (LWD) with rootwads in the newly constructed channel to provide roughness and energy dissipation, placement of a LWD structure at the upstream end of the existing and newly constructed channel and construction of a rock sill within the existing channel to provide grade control for side channel habitat.

In-stream work will occur during the Washington State Department of Fish and Wildlife (WDFW) approved work window (July 16th -September 30th). Taneum Creek will be isolated and de-watered at the 3.9 and 4.4 sites prior to construction and there will be an approved fish salvage plan (NMFS 2011) in place prior to any construction work. The in-stream work at the 4.4 site will be sequenced in such a way as to isolate and de-water Taneum Creek in stages in order to reduce effects to fish species.

General Sequence of Construction for the 4.4 site includes:

- Excavate new channel starting from downstream while placing root wads as directed.
- Place fish screens as directed. Build a cofferdam across the old channel to direct the flow of water into the new channel, use this to dewater old channel
- Build rock sill as directed, pump seeping water past rock sill downstream
- Build log jam and gravel bar as directed
- Remove cofferdam
- Re-construct road

Direct and Indirect Effects:

Table III-2: Aquatic Indicator Findings for Alternative A

Proposed Sites	Length stream bank stabilized(feet)	Area of floodplain restored (acres)	Downstream distance of temporary increased turbidity during construction(feet)	Magnitude of increased turbidity (increased number of NTUs @ 1000 ft.)
FS3300 mp 3.9	250	2	1000	<5
FS3300 mp 4.4	100	40	1000	<5

FISH HABITAT COMPLEXITY

1. a. Habitat frequency and quality

Mile Post 3.9

Re-construction of the road and stream channel at the 3.9 site will occur during the late summer-early fall when stream flows are at base levels. Taneum Creek will be isolated and de-watered at the 3.9 site to allow for construction work in a relatively dry work site (ground water seepage may occur within the isolated site) and will follow National Best Management Practicies (BMP's) as described in the hydrology section above to minimize sediment input. Increases in sedimentation are expected to be low and would not exceed the state standard of >5 NTUs beyond 1000 feet below the project site. Effects to pool frequency or quality downstream of the project area (i.e. fine sediment accumulation in pools) would be of short duration and low magnitude. Six pools will be created at the 3.9 site due to the placement of the three rock weirs which would increase the amount of pool habitat within this section of Taneum Creek. Removal of the levee and the two campsites will have a positive effect to off channel habitat due to a small amount of new floodplain (approximately 2 to 3 acres) that would be accessible during higher flows. Approximately 5-10 large trees (>15 inches DBH) which currently are present on the levee would be removed during construction and placed at the LWD structure that is planned for the 4.4 site. The re-construction of the gabion baskets and repair of the road bed would improve the road side stream bank condition and would arrest the erosion that is occurring at the 3.9 site. The increase in pool habitat due to the rock weirs, the removal of the levee and campsites and improvement in floodplain accessibility and the reduction in erosion from re-construction of the 3300 road will have a long-term beneficial effect for TES and MIS fish species and other aquatic species within Taneum Creek.

Mile post 4.4

Re-construction of the road and stream channel at the 4.4 site will occur during the late summer-early fall when stream flows are at base levels. Road and stream channel work at the 4.4 site will

be sequenced in such a way as to isolate and de-water Taneum Creek in stages in order to reduce effects to fish species and will follow National BMP's as described in the hydrology section above to minimize sediment input. Increases in sedimentation are expected to be low and would not exceed the state standard of >5 NTUs beyond 1000 feet below the project site. A relic stream channel currently exists parallel and to the south of Taneum Creek. This channel would be re-constructed with logs and root wads placed at strategic points to promote bed and floodplain roughness, prevent erosion and control the velocity of the water in the new channel. A portion of the stream flow from Taneum Creek will be diverted into this new channel (50-70%) and the existing channel will remain as side channel habitat. A LWD structure will be constructed at the far bank of the existing channel and the entrance of the re-constructed channel to promote stream flow into the re-constructed channel and away from the 3300 road.

Sediment effects to pool frequency or quality downstream of the project area (i.e. fine sediment accumulation in pools) would be of short duration and low magnitude due to the timing and construction sequencing of the project. Large wood structures placed within the constructed stream channel will provide roughness and pocket pool habitat. The LWD complex and rootwads would also add LWD to Taneum Creek. The existing stream channel, which will continue to have approximately 30% of the stream flow, will increase side channel habitat within Taneum Creek. The re-construction of the gabion baskets and repair of the road bed would improve the road side stream bank condition and would arrest the erosion that is occurring at the 4.4 site. Re-directing Taneum Creek away from the 3300 road, placing logs with rootwads into the new channel, retaining the existing channel as side channel habitat, improving the amount of floodplain accessibility and reducing erosion from re-construction of the 3300 road will have a long-term beneficial effect for TES and MIS fish species and other aquatic species within Taneum Creek.

1. b. Substrate Condition

Mile Post 3.9 and 4.4

As stated in the hydrology section, the implementation of this alternative would increase the input of fine sediment during construction activities but would improve conditions with regard to reducing fine sediment delivery in the long term with the stabilization of the 3300 road and as vegetation is re-established in the riparian areas. Removal of the campground levee and two campsites at the 3.9 site would improve Taneum Creeks access to the floodplain, construction of three rock vortex weirs would dissipate stream velocity during high flows, construction of a new channel located away from the road (within a relic channel) at the 4.4 site and placement of LWD would provide roughness and energy dissipation which would protect the road from future failures.

Some sediment could be contributed in the local area during construction, but it is expected that the following years peak flow would remove most if not all of the residual fine sediment. The localized changes in substrate which resulted would be of a short duration and with a limited magnitude. The changes could negatively affect individual fish but would not likely have an effect at the population level. The implementation of this alternative would improve conditions with regard to reducing fine sediment delivery in the long term.

1. c. Distribution Barriers

Mile Post 3.9 and 4.4

The project would not result in any new barriers or resolve any existing barriers within Taneum Creek. Construction related dewatering will likely result in a temporary barrier which would be resolved once dewatering concludes. A de-watering and fish salvage plan will be in place prior to construction activities.

WATER QUALITY

2. a. Temperature

Mile Post 3.9 and 4.4

There are no expected significant changes to stream temperature associated with road re-construction activities or stream restoration activities at either the 3.9 or 4.4 site at the watershed scale. Re-construction of the road prism will not remove any riparian vegetation that is currently providing shade. Removal of the levee at the 3.9 site will include the removal of several large trees that currently provide shade to Tanuem Creek and stream channel restoration at the 4.4 site will also potentially remove riparian vegetation during construction of the new channel. Re-vegetation with native grass seeds, shrubs and trees will provide some temporary cover within the next growing season (see botany report) as well established riparian vegetation in the long term. Due to the relatively small Riparian Reserve area at both sites (2-3 acres at the 3.9 site and 40 acres at the 4.4 site) and proposed re-vegetation treatments, any increase in stream temperature will be of short-duration and not measurable at the watershed scale.

2. b. Turbidity

Mile Post 3.9 and 4.4

The turbidity related effects are very similar for both project sites and are fully discussed in the hydrology section above and summarized below.

"*Short-term input of fine sediment would increase as a result of construction activities during repair of road segments adjacent to the stream channel. In the long term as vegetation is reestablished in riparian areas, sediment input would decrease. Temporary increases in stream turbidity are expected during periods of in channel construction." (*2013 hydro report for ERFO 3300)

Implementation of BMP's (de-watering, use of sand bags and super sacks, silt fencing, etc) will minimize turbidity increases so that they will not be measurable beyond a distance of approximately 1000 ft. downstream of the project sites. The isolation of the project area . project design criteria and implementation of BMP's to reduce construction related increases in turbidity is vital to the protection of fish and aquatic species.

Fine sediment input to Taneum creek as a result of road construction and stream restoration activities can cause increases in turbidity which can result in direct impacts to fish, such as gill irritation. Fish salvage would occur during de-watering of the 3.9 construction site, and both sites would isolate fish from moving into the construction site via block nets and screens. Any individual fish which are removed will experience stress during the removal. Additionally any fish that were missed in the removal, would likely experience effects of elevated turbidity within the small isolation zone. It is possible that the effects to any fish which could remain in the isolated areas could be fatal. It is expected that negative effects will occur to macroinvertibrates in the localized area, but not to a degree which would impact the fish population. The extent, duration, and magnitude of impacts would be limited as a result of project design criteria which will provide for site isolation and water quality protection measures.

Individual fish (TES and MIS) are likely to experience negative effects of this action in and near the project construction sites. It is not expected that these effects will occur in a magnitude which would result in an effect to fish at the population level or affect viability.

2. c. Chemical Contamination

Mile Post 3.9 and 4.4

Petro chemical contamination opportunities associated with this alternative and resulting negative impacts to fish are generally expected to be unchanged from the existing condition. Once the road/stream interface is stabilized at these sites and the current erosion is halted, the opportunity for the introduction of asphalt (with a petro chemical component) will no longer be an issue. Any contract work will be done according to current BMPs. All equipment would be washed prior to any in-water work, and typical practices to prevent opportunities for spills will put in place. Spill response protocols will be designated in the contracts. There is always a risk of spills when construction activities occur. The general risks will also be present at these sites during construction.

2. d. Peak and Base Flows

Mile Post 3.9 and 4.4

Implementation of Alternative A would not result in any change to peak or base flows when compared to the current regime.

FISH BIOLOGICAL PARAMETERS

3. a. Life History Stages

Mile Post 3.9 and 4.4

All life stages of resident MIS fish species (rainbow trout, cutthroat trout) except the egg stage (rainbow trout and cutthroat trout are spring spawners) are potentially present at both sites therefore, all stages of life history for resident fishes are likely to be affected by the implementation of this alternative. Steelhead migrate up the Columbia River, passing McNary Dam and holding in the Columbia River between July and August. The majority of Yakima

origin steelhead migrate into the Yakima River from September to November and overwinter between Prosser and Sunnyside dams before migrating to spawning grounds beginning in January. Steelhead spawn in tributary streams, including Taneum Creek from mid-January to mid-May, therefore there will not be any adult steelhead within the project area during construction activities (late summer-early fall). Emergence of steelhead fry in upper Yakima tributaries is estimated as occurring from late June through early August and juvenile steelhead spend one to three years in tributary streams before migrating to the ocean. MCR steelhead fry and juveniles will be in the vicinity of the project area during construction activities and may be affected. Any bull trout present could be affected but the likelihood of that is very low due to the low (almost undocumented) usage of Taneum Creek. Effects to TES and MIS fish species will be reduced by implementation of fish salvage, de-watering, screening and block nets to isolate the project area.

3. b. Effects to Population Size, Density, Importance to the Evolutionary Significant Unit (ESU)

Mile Post 3.9 and 4.4

The size of the resident fish, steelhead and bull trout populations within Taneum creek are not well known (limited population surveys). Overall, the upper Yakima River steelhead population is considered not viable and both abundance and spatial structure of the ESU indicate a high risk of extinction. Passage has recently been improved into Taneum Creek and recent telemetry studies of adult steelhead indicate that they are moving into Taneum Creek to spawn and rear although in low numbers. Taneum Creek is considered a major spawning area and necessary for long term recovery of steelhead in the Upper Yakima ESU. The extent of use of Taneum creek by bull trout is unknown. There have been a few occasions where bull trout have been documented in this creek but it has been rare. It is possible that they utilize the lower reaches at times though at very low numbers. The road re-construction and stream restoration will improve habitat for steelhead, bull trout and resident fish species (including MIS) within the project area in the long term by adding pools, LWD, side channel habitat and improving floodplain accessibility. However, at the population level, there are no expected direct beneficial effects to the upper Yakima population of steelhead, bull trout and resident MIS fish species as a result of construction related activities. The project will improve conditions for MIS species in the project area and will not contribute to a negative trend in viability for MIS fish species on the Okanogan-Wenatchee National Forest.

3.c. Food Supply

Mile Post 3.9 and 4.4

Implementation of this alternative could have short term negative localized impacts on the macro-invertebrate population during and immediately following construction activities. There is an overall expectation for an improved condition once the current erosive state is arrested. The magnitude of this effect is low and it is not expected to reduce the available food source for resident and anadromous fishes at a biologically relevant level.

Cumulative Effects

Cumulative effects analysis is bounded in time and space. The temporal boundary of cumulative effects to fisheries in Taneum Creek spans from the early 1960's, when installation of barrier irrigation dams and diversions near the mouth of Taneum Creek eliminated steelhead and bull trout and other management actions (roads, grazing, timber harvest) began to impact fisheries within Taneum Creek. Cumulative effects would continue post project implementation until Taneum Creek achieved hydrologic recovery (10-15 year; see hydrology report). The spatial boundary would include the HUC6.

Taneum Creek has a history of management actions that has impacted the terrestrial and aquatic condition. Past, present and foreseeable future Forest Service and private/state land activities that have the potential to result in increased sedimentation, petro chemical contamination, or temperature changes include:

- Irrigation diversions and dams
- Timber harvest and associated activities (private, state, and federal)
- Prescribed burning (federal and state)
- Road construction and maintenance
- Livestock grazing
- Aquatic restoration projects

The implementation of Alternative A, when analyzed with past actions and considering sediment contributions, would have a positive cumulative effect as it stabilizes road conditions to a less erosive state than currently exists. All of the above activities could result in increased stream sedimentation. The actual amount of erosion and subsequent sediment generation is difficult to predict and it is hard to define the relationship between the long term quantities derived from these sources listed above and what would occur as a result of the implementation of these action alternatives.

The cumulative effects of repairing the currently degraded sites on FS3300 at mp 3.9 and mp 4.4 would be beneficial in nature. There will be both spatial and temporal overlap of effects of past present and reasonably foreseeable actions. These effects are primarily water quality related with a focus on temperature and sediment. Generally speaking overall reductions in sedimentation will occur as erosion at these two sites is arrested. This will add positively to the overall condition which is representative of the cumulative effects of the actions listed above.

Summary

Road shoulder and road reconstruction would occur at both the 3.9 and 4.4 site and stream channel restoration would occur at both the 3.9 and 4.4 sites. At the 3.9 site, the increase in pool habitat due to the placement of rock weirs, the removal of the campground levee and two campsites, improvement in floodplain accessibility and the reduction in erosion from re-construction of the 3300 road will have a long-term beneficial effect for fish and aquatic species. At the 4.4 site, re-directing Taneum Creek away from the 3300 road into a newly constructed channel, placing logs with rootwads into the new channel, retaining the existing channel as side

channel habitat, improving the amount of floodplain accessibility and reducing erosion from re-construction of the 3300 road will have a long-term beneficial effect for fish and aquatic species. Alternative A fully meets the three purpose and need statements in Chapter 1. Although some construction related short term increases in sediment delivery to Taneum Creek would occur through implementation of Alt. A, the temporary negative impacts will result in longer term positive effects for the 3300 road, road stream interactions and aquatic and fisheries habitat and species.

Effects of Alternative B on Fisheries

This alternative included both the repair of the FS3300 road at MP 3.9 as well as the decommissioning of the Taneum Creek Campground. The road repair component is the same as Alternative A. This alternative would fully decommission the campground, remove the levee and restore the site as floodplain. None of the in-channel work described in Alternative A would occur. At MP 4.4, none of the in-channel restoration work described in Alternative A would occur. The 3300 road would be re-built with an engineered wall adjoining the remaining gabion baskets.

Direct and Indirect Effects*:*

Table III-3: Aquatic Indicator Findings for Alternative B

Proposed Sites	Length stream bank improved (feet)	Area of floodplain restored (acres)	Downstream distance of temporary increased turbidity during construction(feet)	Magnitude of increased turbidity (increased number of NTUs @ 1000 ft.)
FS3300 mp 3.9	300	5	1000 from any point where there is a road/stream interface	<5
FS3300 mp 4.4	100	0	1000 from any point where there is a road/stream interface	<5

FISH HABITAT COMPLEXITY

1. a. Habitat Frequency/Quality

Reconstruction of the FS3300 at mp 3.9 would be the same as what has been described in Alternative A, including the timing of the project, de-watering and fish salvage plans and implementation of design criteria and BMP's to minimize sediment delivery. Reconstruction of the FS3300 road at MP 4.4 would be similar to Alternative A, however none of the in-channel work would be done and therefore an alternate de-watering and fish salvage plan would need to be implemented. In Alternative B, the levee at MP 3.9 would be removed and the entire Taneum

Creek campground would be restored as floodplain as opposed to only two campsites restored in Alternative A. None of the in-channel stream restoration work at MP 3.9 or MP 4.4 would be done in Alternative B.

During road reconstruction, increases in sedimentation are expected to be low due to de-watering during in-channel work and would not exceed the state standard of >5 NTUs beyond 1000 feet below the project site. Effects to pool frequency or quality downstream of the project area (i.e. fine sediment accumulation in pools) would be of short duration and low magnitude. Removal of the levee and the Taneum Creek Campground will have a positive effect to off channel habitat due to a larger amount of new floodplain (approximately 5 acres) that would be accessible during higher flows. Approximately 5-10 large trees (>15 inches DBH) which currently are present on the levee would be removed during construction. The re-construction of the gabion baskets and repair of the road bed would improve the road side stream bank condition and would arrest the erosion that is occurring at the 3.9 and 4.4 site. The removal of the levee and campsites and improvement in floodplain accessibility and the reduction in erosion from re-construction of the 3300 road will have a long-term beneficial effect for TES and MIS fish species and other aquatic species at the 3.9 site. Channel and floodplain constriction at the 4.4 site would be maintained and would continue to limit Taneum Creek's access to and development of its floodplain and would continue to increase the susceptibility of future flood damage to the 3300 road because of the proximity of the road to the stream.

1. b. Substrate Condition

Mile Post 3.9 and 4.4

As stated in the hydrology section, the implementation of this alternative would increase the input of fine sediment during construction activities but would improve conditions with regard to reducing fine sediment delivery in the long term with the stabilization of the 3300 road and as vegetation is re-established in the riparian areas. Removal of the Taneum Creek campground and levee would improve Taneum Creeks access to the floodplain and improve substrate condition at the 3.9 site in the long term. Channel and floodplain constriction at the 4.4 site would be maintained and would continue to limit Taneum Creek's access to and development of its floodplain and would continue to increase the susceptibility of future flood damage to the 3300 road because of the proximity of the road to the stream. Some sediment could be contributed in the local area during construction, but it is expected that the following years peak flow would remove most if not all of the residual fine sediment. The localized changes in substrate which resulted would be of a short duration and with a limited magnitude. The changes could negatively affect individual fish but would not likely have an effect at the population level. The implementation of this alternative would improve conditions with regard to reducing fine sediment delivery in the long term at the 3.9 site.

1. c. Distribution Barriers

There would be the same construction related barriers as described in Alternative A for this alternative. Dewatering for the purpose of work site isolation is likely to cause a temporary migration barrier. This would be resolved upon project completion. A de-watering and fish salvage plan will be in place prior to construction activities.

WATER QUALITY

2. a. Water Temperature

There are no expected significant changes to stream temperature associated with road re-construction activities at either the 3.9 or 4.4 site at the watershed scale. Re-construction of the road prism will not remove any riparian vegetation that is currently providing shade. Removal of the levee at the 3.9 site will include the removal of several large trees that currently provide shade to Tanuem Creek. Re-vegetation with native grass seeds, shrubs and trees will provide some temporary cover within the next growing season (see botany report) as well established riparian vegetation in the long term. Therefore, due to the relatively small Riparian Reserve area and proposed re-vegetation treatments, any increase in stream temperature will be of short-duration and not measurable at the watershed scale.

2. b. Turbidity

The turbidity related effects are very similar for both project sites and are fully discussed in the hydrology section above and summarized below.

"*Short-term input of fine sediment would increase as a result of construction activities during repair of road segments adjacent to the stream channel. In the long term as vegetation is reestablished in riparian areas, sediment input would decrease. Temporary increases in stream turbidity are expected during periods of in channel construction." (*2013 hydro report for ERFO 3300)

Implementation of BMP's (de-watering, use of sand bags and super sacks, silt fencing, etc) will minimize turbidity increases so that they will not be measurable beyond a distance of approximately 1000 ft. downstream of the project sites. The isolation of the project area, project design criteria and implementation of BMP's to reduce construction related increases in turbidity is vital to the protection of fish and aquatic species.

Fine sediment input to Taneum creek as a result of road construction can cause increases in turbidity which can result in direct impacts to fish, such as gill irritation. Fish salvage would occur during de-watering of the 3.9 and 4.4 construction site and both sites would isolate fish from moving into the construction site via block nets and screens. Any individual fish which are removed will experience stress during the removal. Additionally any fish that were missed in the removal, would likely experience effects of elevated turbidity within the small isolation zone. It is possible that the effects to any fish which could remain in the isolated areas could be fatal. It is expected that negative effects will occur to macroinvertibrates in the localized area, but not to a degree which would impact the fish population. The extent, duration, and magnitude of impacts would be limited as a result of project design criteria which will provide for site isolation and

water quality protection measures. Individual fish are likely to experience negative effects of this action in and near the project construction sites. It is not expected that these effects will occur in a magnitude which would result in an effect to fish at the population level.

2.c. Chemical Contamination

Petro chemical contamination opportunities associated with this alternative are the same as what has been reported in Alternative A.

2. d. Peak and Base Flows

Implementation of Alternative B would not likely result in any measurable change to peak or base flows when compared to the current regime. It is possible that there would be some moderation in flows as a result of floodplain engagement but it is not likely to be measurable at the reach scale.

FISH BIOLOGICAL PARAMETERS

3. a. Life History Stages

The road construction and campground and levee removal related effects are the same as those described in Alternative A.

3. b. Effects to Population Size, Density, Importance to the ESU

The road construction and campground and levee removal related effects are the same as those described in Alternative A.

3. c. Food Supply

Implementation of this alternative is the same as what is described in Alternative A.

Cumulative Effects

The spatial and temporal extent of the effects and past, present and forseeable future actions is the same as described in the Alternative A Cumulative Effects section.

The cumulative effects of repairing the currently degraded sites on FS3300 at mp 3.9 and mp 4.4 would be beneficial in nature. Generally speaking overall reductions in sedimentation will occur as erosion from this road ceases to influence the creek. This will add positively to the overall condition which is representative of the cumulative effects.

Summary

Road shoulder and road reconstruction would occur at both the 3.9 and 4.4 site. At the 3.9 site, the campground and levee would be removed which would allow Taneum Creek to naturally reclaim the floodplain. The in-channel work that is proposed in Alternative A would not occur at the 3.9 or 4.4 sites. Channel and floodplain constriction at the 4.4 site would be maintained and

would continue to limit Taneum Creek's access to and development of its floodplain. This Alternative meets the first purpose and need statement "address roads with serious damage caused by natural disaster or catastrophic failure", but does not fully meet the other two purpose and need statements "reduce road and stream interaction" and "maintain aquatic habitat standards" at the 4.4 site.

Determinations for Alternatives A and B

Based on the proposed actions, including design criteria outlined above, and the known and suspected distribution of aquatic PETS and MIS fish species, this project would likely have an effect on these species and their habitat. However, potential impacts associated with increased sedimentation would be short-term in nature (increased turbidity) or cause slight, site specific habitat degradation with some potential impacts to individuals. There would be no irretrievable or irreversible commitment of aquatic resources. The project would not contribute to a negative trend in viability for MIS fish species on the Okanogan-Wenatchee National Forest.

Alternative A would repair the 3300 road at both the 3.9 and 4.4 site and stream channel restoration would occur at both the 3.9 and 4.4 sites, including; placement of rock weirs, removal of the Taneum Creek campground levee and two campsites, re-directing Taneum Creek away from the 3300 road into a newly constructed channel at the 4.4 site, placement of logs with rootwads into the new channel, retaining the existing channel as side channel habitat and placement of LWD in the channel. Although some construction related increases in sediment delivery to Taneum Creek would occur through implementation of Alt. A, the temporary negative impacts will result in longer term positive effects for fish and aquatic species (TES and MIS) by improving floodplain accessibility and reducing erosion.

Alternative B would repair the 3300 at both the 3.9 and 4.4 sites. Stream channel restoration work would occur only at the 3.9 site including; the removal of the Taneum Creek campground and levee which would allow Taneum Creek to naturally reclaim the floodplain. Channel and floodplain constriction at the 4.4 site would be maintained and would continue to limit Taneum Creek's access to and development of its floodplain.

<u>Determination of Effects Including Essential Fish Habitat</u>

Proposed activities for all alternatives in this project may affect, and are likely to adversely affect federally listed MCR Steelhead and their designated critical habitat. Proposed activities for all alternatives in this project may affect, and are not likely to adversely affect federally listed Bull trout, but the project may affect, and is likely to adversely affect their designated critical habitat. Essential fish habitat may be adversely affected. Proposed activities would not impact interior river lamprey, pygmy whitefish and Umatilla Dace individuals or habitat, and would not likely contribute to a trend towards Federal listing or loss of viability to either population or species. This determination is based on the known distribution of these species and their lack of presence in the project area. Because this project impacts less than 1% of suitable habitat across the Forest for MIS fish species, the overall direct, indirect and cumulative effects will result in a small negative trend of habitat (increase in disturbance) in the short term. The loss of habitat (increase in disturbance) will be insignificant at the scale of the Forest. The Taneum Creek

Project is consistent with the Forest Plan, and thus continued viability of MIS fish species is expected on the Okanogan-Wenatchee National Forest.

Table III-4: TES and MIS Species for the Okanogan-Wenatchee National Forest and effect determinations for project level analysis for the proposed Taneum Creek Project.

Fish Species	Special Status	Known to Occur in the Project Area	Suitable Habitat in the Project Area	Determination for the No Action	Determination for Alt A and B
Columbia River Bull Trout (*Salvelinus confluentus*)	Threatened, MIS	No	Yes	LAA, chronic	Short term-LAA; Long term improvement in habitat conditions
Middle Columbia River steelhead (*Oncorhynchus mykiss*)	Threatened, MIS	Yes	Yes	LAA, chronic	Short term-LAA; Long term improvement in habitat conditions
River lamprey (*Lampetra ayresii)*	Regional Foresters (R6) Sensitive Species	No	Yes	NI	NI
Pygmy whitefish (*Prosopium coulterii*)	Regional Foresters (R6) Sensitive Species	No	No	NI	NI
Umatilla dace (*Rhinichthys umatilla*)	Regional Foresters (R6) Sensitive Species	No	Yes	NI	NI
Cutthroat Trout (*O. clarki*)	MIS	Yes	Yes	Long term negative impact/ continued viability	Short term negative impact/ continued viability
Rainbow Trout (O. mykiss)	MIS	Yes	Yes	Long term negative impact/ continued viability	Short term negative impact/ continued viability

T&E Species: NE = No effect
NLAA = May affect, but is not likely to adversely affect
LAA = May affect and is likely to adversely affect the species or its designated critical habitat

Sensitive Species NI = No impact
BI = Beneficial impact
MAII = May adversely impact individuals, but not likely to result in a loss of viability, nor cause a trend toward federal listing
LII = Likely to impact individuals and result in a loss of viability, or in a trend toward federal listing

Determination of Project Consistency NWFP

Standards and guidelines from the NWFP plan were reviewed prior to project development and integrated into the project design for all alternatives. All action alternatives are consistent with this direction.

Determination of Project Consistency ACS

This project prescribes management within the Riparian Reserves. Alternative A was designed to maintain the 3300 road and improve the existing stream conditions by decommissioning part of Taneum Creek Campground and designing in-stream channel components to improve habitat. Alternative A was designed to improve the long term function of the Riparian Reserves in regard to providing high quality water and fish habitat conditions at the 3.9 and 4.4 site. Alternative B was designed to maintain the 3300 road and improve the existing stream conditions at the 3.9 site by decommissioning all of Taneum Creek Campground. Alternative B was designed to improve the long term function of the Riparian Reserves in regard to providing high quality water and fish habitat conditions at the 3.9 site. This may involve some short term negative effects that would be offset by long term improvements: "complying with the Aquatic Conservation Strategy objectives means that an agency must manage the riparian-dependent resources to maintain the existing condition or implement actions to restore conditions" (NWP ROD pg. B-10). The pertinent sections of the ACSOs are provided below as well as a description as to how this project meets them.

Forest Service administered lands within the range of the northern spotted owl will be managed to:

> *"1. Maintain and restore the distribution, diversity, and complexity of watershed and landscape-scale features to ensure protection of the aquatic systems to which species, populations and communities are uniquely adapted."*

Both alternatives will work to maintain the distribution of aquatic species as they do not create any barriers to distribution, or reductions in the populations' ability to naturally be diverse. The project will maintain the pre flood conditions and will not create reductions in complexity above what was previously on site, or improve conditions through the reclamation of the campground at varying degrees.

> *"2. Maintain and restore spatial and temporal connectivity within and between watersheds. Lateral, longitudinal, and drainage network connections include floodplains, wetlands, upslope areas, headwater tributaries, and intact refugia. These network connections must provide chemically and physically unobstructed routes to areas critical for fulfilling life history requirements of aquatic and riparian-dependent species."*

This project will maintain the values described above in ACSO #2. The repair alternative works to maintain the pre flood levels by bringing the conditions back to what was present prior to the

flood events which eroded the road. The floodplain reclamation components will actively work to restore the spatial connectivity within the watershed by reconnecting the floodplain and discontinuing the interruption of network connections.

> *"3. Maintain and restore the physical integrity of the aquatic system, including shorelines, banks, and bottom configurations."*

The alternatives are designed to maintain or restore the pre flood conditions and will arrest the existing erosion conditions which are resulting in loss of integrity of the banks. The floodplain reclamation component will actively work to restore the watershed processes which drive the ability of a watershed to maintain physical integrity.

> *"4. Maintain and restore water quality necessary to support healthy riparian, aquatic, and wetland ecosystems. Water quality must remain within the range that maintains the biological, physical, and chemical integrity of the system and benefits survival, growth, reproduction, and migration of individuals composing aquatic and riparian communities."*

The alternatives are designed to maintain or restore water quality through the arrest of erosion at these sites and the reclamation of the campground. Specific project design criteria, BMPs, and mitigations are incorporated to reduce short term construction related effects and the long term results for both action alternatives are an improvement to the existing condition of eroding banks.

> *"5. Maintain and restore the sediment regime under which aquatic ecosystems evolved. Elements of the sediment regime include the timing, volume, rate, and character of sediment input, storage, and transport."*

Both action alternatives are designed to maintain or restore the sediment regime at the same level as what existed pre flood or at an improved level. The current sediment regime is within the natural range of variability and falls within the boundaries of what could be expected to occur during the evolution of the system. This project will remove anthropogenic sediment inputs which are resulting from erosive processes at these two sites on the FS 3300.

> *"6. Maintain and restore in-stream flows sufficient to create and sustain riparian, aquatic, and wetland habitats and to retain patterns of sediment, nutrient, and wood routing. The timing, magnitude, duration, and spatial distribution of peak, high, and low flows must be protected."*

The alternatives are designed to maintain the in stream flows and will have no measurable influence on peak and base flows beyond the reach scale. The nature of the work for all alternatives will not influence this process.

> *"7. Maintain and restore the timing, variability, and duration of floodplain inundation and water table elevation in meadows and wetlands."*

The alternatives are designed to maintain or restore the current levels of floodplain inundation at the pre flood levels. There are no project elements which will prevent the inundation of floodplains at a level higher than what previously existed. The campground decommissioning components will reconnect up to 5 acres of previously disconnected floodplain.

> *"8. Maintain and restore the species composition and structural diversity for plant communities in riparian areas and wetlands to provide adequate summer and winter thermal regulation, nutrient filtering, appropriate rates of surface erosion, bank erosion, and channel migration and to supply amounts and distributions of coarse woody debris sufficient to sustain physical complexity and stability."*

The determination for compliance with # 8 can be found in the Botanist effects analysis on page III-35.

> *"9. Maintain and restore habitat to support well-distributed populations of native plant, invertebrate and vertebrate riparian-dependent species.*

The determination for compliance with #9 can be found in the Wildlife effects analysis on pages III-24, 25, and 27.

Determination of Project Consistency WNF LRMP

All goals, standards, and guidelines from the LRMP were reviewed prior to project development and integrated into the project design for all alternatives. All alternatives are consistent with this direction. The MIS fish groups identified in the LRMP would continue to persist as viable populations if this project is implemented.

Determination of Project Consistency ESA

This project has been designed to promote the conservation of ESA-listed Bull trout (BT) and Middle Columbia steelhead (MC) habitat. The project arrests the erosion which is currently occurring at these sites and has a beneficial effect in the long term. The implementation of any of these actions would not jeopardize the continued existence of BT or MC Steelhead, or result in the destruction or adverse modification of designated critical habitat. This project is therefore consistent with ESA direction.

Determination of Project Consistency Magnuson-Stevens Fishery Conservation and Management Act (MSA)

All streams currently or historically occupied by spring Chinook and Coho salmon in the project area have been designated as essential fish habitat by the NMFS. No negative effects to occupied and critical habitat are predicted to occur with either action alternative. This project is consistent with the MSA.

Determination of Project Consistency EO 12962

Recreational fishing is an identified use in the analysis area. The implementation of either action alternative would not result in any appreciable reduction in the fish population numbers or otherwise negatively affect the fishing opportunity. This project is consistent with this Order.

Determination of Project Consistency EO 11988

Floodplains are present in the analysis area. This project seeks to stabilize the existing floodplain interactions or increase floodplain access. The alternatives would restore and preserve the natural and beneficial values served by floodplains. This project is consistent with this Order.

Determination of Project Consistency EO 11990

The implementation of any of the actions would minimize destruction, loss or degradation of wetlands. Streamside Riparian Reserves, seeps, and other wet habitats were assessed. This project is consistent with this Order.

WILDLIFE

Unlike the other resources sections in Chapter III, wildlife will be divided up by species or species group. Under each grouping, effects of each alternative considering mile post 3.9 and 4.4 will then be displayed. Required consistency findings will also be disclosed in each section. Assessment of habitat conditions in and immediately surrounding both Project Areas is based on field reconnaissance in summer 2012. For all species potentially impacted by the Project, cumulative effects were assessed at a watershed scale, using aerial photography, habitat models, and GIS analysis. Due to the small scale of this project, the focus of the cumulative effects analyses for all affected wildlife is the past, present, and any proposed changes to the road and trail network in the affected habitat.

DEER AND ELK

Effects of No Action on Deer and Elk

Taking no action at mile post 3.9 would still result in human activity in Taneum campground, at least until the road and/or foot trail fail entirely due to natural flooding. In early spring, users would continue to access the area by foot trail, and later in the year, via the ford. Campground operations would continue at current levels, with danger tree management, trampling of vegetation, and firewood collection across the entire floodplain. Habitat effectiveness for deer and elk would remain at current low levels, because of road influences (campground roads and the main Taneum Creek road) and the open condition of the campground. The high level of human disturbance would continue to limit deer and elk use of the area as a travel corridor, to an incidental level.

Deer and elk use of the riparian flat at milepost 4.4 would not change from current levels, as long the Taneum Road remains passable. If the road fails and becomes impassable, however, then the influence of this road on deer and elk habitat would also be reduced, locally improving habitat

effectiveness. Individual animals may benefit, but there would be no impact to the larger deer and elk populations.

Effects of Alternative A on Deer and Elk

Direct and Indirect Effects

Even though the number of campsites in the campground would be reduced, resumption of motorized access would still result in a high level of human disturbance in the general campground area, curbing deer and elk use of riparian forest as a travel corridor. The restored floodplain would still be adjacent to campsites, and would still incur regular human use and danger tree management that would impede establishment of trees and shrubs that provide hiding cover for deer. The restored area would still be visible from the Taneum Creek Road, therefore deer and elk would still be vulnerable to disturbance. Deer and elk would continue to use or move through the area on an incidental basis, when there are few or no people in the campground.

Because incidental use would still occur, and because deer and elk can move around the campground if not through it, this alternative is consistent with the Forest Plan standard to manage migration routes to provide enough hiding cover to facilitate travel.

Operation of heavy equipment at both Project Areas (during road re-construction and decommissioning in the campground) would result in intermittent noise above ambient conditions, even for a heavily-used road. This localized disturbance in summer may temporarily displace any nearby deer and elk even further into surrounding forest, but there would be no lasting impacts to affected animals. Incidental use would resume shortly after disturbance.

Cumulative Effects to Deer and Elk for Alternative A

Within the Taneum-Manastash watershed, the existing road and trail network has resulted in cumulative effects to deer and elk habitat. The deer-elk summer habitat disturbance index (Gaines et al. 2003) is currently 91%, indicating that 91% of the available deer and elk habitat in the watershed is within the potential zone of influence from a motorized route. On the Okanogan-Wenatchee National forest, levels above 70% indicate a high level of human influence on deer and elk habitat (Gaines et al. 2003 pp. 19).

There are no reasonably foreseeable *future* actions that would in combination with this alternative result in additional cumulative effects to deer and elk.

Effects of Alternative B on Deer and Elk

Direct and Indirect Effects

This alternative would eliminate most of the human use in the floodplain south side of Taneum Creek, allowing vegetation to recover and creating new patches of hiding cover that would particularly benefit resident mule deer. Use of and movement through the floodplain by deer and elk would increase, and the influence of traffic on the Taneum Road on deer and elk would be

tempered by establishment of new vegetation (hiding cover) in the floodplain. Therefore, this alternative is fully consistent with the Forest Plan standard to manage migration routes for deer and elk to provide enough cover to facilitate travel. Vulnerability to disturbance would decline. Although it would re-establish important late summer cover for a few animals, it would not affect population levels of local deer and elk herds.

Like Alternative A, planned operation of heavy equipment (during road re-construction and decommissioning in the campground) would result in intermittent noise above ambient conditions, even next to the heavily used Taneum Road. This localized disturbance in summer may temporarily displace any nearby deer and elk even further into surrounding forest, but there would be no lasting impacts to affected animals. Use would resume shortly after construction disturbance.

Cumulative Effects to Deer and Elk for Alternatives B

Same as Cumulative Effects for Alternative A.

Consistency Finding for Deer and Elk for both Alternatives A and B:

Alternatives A and C would both result in continued campground use that would pose a disturbance to deer and elk that use—or potentially use—the floodplain south of Taneum Creek for summer and fall movement and/or thermal relief. This campground is small and does not pose a barrier to movement, however, because animals can and do move through campground incidentally, and through adjacent upland forest to the south. Therefore, campground presence does not influence deer and elk use of habitat at a watershed scale, or their distribution across the watershed. On that basis, Alternatives A and C are consistent with ACSO Object #9, to *"manage Riparian Reserves to "maintain and restore habitat to support well-distributed populations of native plant, invertebrate, and vertebrate riparian-dependent species"*. It is also consistent with the Forest Plan standard *to manage migration routes for big game to provide enough cover to facilitate travel.*

Alternative B would curtail most of the human disturbance in the floodplain and allow a recovery of vegetation that would be particularly beneficial to deer and elk moving through the area, and to resident deer in summer. Because it would increase cover in the Riparian Reserve and thus temper the influence of the Taneum Road on the riparian forest south of Taneum Creek, Alternative 3 is consistent with ACSO#9, and with the Forest Plan standard to manage migration routes for big game to provide enough cover to facilitate travel.

All action alternatives would result in highly localized disturbance to deer and elk during construction periods, with no lasting impacts to affected animals and no impact at all to deer and elk populations. Both alternatives would contribute to the continued viability of deer and elk, consistent with NFMA.

RUFFED GROUSE AND BEAVER

Effects of No Action on Ruffed Grouse and Beaver

Operation of Taneum Campground would continue as is (until the road and/or foot trail fail entirely due to natural flooding). In early spring, users would continue to access the area by foot trail, and later in the year, via the ford off of the main Taneum road. The level of disturbance to ruffed grouse would remain at current levels (high). The campground would remain subject to the same activities that over the long-term have reduced habitat complexity for grouse (road construction, vegetation cleaning and trampling, hazard tree management, firewood collection, trampling of vegetation, etc...). Riparian habitat effectiveness for ruffed grouse would remain at a low level because of ongoing campground operations and use, and degraded riparian habitat structure. High velocity water adjacent to the campground would continue to limit beaver use in this reach of Taneum Creek, and beaver presence would still be actively discouraged above the campground due to the potential for log jams and flooding in the campground.

At MP 4.4, there would be no improvement to riparian habitat values for beaver or ruffed grouse, as long as the road continues to impinge upon the floodplain, limiting natural channel migration and reducing floodplain disturbances that would in the long-term, be beneficial to both species.

Effects of Alternative A on Ruffed Grouse and Beaver

At milepost 3.9, effecting road repairs while returning part of the campground to floodplain would still allow operations to continue in the rest of the campground. It would not result in the vegetative recovery needed to improve habitat conditions for ruffed grouse, because campground users would still be drawn to the abandoned sections of campground, to be near water. Constant daily use would impede vegetative recovery. Hazard trees would still need to be felled and would likely be removed as firewood. The reclaimed area may meet the forest plan standard to retain at least 90% effective ground in the floodplain, but in this case, the cover would not be complex enough to support use by ruffed grouse or beaver.

Ruffed grouse would continue to use this area at current levels, and the area would remain marginally attractive to beaver. This area would continue to meet the forest standard to retain 90% ground cover.

Cumulative Effects

The influence of the existing road and trail network on Riparian Reserves in Taneum Creek watershed is characterized as low, with an estimated 11 to 20% of all Riparian Reserve acreage located within the zones of influence from open roads, and subject to such activities as danger tree management and firewood collection. We know of no future federal or non-federal actions that in combination with Alternatives A, that would result in additional cumulative effects to beaver and ruffed grouse, or the riparian habitats on which they depend.

Effects of Alternative B on Ruffed Grouse and Beaver

This alternative would benefit ruffed grouse and beaver, by removing human disturbance and allowing natural floodplain functions to resume, including channel migration and disturbance to

vegetation from natural flooding. Flooding would kill trees, creating snags in the Riparian Reserve, and a source of recruitment for logs that may provide cover for ruffed grouse broods. It would also create areas of scour that would facilitate re-establishment of cottonwoods in the floodplain (future food source for beavers). Floodwaters would be able to spread across more of the floodplain, and the maximum velocity of floodwaters would be slowed to a level that might sustain beaver use. The vegetative recovery resulting from this alternative would restore the complex habitat structure that supports use by ruffed grouse, and would also meet the Forest Plan standard to retain 90% vegetative cover in floodplains.

Cumulative Effects

Same Cumulative Effects as Alternative A.

Consistency Finding on Ruffed Grouse and Beaver for all action Alternatives

All action alternatives meet the Forest Plan standard to retain 90% effective ground cover in the floodplain of Taneum Creek, however, Alternatives A and C restore riparian habitats to their degraded, pre-flood condition at Taneum Campground. Only Alternative B ensures restoration of the riparian vegetation and floodplain functions that would benefit both ruffed grouse and beaver. Neither alternative would result in population level impacts that would reduce the viability of beaver and ruffed grouse populations.
Taneum Campground is small and does not pose a barrier to movement for most species dependent on Riparian Reserves. On that basis, both alternatives are consistent with ACSO Object #9, to *"manage Riparian Reserves to "maintain and restore habitat to support well-distributed populations of native plant, invertebrate, and vertebrate riparian-dependent species"*

PILEATED WOOD-PECKER AND PRIMARY CAVITY EXCA-VATORS

Effects of No Action on Pileated Woodpecker and Primary Cavity Excavators

Continued operation of the campground would perpetuate the absence of snags and low densities of logs used by cavity dependent wildlife. The campground would continue to support little if any use by cavity excavators, or wildlife dependent on decayed wood habitat structure.

Road repairs at milepost 4.4 would perpetuate the ongoing influence of the road on floodplain functions, but would not directly affect current snag and down wood densities in the floodplain. Snag and log densities above the road would remain low, due to long-term danger tree management.

Effects of Alternative A on Pileated Woodpecker and Primary Cavity Excavators

Continued operations in part of the campground would still entail hazard tree removal in the abandoned sections of campground, perpetuating the current absence of snags and low densities of logs used by cavity dependent wildlife. The campground would continue to support little if any use by cavity excavators. The indirect effect of this alternative is to perpetuate degraded habitat conditions for all wildlife dependent on decayed wood habitat structure. The direct effect would be limited to brief and inconsequential displacement on the north side of the road, due to

noise disturbance during construction. This impact would be limited to individual birds or pairs, and would not affect populations or viability.

Proposed repairs at milepost 4.4 would have no direct effects on snag and log densities, or woodpecker use. Effects to excavators and pileated woodpeckers would be limited to brief and inconsequential displacement during road reconstruction, due to noise disturbance. There would be no lasting impact to individual birds, or populations.

Cumulative Effects

Across the Taneum-Manastash watershed, previous and ongoing timber harvest and the existing road and trail network has resulted in a cumulative effect to habitat structure for woodpeckers and all cavity dependent wildlife. Most private land has been harvested, leaving few if any snags and logs greater than 20" dbh. The proportion of cavity excavator habitat that is potentially subject to physical effects from roads (the primary cavity excavator habitat influence index, see Gaines et al. 2003, page. 29) is currently 7.2%. On this Forest, values below 30% are characterized as a low overall level human influence due to roads.

Human influence on decayed wood structure in Riparian Reserves is higher, however, because roads, trails, and recreational uses tend to concentrate in the Reserves. Eleven percent of the total Riparian Reserve acreage for perennial streams is located within the potential zone of influence from an open road, and is therefore subject to firewood removal and/or danger tree management (Gaines et al. 2003, page. 25). This value is also characterized low, but it also does not reflect the effects of roads on Riparian Reserves associated with intermittent streams.

We know of no future actions that would in combination with either action alternative, result in additional cumulative effects to the density of snags and down logs in Taneum watershed.

Effects of Alternative B on Pileated Woodpecker and Primary Cavity Excavators

Road repairs would not entail direct effects to cavity dependent wildlife, but closure of the campground would have immediate and short- and long-term benefits, the most profound being cessation of hazard tree management across the breadth of riparian forest in Taneum Campground. Large trees are still present in this campground, and would provide a source for recruitment of large snags (and then large down logs) in the recovering floodplain. Because much of the surrounding landscape has been logged and supports little or no large tree structure, providing this structure in the riparian forest would be particularly beneficial to highly mobile pileated woodpeckers. Restoration of natural floodplain functions may also accelerate the recruitment of snags, including large snags. Due to the small size of the affected area, however, the future benefit would likely be limited, to a single resident pair of pileateds, and would not affect the population as whole.

Disturbance effects would be the same as Alternative A: brief and inconsequential displacement of individual birds or pairs, during road reconstruction.

Cumulative Effects

Same as Cumulative Effects for Alternative A.

Consistency Finding on Woodpeckers and Primary Cavity Excavators for all action Alternatives

Taneum Campground is an administrative site where the safety of campground users is paramount to the habitat needs of woodpeckers and other cavity dependent wildlife It is also in a Riparian Reserve, where resource conflicts are to be resolved in favor of riparian dependent resources such as fish and wildlife.

Under Alternatives A, B, and C, the repaired road would continue to influence snag and log habitat on the north side of the Creek, but under Alternative B, road influence on snags and logs would be eliminated on the south of Taneum Creek, because of reduced hazard tree management and recreational use in Taneum Campground.

Because direct and indirect effects would be limited to individual birds or pairs (not populations), both alternatives would contribute to the continued viability of cavity excavator populations, and pileated woodpeckers. Because Taneum Campground is small and does not pose a barrier to movement or affect the distribution of species dependent on decaying wood habitat structure, both alternatives are consistent with ACSO Object #9, to *"manage Riparian Reserves to "maintain and restore habitat to support well-distributed populations of native plant, invertebrate, and vertebrate riparian-dependent species"*

NORTHERN SPOTTED OWL AND CRITICAL HABITAT

Effects of No Action on Northern Spotted Owl and Critical Habitat

Continued operation of the campground—in full or in part—would perpetuate the absence of snags and low densities of logs that would be by spotted owls and their mammalian prey. The campground would continue to provide dispersal habitat for spotted owls, albeit in a perpetually degraded condition due to ongoing hazard tree management, and firewood collection. Foraging opportunities for dispersing spotted owls would remain at current incidental levels.

Effects of Alternative A on Northern Spotted Owl and Critical Habitat

Direct and Indirect Effects

Alternative A would have one effect that differs from taking no action at the site: noise disturbance may briefly displace any spotted owl present during the road reconstruction period. Because only an incidental foraging opportunity for non-resident birds would be lost—there would be no lasting impact to any breeding pair or population level impacts. Under this alternative, conditions for owls would return to the pre-flood, degraded habitat condition that is typical of campgrounds.

Cumulative Effects

Continued operation of the campground would have the same effects as No Action Alternative. Alternative A would also result in noise disturbance that may briefly displace any spotted owls present during the road reconstruction period. Only incidental use is expected here, however, and there would no lasting impact to the affected owl, and no population level impact.

Effects of past timber harvest and campground management are reflected in the existing condition for spotted owls. We know of no future actions that in combination with Alternative A would result in additional cumulative effects to spotted owls, or to designated critical habitat for spotted owls.

Effects of Alternative B on Northern Spotted Owl and Critical Habitat

Campground closure and curtailment of hazard tree management and firewood collection south of Taneum Creek would in time, restore understory vegetation and the snags and down wood that provide habitat cover for spotted owl prey. Foraging opportunities for dispersing owls may rapidly improve. Over the long-term, the restored campground area may develop enough structural complexity to once again provide NRF habitat for spotted owls. If surrounding forest on north-facing slope is also restored (as might occur given the new critical habitat designation), this area outside the National Forest boundary could conceivably support a new breeding pair of spotted owls, providing demographic support to the recovering population. If non-federal lands are not restored, the denser National Forest land would continue to function as a stepping stone, providing an isolated island of NRF habitat within a matrix of open, younger forest.

Cumulative Effects

Alternatives B would also result in noise disturbance that may briefly displace any spotted owls present during the road reconstruction period. Only incidental use is expected here, however, and there would no lasting impact to the affected owl, and no population level impact.

Effects of past timber harvest and campground management are reflected in the existing condition for spotted owls. We know of no future actions that in combination with Alternative B would result in additional cumulative effects to spotted owls, or to designated critical habitat for spotted owls.

Consistency Findings on Northern Spotted Owl and Critical Habitat for all action Alternatives

Road repairs under Alternatives A and B would have no direct effects on spotted owl habitat (NRF or dispersal). The elevated noise during construction may pose a disturbance to owls dispersing through the campground at MP 3.9, and the floodplain at MP 4.4, but the likelihood of spotted owl occurrence at either location is extremely low due to overall absence of habitat.

Alternative A would perpetuate pre-flood habitat conditions for spotted owls in Taneum Campground: dispersal habitat degraded by past and ongoing hazard tree management and long-

term recreational use that has removed snags, logs, and understory vegetation in the floodplain. Neither alternative, however, would indirectly remove this dispersal habitat, therefore both alternatives *may affect but will not likely adversely spotted owls*, and *may affect but will not likely adversely affect* newly designated critical habitat for spotted owls.

Alternative B would curtail those human activities that have degraded spotted owl habitat in the Taneum Creek floodplain. Cessation of hazard tree management would improve habitat structure for prey, and foraging opportunities for dispersing owls. As understory becomes increasing complex over the time, in the absence of disturbance this area would likely develop into NRF habitat for spotted owls.

Although habitat effects under Alternative B are entirely beneficial, the determination of effect to spotted owls is "*may affect but not likely to adversely affect*," based on the insignificant and discountable risk of disturbance to owls during the construction period.

Alternative B would be entirely *beneficial* to designated critical habitat for spotted owls, because it would restore degraded dispersal habitat in the short-term, and NRF habitat for spotted owls in the future. The restored habitat would be sustainable in this relatively moist setting, consistent with the spotted owl recovery strategy in the dry forests of eastern Washington, and with the potential to also recover habitat on surrounding mesic non-federal lands, consistent with Recovery Action 10 (conserve known spotted owl sites *and high value habitat* to provide additional demographic support to spotted owl populations) (Final Recovery Plan, USDI 2011).

WIDE-RANGING CARNI-VORES

Effects of No Action on Wide-ranging Carnivores

Continued operation of the campground would limit use of the area by deer and elk to periods of reduced human use, and would limit predaceous foraging opportunities for wide-ranging carnivores like grizzly bears and gray wolves to current incidental levels. Leaving the road in its current condition would not change the existing road and trail network, and therefore would not reduce core area for grizzly bears (outside the Grizzly Bear Recovery Zone), and would not reduce security habitat for gray wolf and wolverine. Even if no action is taken, this road would continue to receive use, unless or until it fails due to current and/or future flood damage. There are other means of access into Taneum watershed, and even if it were to fail, road use would likely continue on both sides of the failure. The roads impact on wide-ranging carnivore use would not likely change.

Effects of Alternative A on Wide-ranging Carnivores

Direct and Indirect Effects

Proposed road repairs in place would not change the existing road and trail network, and therefore would not reduce core area for grizzly bears (outside the Grizzly Bear Recovery Zone), and would not reduce security habitat for gray wolf and wolverine.

At MP 3.9, continued operation of the campground in full or in part would still limit use of this area by deer and elk, and would continue to limit predaceous foraging opportunities for all wide-

ranging carnivores to current incidental levels. Even incidental use, however, would cease briefly during construction periods, and would resume after construction as ungulate prey return to the area.

Cumulative Effects

The current road and trail network exerts a high level of influence on habitats for wide-ranging carnivores in the Taneum -Manastash watershed (unpublished data on file at the Cle Elum Ranger Station, using methodology from Gaines et al. (2003)). Alternative A would not result in changes to this road and trail network, or in net changes in core area for grizzly bears, or changes in security habitat for gray wolves and wolverine. Therefore, there are no cumulative effects to wide-ranging carnivore habitat associated with Alternative A.

Effects of Alternative B on Wide-ranging Carnivores

Direct and Indirect Effects

Alternative B would eliminate roads within Taneum Campground, but would not alter the amount of security habitat for gray wolves and wolverines, and core area for grizzly bears, at the watershed scale. The improved year-round habitat effectiveness for deer and elk would indirectly increase predaceous foraging opportunities for wide-ranging carnivores, but traffic on the main Taneum Road would continue to limit use of this area by wide-ranging carnivores to incidental levels. Over the long-term, with removal of disturbance on the south side of Taneum Creek and recovery of vegetation in the campground, persistent deer presence would be particularly beneficial to wolves in springs and summer.

Cumulative Effects:

See Cumulative Effects as Alternative A.

Consistency Finding on Wide-ranging Carnivores for all action Alternatives

Alternatives A and B would not result in a net loss of core area for grizzly bears within the North Cascades Grizzly Bear Recovery Zone. The Project t Area is outside of the Recovery Zone, and provisions of the North Cascades Chapter of the Grizzly Bear Recovery Plan are not applicable here.

Due to slight loss of predaceous foraging opportunity for all wide-ranging carnivores during the construction period, all action alternatives may affect but will not likely adversely affect grizzly bears and gray wolves, and may impact but would not likely adversely impact California wolverine. There would be no lasting impacts to affected animals, and no population level impacts. The alternatives would not reduce the viability of California wolverine, or cause a downward population trend that would lead to federal listing under the Endangered Species Act.

WHITE-HEADED WOOD-PECKER

Effects of No Action on White-headed Woodpecker

White-headed woodpeckers use the ponderosa pine stands adjacent to FSR 3300 would continue at an incidental level as ongoing danger tree management would eliminate most if not all snags from the roadside area.

Effects of Alternative A and B on White-headed Woodpecker

Direct, Indirect, and Cumulative Effects

Proposed road repairs would not affect habitat for white-headed woodpeckers (a Pacific Northwest Sensitive Species that may use adjacent open *upland* forest at both Project Areas). The likelihood of white-headed woodpecker presence is already reduced by the low densities of snags along FS Rd 3300. Impacts from this project would be limited to disturbance, and is the same for Alternatives A and B: there may brief and localized displacement of any white-headed woodpeckers present during road reconstruction. Impacts would be limited to individual birds or pairs, and would not affect white-headed woodpecker populations or viability. None of the action alternatives would result in a downward population trend that would lead to federal listing of white-headed woodpecker under the Endangered Species Act. We know of no other future actions that would in combination with Alternatives A and B result in additional disturbance to white-headed woodpeckers using either Project Area.

PACIFIC FISHER

Effects of No Action on Pacific Fisher

Campground operations would continue to degrade habitat structure for fisher by reducing the densities of large snags and logs that fisher use for denning and rearing that also provide cover for prey.

Effects of Alternative A and B on Pacific Fisher

Direct, Indirect, and Cumulative Effects

Proposed road repairs would not affect dense complex late successional forest habitat that is potentially used by Pacific fisher (a Pacific Northwest Region Sensitive Species that has not been documented in eastern Washington in recent years). The impacts from this Project would stem only from its indirect effects on *future* habitat structure for fisher within Taneum Campground (a single stand in strategic location—the floodplain of Taneum Creek). There is little or no risk of disturbance or loss of viability, because fishers do not currently occupy the area.

At mileposts 3.9 and 4.4, Taneum Creek floodplain was historically dense and complex, with large trees, snags, and down logs. We believe that fisher historically used such areas. Within Taneum Campground, decades of hazard tree management and concentrated recreational use have reduced understory vegetation, and more or less eliminated snags, down logs, and decadent tree within the campground. These elements provided important cover for mammalian and avian prey species, and denning and roosting structure for fisher. The current degraded condition of

the campground would deter fisher use, and Alternative A would perpetuate that degraded condition. Alternative B, however, would restore natural processes that create and sustain habitat for fisher: recruitment of large trees, large snags, and large down logs, tree mortality due to flooding, accumulations of logs in the floodplain, etc. The half-section of federal land encompassing Taneum Campground now functions as a stepping stone of relatively dense forest surrounded by younger open forest. Even if surrounding state lands (north-facing) are not managed for dense late successional conditions, the area in and around Taneum Campground may function as an island of dense old forest under Alternative B. Such areas may be important when larger contiguous blocks of dense forest to the west are at risk to uncharacteristic disturbances from fire, insects, and disease. Therefore Alternative B provides an opportunity to restore potentially suitable habitat for fisher, in the future.

Because fishers are not currently present, Alternatives A and B are all consistent with Forest Plan direction to prevent downward population trends that would lead towards federal listing of Sensitive Species under the Endangered Species Act.

There are no future actions that in combination with any of the action Alternatives would result in additional cumulative effects to late successional forests potentially used by fisher.

MIGRATORY LAND-BIRDS

Effects of No Action on Migratory Landbirds

Continued operation of the campground, in full or in part, will perpetuate the activities that have degraded dense late successional and riparian forest structure adjacent to Taneum Creek. Hazard tree management, firewood collection, and vegetation removal would continue to impede the recruitment of large trees, large snags, and down logs, and understory vegetation. The effect is highly localized will not impact any landbird populations. No Action would perpetuate the existing degraded habitat condition for landbirds in Taneum Campground, but because they would not have population level impacts, they are neutral towards landbird conservation.

Effects of Alternative A on Migratory Landbirds

Direct and Indirect Effects

Same as No Action.

Cumulative effects

In Taneum watershed, many activities have contributed to degraded conditions for landbirds that use dense riparian forest, including timber harvest, the existing road and trail network, danger tree management, dispersed and developed camping act ivies, and livestock grazing. These effects are reflected in the baseline conditions for the various MIS addressed in this report. We know of no foreseeable *future* actions that in combination with Alternative A would result in additional cumulative effects to landbirds.

Effects of Alternative B on Migratory Landbirds

Cessation of hazard tree management and firewood collection, and restoration of floodplain functions across the breadth of the abandoned campground would restore the capability for recruitment of large trees, large snags, and down logs, and would re-establish a more natural disturbance regime for this section of floodplain. Flooding would kill some trees, but would also create conditions that could potentially support re-establishment of cottonwoods. Conditions would become more complex. This alternative would promote the conservation of landbirds by preserving or restoring key habitat elements (large trees, large snags, cottonwoods, and subcanopy foliage) for the various focal landbird species likely to use this floodplain.

Cumulative effects

Same Cumulative Effects as Alternative A.

Consistency Finding on Landbirds for all action Alternatives

Although Alternative A would perpetuate existing conditions for landbirds, Alternative B would promote landbird conservation by restoring key habitat elements and a natural disturbance regime to one small section of the Taneum Creek floodplain. The highly localized impacts from all action alternatives would not affect populations of landbirds, or their overall viability. Therefore both alternatives are consistent with the Migratory Bird Treaty Act and Executive Order 13186 (Conservation of Migratory Landbirds).

For the complete Wildlife Specialist Report, please see the project file.

BOTANY

The 'Botany' effects analysis includes Threatened, Endangered, and Sensitive plant species (TES), Survey and Manage plant species, and the threat of invasive/noxious plants in the project area. For other vegetation concerns, reference the effects analysis for Fuels and Vegetation Management page III-41.

A prefield review of TES, Survey and Manage and Invasive plant species was conducted by consulting with spatial databases, DNR heritage program (WNHP, 2013) and Forest Service- R6 NRIS database (USFS, 2013). Intuitive focused field surveys were completed and a plant inventory list was generated as directed by the Wenatchee National Forest Plan.

Vegetation surveyed at these two roads sites represents riparian forest edges. The plant associations that exist here are primarily of a (*Pinus ponderosa, Pseudotusuga menziesii*) in the upland and the campground floodplain was dominated by deciduous trees such as black cottonwood (*Populus trichocarpa*), alder (*Alnus viridis sinuata*) and bitter cherry (*Prunus emarginata*). The understory consists of a variety of dry type shrubs (*Holodiscus discolor, Ceanothus sanguineus, Purshia tridentata*) and some more shade tolerant shrubs. The (*Symphoricarpos albus, Cornus sericea, Paxistima myrsinites,* and *Mahonia aquifolium*). The herbaceous layer varied from shrub steppe species (*Phacelia hastate, Penstemon fruiticosus*) to

typical ponderosa pine understory species (*Calamagrostis rubescens, Carex geyeri, Arnica cordifolia, Maianthemum stellatum* and *Hieracium scouleriana*). Due to the ground disturbance from flooding and human use in the campground a variety of early serial species were present (*Rubus parviflorus, Bromus tectorum, Achillea millefolium*). During field surveys or prefield surveys from the database no listed species were detected within the project area.

During field surveys along access points, roads and in the project footprint, three invasive plants were identified (Table 2). Oxeye daisy (*Leucanthemum vulgare*), chicory (*Cichorium intybus*) and diffuse knapweed (*Centaurea diffusa*) were documented within the project footprint and along the access roads.

Effects of No Action on Botany

Mile post 3.9

Due to the nature of the eroding road surface, natural disturbance would continue to stimulate any invasive plant seeds present in the seed bank but the reduced use of the road would maintain the localized populations of invasive plants on the road. Invasive plant populations would remain the same and increase overtime without treatment, thus impacting the native plant populations.

Mile post 4.4

Due to the nature of the eroding road surface the natural disturbance would continue to stimulate invasive plant establishment but the reduced use of the road would maintain the localized populations of invasive plants on the road. Invasive plant populations would remain the same and increase overtime without treatment, thus impacting the native plant populations. The channel would remain bare and erosive, lacking vegetation on the cut banks below the road. Eventually the adjacent road segment would likely erode away into the creek.

Effects of the Alternative A on Botany

Direct and Indirect Effects

Mile post 3.9

There is a risk that invasive plant seeds will be stimulated by the disturbance of the road construction and the berm being removed, however integrated weed management of hand-pulling and post construction native grass seeding and revegetation with native plants would provide a competitive cover and promote the native grass communities to reestablish. New invasive plants may be reintroduced by vehicles however, revegetation with grass and forb seeds could provide some temporary cover within the next growing season and reduce the risk of reintroduction. Native revegetation of the floodplain will help stabilize the bank and increase infiltration of water overtime and allow recolonization of the native plant community with in the restored site.

Mile post 4.4

There is a risk that invasive plant seeds will be stimulated by the disturbance of the road construction, however integrated weed management of hand-pulling and post construction native grass seeding would provide a competitive cover and promote the native grass communities to reestablish. Riparian vegetation would help prevent the channel from being undermined and increase the success of stabilization and redirection of the energy of Taneum creek away from the roadside.

Cumulative effects

Threatened, Endangered, Sensitive, Strategic and Survey & Mange species
Both habitats for federally listed Threatened and Endangered species, water howellia (*Howellia aquatilis*) and Ute ladies' tresses (*Spiranthes diluvialis*) were documented in the project area, and both are suspected on this forest but have not been found in this project area. The preferred habitat of these species consists of either standing water or wet meadows. Within the design criteria, these habitats are considered special habitats that will be avoided with buffers. Showy stickseed (*Hackelia venusta*) and Wenatchee mountains checker-mallow (*Sidalcea oregana var. calva*) have both been detected on this forest but their habitats were not found to reside within this project area. Therefor there will be no direct or indirect effects on these federally listed species in this project in all alternatives. No Sensitive, Strategic or Survey & Manage species were identified within the project area; therefore all alternatives will have no effect on any listed species.

Invasive Plants
The relationship between transportation systems and the spread of invasive plants in forest ecosystems is best understood from published literature that is reviewed in the white paper on causal mechanisms of invasive plant spread (Kimberling et al. 2004). The association of current invasive plant infestations within the Upper Yakima project area's road system as well as powerline corridors provides more evidence for this relationship. Lack of vegetation, along with compacted and disturbed soils increases the opportunity for invasive plants spread and invasion, and threatens the recolonization of the existing native plant community.

The likelihood of undesirable plant species, including invasive weed species spreading to the project area from the activities of all action alternatives is high because there are undesirable plant species located in the immediately area. Newly disturbed ground has a high risk in becoming infested with undesirable plant species even when preventive management actions are followed. Control measures are essential to prevent the spread of undesirable plants or noxious weeds within the project area. The consequence of undesirable plant establishment in the project area is high. Possible adverse effects on site and possible expansion of infestations within the project area could occur. Site conditions in the project area are favorable for weed establishment and growth because of the increase in light and disturbed, open soil. Therefore the use of Early Detection Rapid Response (EDRR) should be implemented along with all action alternatives as well as the integrated weed management approach with the use of manual, biological, chemical control of noxious weeds. Part of this integrated approach will include ecological restoration of

these sites that will reduce these risks on major infestation with the use of native revegetation and mulching.

Using wood mulch provides a nutrient pool for soil creation, retains soil moisture, acts as weed abatement, and moves the soil towards a stable ecosystem. In the long term the functions of using mulch can reduce the need for herbicide while preventing soil compaction and feeding beneficial organisms. The high nitrogen to carbon ratio ties up the carbon available for weed seeds and their rapid germination after disturbance. Harrington (2012) found that when logging debris with a depth of 6-12 inches were left on the ground, the soil temperature was lower and the soil respired slower and less carbon dioxide was released. Soil carbon has been considered an important component of forest structure as the trees standing themselves. By leaving wood debris on the ground invasive plant communities were reduced by 2/3rds without the use of herbicides. Most invasive plants flourish in open canopy, high sunlight, and bare soil conditions. Adding mulch to road beds prevents invasive plants which are often wind dispersed or brought in by outside sources, and can provide a competitive edge for the native plant community that are adapted to live in cool, shady, low nitrogen environments.

Listed species will not be affected by Alternative A. Invasive plant populations present in both sites will slightly increase overtime without treatment. A short term stimulation of invasive plants may occur but for the long term overall health to these ecosystems, restoration to these sites will benefit native plant communities and make them more resilient. Overall the Alternative A will meet the needs of botanical species for enhancing riparian habitat for future conditions.

Aquatic glyphosate is an approved herbicide along this corridor from the Forest Wide Invasives EIS (1999). This herbicide can be used up to the riparian edge and has a very short half-life. Its effects on the plant community are short term, spatially, therefor diligent monitoring of these weed populations is needed to help reduce the risk of large new invasive infestations at the restoration site.

The Taneum and Upper Manastash area is heavy used by the recreation community during the fall for hunting activities. Invasives plant propagules may arrive through a variety of corridors due to the practices of driving roads in search of good hunting locations as well as increased wildlife movement due to hunting pressures. This increased foot traffic, both human and wild could increase the likelihood that during construction periods bare ground may be at greater risk to new invasive plant populations. Monitoring would need to occur for several years in order to assure proper revegetation is occurring in ground that was disturbed or bare for at least 5 years. Once native vegetation is established, activities which move seed propagues would pose a lower risk of invasive plant establishment in these areas.

Effects of the Alternative B on Botany

Direct and Indirect Effects

Mile post 3.9

There is a risk that invasive plant seeds will be stimulated by the disturbance of the road construction and the berm being removed, however integrated weed management of hand-pulling and native grass seeding would provide a competitive cover and promote the native grass communities to reestablish. Vehicular traffic and continued flooding could impact the invasive plant and native plant populations only partially restoring the floodplain. New invasive plants may be reintroduced by vehicles or flowing water within the footprint of the project area and particularly where bare dirt is present. However, revegetation with grass seeds could provide some temporary cover within the next growing season and reduce the risk of reintroduction.

Mile post 4.4

There is a risk that invasive plant seeds will be stimulated by the disturbance of the road construction and the berm being removed, however integrated weed management of hand-pulling and native grass seeding would provide a competitive cover and promote the native grass communities to reestablish. Riparian vegetation would have a greater chance to naturally recolonize the streambank through the roughness created with rock and woody debris.

Cumulative effects

Effects to Threatened, Endangered, Sensitive, Strategic and Survey and Manage species and Invasive Plants are the same as Alternative A (III-36,37).

Listed species will not be affected by Alternative B. Invasive plant populations present in both sites will slightly increase overtime without treatment. A short term stimulation of invasive plants may occur but for the long term overall health to these ecosystems, restoration to these sites will benefit native plant communities and make them more resilient. Overall the Alternative B will meet the needs of botanical species for enhancing riparian habitat for future conditions.

Aquatic glyphosate is an approved herbicide along this corridor from the Forest Wide Invasives EIS (1999). This herbicide can be used up to the riparian edge and has a very short half-life. Its effects on the plant community are short term, spatially, therefor diligent monitoring of these weed populations is needed to help reduce the risk of large new invasive infestations at the restoration site.

Consistency Findings for Botany

The Forest Service Region 6, Sensitive Species policy requires the agency to maintain viable populations of all native and desired non-native wildlife, fish, and plant species in habitats distributed throughout their geographic range on National Forest System lands. Management "must not result in a loss of species viability or create significant trends toward federal listing" (FSM 2670.32) for any identified Sensitive Species. The project is consistent with this policy because no listed species were identified.

All alternatives are consistent with the Wenatchee Forest Plan (USDA, 1990) which require botanical inventories be completed for areas with planned ground disturbance which were completed in 2012 and documented in the national database NRIS 2013 ROD for the FEIS

Wenatchee Land and Resource Management Plan Standards and Guidelines for Proposed, Endangered, Threatened and Sensitive (TESS) plant species, as amended.

The project is consistent the Executive Order 13112, The Okanogan-Wenatchee National Forest Weed Management and Prevention Strategy (USDA Forest Service, 2002) Federal Noxious Weed Control Act of 1974 (as amended 1990, 36 CFR 222.8b) and the 1999 Executive Order #13112 on Invasive Species to and control populations of invasive species with the existing use of herbicides designated in the Forest-wide Invasives EA (WNF, 1999).

Following the Conservation standards during implementation (see Appendix B) will provide for consistency with the Record of Decision was signed for the Region 6 Invasive Plant Management Environmental Impact Statement (EIS) (USDA, 2005b).

The FS Road 3300 mp 3.9, 4.4 and Taneum campground Road Repair Project applies the Survey and Manage species list of the 2001 *Record of Decision and Standards and Guidelines for Amendments to the Survey and Manage, Protection Buffer, and other Mitigation Measures Standards and Guidelines*.

Element #8 of the Aquatic Conservation Strategy states "*Maintain and restore the species composition and structural diversity of plant communities in riparian areas and wetlands to provide adequate summer and winter thermal regulation, nutrient filtering, appropriate rates of surface erosion, bank erosion, and channel migration and to supply amounts and distributions of coarse woody debris sufficient to sustain physical complexity and stability*" (Northwest Forest Plan). This objective would be maintained at the site and watershed scale. Riparian vegetation may be degraded at the site in the short term for equipment access, but this would affect a very small area. The riparian plant condition would be returned to the pre-flood condition.

RANGE

Effects of No Action on Range

Taking no management action would have a negative impact on permittee access to the Manastash allotment, as there would be no road repair activities implemented under this decision. This option would not restore road access to permitted grazing areas. Modifications to the grazing operation or deferment of grazing would still be required to address access issues.

Effects of Alternatives A and B on Range

Direct and Indirect Effects

Forage Response
In general this project has no direct effect to the vegetation on the Manastash allotment, because the project itself is outside of the allotment boundary. Although, the loss of access, may have an indirect effect on allotment vegetation in the form of increased forage due to reduced use by the public, and the permitted livestock.

Permittee Access and Livestock Distribution

FSR 3300 provides critical access for the delivery of permitted livestock to the Manastash allotment. Proposed road repair activities would have a high impact on permittee access in the short term, but once completed, would not require long term change in routing or distribution of livestock.

The actual timing of implementation of project or combinations of activities would ultimately determine the extent of the effects and the specific areas requiring modification or deferment in the annual grazing instructions. Given the most extreme situation with respect to timing of implementation and specific activity areas, there could be a reduced season of use, or deferment if there is a complete loss of access to the Manastash allotment during the period of project implementation.

Cumulative effects

The area of analysis considered provides critical access for semi-trucks to haul permitted livestock to the Manastash allotment, on the Cle Elum Ranger District. In the short term, this action, in combination with, other ongoing and reasonably foreseeable actions within the South Range Zone further restricts the use of range allotments by the permittees. These projects could result in additional modifications (e.g., deferring and rerouting) to the current grazing plans. Multiple modifications resulting from multiple projects (e.g., fuels, recreation, travel management) occurring at the same time restrict the area and season of use available for livestock grazing.

FUELS AND VEGETATION MANAGEMENT

Effects of No Action on Fuels and Vegetation Management

Currently FSR 3300 is open for motor vehicle traffic and is reduced to a single vehicle width in places. Although in the existing condition it is operable, no action could allow the stream to further deteriorate the condition of the roadway which could cause enough damage bringing about restrictions to vehicles and possibly a full closure. Currently the Walter Springs Project is planned to take place within the Taneum drainage in the near future and designates FSR 3300 as the main travel and haul route for logging traffic. At the time this project was in the planning phase FSR 3300 was designated due to the proximity of the project, cost estimates attached to this project assume the use of this road. If roadway conditions were to deteriorate prior to implementation of this project alternate routes would have to be utilized increasing costs and exposure, potentially having negative effects on the project. As for post-harvest fuels treatments planned for this project. Forest Service personnel would use this as the main travel route, reducing travel time and exposure as well. The Taneum drainage is an area of possible future projects and for best access in relation to safety, logistics, and economics FSR 3300 is critical, and a no action decision would have a prominent impact on future Fuels and Vegetation Management projects.

Effects of Alternative A on Fuels and Vegetation Management

Direct and Indirect Effects

The effects in this alternative are focused around the road repair, as actions at the campground have no effect to Fuels and Vegetation Management. Repairing the roadway to baseline conditions at a minimum would be crucial as FSR 3300 is the main access to the Taneum drainage and any alternate routes provide for a substantial increase in travel time and exposure. The Walter Springs Project is planned to take place in the near future within the drainage and would require the road to handle logging traffic. When this project was planned FSR 3300 was designated as the main travel and haul route in consideration to the proximity of the project and cost estimates. Repairing the road would provide for a shorter and safer travel path for log trucks and keep the cost closer to the original planning estimates.

Cumulative Effects

The analysis area combines the Taneum drainage and the upper Manastash area, and the time considered is the foreseeable future (40+years). Cumulatively, any work performed in conjunction with the campground has little to no effect on Fuels and Vegetation management. The effects of this alternative relate directly to repairing the road. Currently the Walter Springs Project is planned to take place within the Taneum drainage in the near future and designates FSR 3300 as the main travel and haul route for logging traffic. At the time this project was in the planning phase FSR 3300 was designated due to the proximity of the project, cost estimates attached to this project assume the use of this road. Repairing the road would provide for a shorter and safer travel path for log trucks and keep the cost closer to the original planning estimates. As for post-harvest fuels treatments planned for this project, Forest Service personnel would use this as the main travel route, reducing travel time and exposure. The Taneum drainage is an area of possible future projects and for best access in relation to safety, logistics and economics, repairing FSR 3300 is critical.

Effects of Alternative B on Fuels and Vegetation Management

Direct and Indirect Effect

Same as Alternative A.

Cumulative Effects

Same as Cumulative Effects for Alternative A.

FIRE AND PUBLIC SAFETY

Effects of No Action on Fire and Public Safety

Currently the road is in operable condition and is in use during the summer months for all vehicles, and in the winter months it is a groomed snowmobile route that sees heavy use. Although in the existing condition it is operable, no action could allow the stream to further deteriorate the condition of the roadway which could cause enough damage bringing about restrictions to vehicles and possibly a full closure. FSR 3300 is a main route into a large recreation area and provides a shorter and safer travel path for emergency personnel responding into the area. If a No Action Alternative is chosen the road could continue to deteriorate and/or remain in a condition where it is wide enough for a single vehicle in places increasing the risk for motor vehicle accidents.

Effects of Alternative A on Fire and Public Safety

Direct and Indirect Effects

The effects in this alternative are focused around the road repair, as the campground is of little significance to Fire and Public Safety. FSR 3300 is a highly used road that accesses a popular drainage for recreation. For quick wildfire response and emergency situations, repairing the road similar to baseline conditions is of high importance.

Cumulative Effects

The analysis area combines the Taneum drainage and the upper Manastash area, and the time considered is the foreseeable future (40+years). Cumulative effects for the analysis area in relation to repairing the road include safer access and egress for the general public to the area, as well as restoring a faster and safer travel route for firefighters and/or emergency personnel in response to new wildfire starts and/or emergencies. As this is a heavily used road seeing mixed use year round, repairing to baseline conditions at a minimum would restore safer access in the near future and over time as it would keep the stream from further deteriorating the condition of the roadway. Work to be done in relation to the campground has little to no effect on Fire and Public Safety.

Effects of Alternative B on Fire and Public Safety

Direct and Indirect Effects

Same as Alternative A.

Cumulative Effects

Same Cumulative Effects as Alternative A.

RECREATION

Effects of No Action on Recreation

Road access is currently narrowed to a single lane at both the 3.9 and 4.4 sites on FSR 3300. At both sites, if further erosion occurs from future runoff and flood events then the road access to many recreational areas would be compromised. The area has seen two major runoff events in last 4 years. Any further narrowing of the road would likely close the road and cutoff access to Taneum Campground. It would also hinder access to Ice Water Campground, Taneum Junction Trailhead, and numerous trails and dispersed camping locations. Cutting off Ice Water Campground from Taneum Cabin and Campground would hinder the ability of managing the campground. Ice Water Campground is currently concessionaire operated by hosts that stay at Taneum Cabin. If the road needs to be closed then the host would not be able to get to Ice Water to administer the site. Garbage service is currently provided by Waste Management and may no longer be available if the 3300 road is closed. There are alternate routes to the locations but they are not paved and are longer to access.

At MP 3.9 the washout damage is adjacent to the footbridge accessing Taneum Campground. In addition the main waterline runs across this bridge to provide water service to the whole campground. If erosion continued at the location of the washout there is potential for this to compromise the safety of the foot bridge and could cut off the main water line to the Taneum campground. The only other way into the campground is by a paved ford. During high water when the ford is impassable by vehicle, the foot bridge is the only access to the campground.

Effects of Alternative A on Recreation

Direct and Indirect Effects

Taneum Campground would be partially reclaimed for the floodplain. Long term this would remove three campsites and one of the picnic areas with tables and fire rings adjacent to the stream. The remaining portion of the campground would still be operational during the summer season. The majority of picnic/day use is located near the CCC picnic shelter that would not be affected by the new floodplain. Spring runoff in April and May is the most likely time for this newly developed floodplain to be used. The floodplain area will be dry for the majority, if not all, of the summer time camping season. Recreationists using the remaining portion of the campground would not be directly affected by the floodplain. Due to the low-moderate use of the campground, there would be enough remaining campsites to accommodate the demand for camping at this location.

In past spring time flood events, the damage has resulted in exposed and cracked water line and washed out road surfaces. Raising the campground road would protect the road surface and the remaining portion of the campground from the flood flows. This would also show the public where the road and parking are located out of the floodplain. Deepening the waterline coming into the campground from the footbridge would protect it from high flow flood damage. A

pathway from the footbridge to the remaining portion of the campground would provide accessibility to campground when the ford is too high to cross by vehicle. All of these features would aid in preventing future flood damage to the remaining campground.

Reintroducing flood flows in the campground area could result in weakening the trees that had been in picnic area and around the removed campsites. Hazard tree management would still need to take place in these areas since it is adjacent to the remaining campsites and picnic area. These trees would be carefully watched for hazard tree potential and felled if assessed as a hazard tree. The road repair would replace the gabion baskets with welded wire mesh bins. This welded wire mesh bin wall will be visible to those in the campground.

Road repair of both the 3.9 and 4.4 mp sites on FSR 3300 would result in weekday road closure during construction. Closure of FSR 3300 during the repairs (during the summer/fall seasons) would hinder access to Taneum and Ice Water Campgrounds, Taneum Junction Trailhead as well as other trails and dispersed camping areas. A weekday road closure (Monday-Friday) would limit access to the area, but allow access for weekend recreation. Weekend campers will often arrive on Friday afternoon and evening at both developed and dispersed campsites. Both campgrounds end concessionaire operation about a week after Labor Day. Any construction worked on after Labor Day would minimize the impacts to the developed campgrounds.

Taneum Campground would need to be closed while work on the 3.9 site occurred. The construction would be occurring directly across from the campground and would block the road access to the campground. The close proximity of the construction to Taneum Cabin would either close the cabin to rentals or limit the appeal of the renting the cabin. The concessionaire operating Taneum Campground and Taneum Cabin would lose revenue during the closure. The campground hosts for Taneum and Ice Water Campgrounds stay next to Taneum Cabin. Any staging of construction material next to Taneum Cabin could affect the space the hosts have to occupy and reduce the appeal or ability to rent the cabin. Depending on the length of time it takes to repair the road Taneum Campground could be closed for the season. It may not be economically viable for the concessionaire to operate the campground for only a portion of the camping season.

A weekday road closure would prevent the hosts from accessing Ice Water Campground to collect fees, do maintenance, cleaning and respond to campers needs during that time. In addition, dumpster collection by Waste Management would also not be possible during this time. Garbage would either need to be collected by the hosts on the weekend or may not be available to campers during this timeframe. Due to the difficult access, it may not be economically viable for the concessionaire to operate this campground for the season.

A road closure would also impede public access to Ice Water Campground, Taneum Junction Trailhead and other trails and dispersed recreation. FSR 3300, as a paved roadway, is the primary way to access these sites. The paved road allows for easy access to these sites, especially for those hauling trailer. Taneum Junction Trailhead is a very popular draw for motorized OHV use due to the extensive trail system. There are five trails that directly lead out of Taneum Junction Trailhead. These trails lead into an extensive trail system connecting to the Manastash and Taneum drainages and ridges.

Many users access FSR 3330 and 3300-135 from FS 3300 which access more trails and dispersed camping areas. Most users are coming with trailers to transport their motorcycles. Public education about the road closure will be essential since alternate routes to the area are not located nearby. In general, weekends are the most popular days for use in this area.

There are at least two recreation OHV events that happen out of Taneum Junction during the summer months. The majority of the events occur on the weekends. Users coming to the area on Friday for the weekend would need either come in the evening or use alternate routes.

During weekday closures, FSR 3350 from South Cle Elum can be used to access these recreation sites. The gravel and natural surface road is at a lower development scale but would still be appropriate for recreationist access. With additional traffic, the road would likely see quick deterioration to washboarding and pot holes. Visitors, especially those hauling trailers, would need to be more cautious on driving this route. Another alternative route is FSR 3330 from the Manastash area. Currently, FSR 3330 has a road washout located near Buck Meadows that prevents through traffic between the Manastash and Taneum Junction. If the washout location is fixed, it would be another alternate route. Accessing Taneum Junction and Ice Water from the Manastash area is a much longer drive than either using FSR 3300 or FSR 3350.

Cumulative Effects

In the past 5 years one small campground, South Meadow Campground, has been decommissioned in the area from direction from the Okanogan-Wenatchee NF Recreation Facility Analysis completed in 2008. This campground was located further up FSR 3300 and was decommissioned by removing all camping facilities including toilet, tables, and fire rings. Partial removal of Taneum Campground would be another small reduction in the number of developed campsites available to recreationists. The reduction would be small enough that there is no major impact to the camping opportunities.

Consistency with Management Direction for Alternative A

Wenatchee Forest Plan, IV-2 “Provide a well balance array of recreation opportunities across the breadth of the recreation opportunity spectrum in accordance with resource capability, public demands, and expectations for outdoor recreation”

Taneum Campground provides a low-moderate use camping opportunity on the Cle Elum Ranger District. While most of the other developed campgrounds on the ranger district fill to capacity on summer weekends, Taneum Campground provides a quieter camping experience. Removal of only part of the campground would still keep this recreation opportunity for visitors.

Wenatchee Forest Plan, IV-2 “Provide for the identification, protection, interpretation and management of cultural resources so as to preserve their historical, cultural, archaeological, and/or architectural value for the benefit of the public.”

The remaining campground would still include the historic CCC built shelter, stone water spigot (no longer in use) and horse shoe pits. These features would still be available for the public to see and use.

The Recreation Facility Analysis (RFA) completed in 2008 identified the Okanogan and Wenatchee NF's Niche Bridge for Developed Recreation and ranked all developed sites by priority. Taneum Campground tiered as Category B, "a site that meets the unit niche, are environmentally sustainable within the capability and capacity of the natural resource; are supported by and provide support to local communities; and have a sustainable management cost-benefit ratio." In addition, the campground ranked 189 out of 357 developed sites with 64 points across the Forest in priority order for meeting the objectives of the RFA. No changes to the campground were recommended by the RFA.

The Visual Quality Objective (VQO) as listed in management prescription EW-2 can range from Retention to Modification and is dictated by the adjacent visual resource prescription.

For site mp 3.9, the adjacent prescription, RE-1 for Developed Recreation Sites, states Retention as the VQO. Management practices include "manmade structures are to be architecturally compatible with the established landscape." Implementation of this alternative would meet the area's VQO, assuming the proposed mitigation measures are implemented.
For site mp 4.4, the adjacent prescription General Forest (GF), states Maximum Modification as the VQO. It also states that "a higher VQO may be considered along roads, trails, and dispersed sites within this prescription." Prescription EW-2 lists Modification as the limit for the VQO. Modification allows for "changes in the landscape that are easily noticed by the average forest visitor and may attract some attention." Implementation of this alternative would meet the area's VQO, assuming the proposed mitigation measures are implemented.

The Recreation Opportunity Spectrum for the Taneum area is Roaded Natural. The implementation of this alternative would meet the ROS. For the complete Recreation Specialist Report, please see the project file.

Effects of Alternative B on Recreation

Direct and Indirect Effects

For effects of the physical road repair and temporary road closure, see Alternative A above.

Removal of the campground including all structures would eliminate all developed camping and day use of Taneum Campground. There would be a loss of 13 developed campsites with picnic tables, fire rings, parking spur and camping pad. Taneum Campground also offers a unique historical camping experience. The campground is located near a former Civilian Conservation Corps camp and has a CCC built picnic shelter, horseshoe pits, and stone water spigot (no longer in use). There are only two remaining camping areas on the Cle Elum Ranger District that have similar CCC era historic features. There is no replacement for the historic campground setting, especially within a quiet low use area.

Closure of the campground would displace these campers to others areas for camping. While Ice Water Campground may be able to accommodate the displaced campers, the users groups at these campgrounds are very different. Those who camp at Taneum may not find Ice Water as a comparable or suitable substitute. Ice Water Campground was developed for and used by the motorized trail (primarily motorbikes) community. Taneum Campground offers a low to moderate use developed camping experience largely serving family campers looking for a quiet camping experience.

In addition, Taneum Campground offers potable water and updated concrete vault toilets (CXTs) in the campground for campers and picnickers. Ice Water campground does not have potable water and has older wooden vault toilets. Taneum Campground is the only potable water source for visitors in the area. There are no other developed campgrounds providing a similar experience in the general area. These campers may choose to go to different locations of the National Forest or neighboring State lands. If campers and picnickers/day users opt to go to dispersed camping areas it will displace more visitors to areas without sanitation (toilets or trash service).

The CCC picnic shelter and surrounding tables, fire rings, and horse shoe pits would be gone. Current visitors also have free use of the vault toilets and water spigots. The picnic area is often used by organized groups and family reunions. There is no other comparable picnic/day use area in the vicinity so it is unknown where these large groups or other day users would go instead. Day users, especially large groups, displaced by the removal of the sites may end up going to dispersed areas without sanitation facilities.

Road repair of both the 3.9 and 4.4 mp sites on FSR 3300 would result in road closure during construction. Closure of FSR 3300 during the repairs (during the summer/fall seasons) would hinder access to Taneum and Ice Water Campgrounds, Taneum Junction Trailhead as well as other trails and dispersed camping areas. A weekday road closure (Monday-Friday) would limit access to the area, but allow access for weekend recreation. Weekend campers will often arrive on Friday afternoon and evening at both developed and dispersed campsites. Both campgrounds end concessionaire operation about a week after Labor Day. Any construction worked on after Labor Day would minimize the impacts to the developed campgrounds.

Taneum Campground would need to be closed while work on the 3.9 site occurred. The construction would be occurring directly across from the campground and would block the road access to the campground. The close proximity of the construction to Taneum Cabin would either close the cabin to rentals or limit the appeal of the renting the cabin. The concessionaire operating Taneum Campground and Taneum Cabin would lose revenue during the closure.

The campground hosts for Taneum and Ice Water Campgrounds stay next to Taneum Cabin. Any staging of construction material next to Taneum Cabin could affect the space the hosts have to occupy and reduce the appeal or ability to rent the cabin. Depending on the length of time it takes to repair the road Taneum Campground could be closed for the season. It may not be economically viable for the concessionaire to operate the campground for only a portion of the camping season.

A weekday road closure would prevent the hosts from accessing Ice Water Campground to collect fees, do maintenance, cleaning and respond to campers needs during that time. In addition, dumpster collection by Waste Management would also not be possible during this time. Garbage would either need to be collected by the hosts on the weekend or may not be available to campers during this timeframe. Due to the difficult access, it may not be economically viable for the concessionaire to operate this campground for the season.

A road closure would also impede public access to Ice Water Campground, Taneum Junction Trailhead and other trails and dispersed recreation. FSR 3300, as a paved roadway, is the primary way to access these sites. The paved road allows for easy access to these sites, especially for those hauling trailer. Taneum Junction Trailhead is a very popular draw for motorized OHV use due to the extensive trail system. There are five trails that directly lead out of Taneum Junction Trailhead. These trails lead into an extensive trail system connecting to the Manastash and Taneum drainages and ridges.

Many users access FSR 3330 and 3300-135 from FS 3300 which access more trails and dispersed camping areas. Most users are coming with trailers to transport their motorcycles. Notification of the road closure will help users locate necessary alternative routes or avoid traveling during construction periods. In general, weekends are the most popular days for use in this area.

There are at least two recreation OHV events that happen out of Taneum Junction during the summer months. The majority of the events occur on the weekends. Users coming to the area on Friday for the weekend would need either come in the evening or use alternate routes.

During weekday closures, FSR 3350 from South Cle Elum can be used to access these recreation sites. The gravel and natural surface road is at a lower development scale but would still be appropriate for recreationist access. With additional traffic, the road would likely see quick deterioration to washboarding and pot holes. Visitors, especially those hauling trailers, would need to be more cautious on driving this route. Another alternative route is FSR 3330 from the Manastash area. Currently, FSR 3330 has a road washout located near Buck Meadows that prevents through traffic between the Manastash and Taneum Junction. If the washout location is fixed, it would be another alternate route. Accessing Taneum Junction and Ice Water from the Manastash area is a much longer drive than either using FSR 3300 or FSR 3350.

For effects of the road repair and closure, see Alternative A recreation effects analysis. There will be no long term impacts to recreation after road repair. For the complete Recreation Specialist Report, see the project file.

Cumulative Effects

In the past 5 years one small campground, South Meadow Campground, has been decommissioned in the area from direction from the Okanogan-Wenatchee NF Recreation Facility Analysis completed in 2008. This campground was located further up FSR 3300 and was decommissioned by removing all camping facilities including toilet, tables, and fire rings.

Removal of Taneum Campground would be a further reduction in the number of developed campgrounds and campsites available to recreationists.

Consistency with Management Direction for Alternative B

Wenatchee Forest Plan, IV-2 "Provide a well balance array of recreation opportunities across the breadth of the recreation opportunity spectrum in accordance with resource capability, public demands, and expectations for outdoor recreation"

Taneum Campground provides a low-moderate use camping opportunity on the Cle Elum Ranger District. While most of the other developed campgrounds on the ranger district fill to capacity on summer weekends, Taneum Campground provides a quieter camping experience. Loss of the campground would mean one less recreation opportunity to visitors.

Wenatchee Forest Plan, IV-2 "Provide for the identification, protection, interpretation and management of cultural resources so as to preserve their historical, cultural, archaeological, and/or architectural value for the benefit of the public." Removal of the campground would remove the historic features including the CCC built picnic shelter, horse shoe pits and stone water spigots. The public would no long have access to see and use these historic features.

The Recreation Facility Analysis (RFA) completed in 2008 identified the Okanogan and Wenatchee NF's Niche Bridge for Developed Recreation and ranked all developed sites by priority. Taneum Campground tiered as Category B, "a site that meets the unit niche, are environmentally sustainable within the capability and capacity of the natural resource; are supported by and provide support to local communities; and have a sustainable management cost-benefit ratio." In addition, the campground ranked 189 out of 357 developed sites with 64 points across the Forest in priority order for meeting the objectives of the RFA. No changes to the campground were recommended by the RFA.

The Visual Quality Objective (VQO) as listed in management prescription EW-2 can range from Retention to Modification and is dictated by the adjacent visual resource prescription.

For site mp 3.9, the adjacent prescription, RE-1 for Developed Recreation Sites, states Retention as the VQO. Implementation of this alternative would remove the campground. In this case, the adjacent prescription would be General Forest. This prescription also applies to mp 4.4. The prescription General Forest (GF), states Maximum Modification as the VQO. It also states that "a higher VQO may be considered along roads, trails, and dispersed sites within this prescription." Prescription EW-2 lists Modification as the limit for the VQO. Modification allows for "changes in the landscape that are easily noticed by the average forest visitor and may attract some attention." Implementation of this alternative would meet the Modification VQO, assuming the proposed mitigation measures are implemented.

The Recreation Opportunity Spectrum for the Taneum area is Roaded Natural. The implementation of this alternative would meet the ROS. For the complete Recreation Specialist Report, please see the project file.

SPECIAL USES

Effects of No Action on Special Uses

By not implementing the project, there would be the potential for further roadway damage at this site, which may be a hazard to people accessing special use events beyond this section of the 3300 roadway.

Effects of Alternatives A and B on Special Uses

Direct, Indirect and Cumulative Effects

As there are no permitted special uses within the project area, there would not be any direct, indirect or cumulative effects from repairing the roadway and decommissioning part of the Taneum Campground.

CULTURAL RESOURCES

Regulatory Framework

The National Historic Preservation Act (NHPA: the Act) of 1966 established the Federal government's policy and programs on historic preservation, including the establishment of the National Register of Historic Places (NRHP: the National Register). Section 106 of the Act (36 CFR 800) requires Federal agencies having direct or indirect jurisdiction over a proposed Federal or Federally assisted or permitted undertaking to take into account the effect an undertaking may have on historic properties listed on or eligible for the National Register, and it affords the Advisory Council on Historic Preservation (ACHP) an opportunity to comment on such undertakings (16 U.S.C. 470f). The Washington State Department of Archaeology and Historic Preservation (DAHP) and the ACHP are the respective state and federal agencies responsible for overseeing the management and protection of historic properties in compliance with the NHPA. Historic properties are cultural resources that are listed on or eligible for listing on the National Register. Historic properties, and cultural resources that have not been formally evaluated against National Register criteria (E.O. 11593), are given consideration in planning for licensed, approved or funded Federal undertakings.

Forest Service Trust Responsibility

The 3300 Flood Repair project area is located within the traditional use area of the Yakama Indian Nation. Trust responsibility is the U.S. Government's permanent legal obligation to exercise statutory and other legal authorities to protect tribal land, assets, resources, and treaty rights, as well as a duty to carry out the mandates of Federal law with respect to American Indian and Alaska Native Tribes. For the Forest Service, fulfillment of trust responsibility requires consultation with tribes.

The Yakama Nation was consulted about the 3300 Flood Repair project. A government-to-government letter was sent to the tribe describing the project and soliciting concerns and information regarding resources of interest to the tribe within the project area. The Yakama Nation has requested all associated reports be provided for the Yakama Nation to review prior to commencement of the proposed work. No specific concerns or issues have been brought forth.

Historic Properties

Cle Elum Ranger District cultural resource site and survey records were reviewed. A contributing feature of the Taneum Campground Community Kitchen historic property is located within the area of potential effect (APE). All other features of this historic property, community kitchen, horseshoe pits and a second water fountain, lie outside of the APE. NHPA Section 106 consultation for the 3300 Flood Repair Project was completed in accordance with the terms of the programmatic agreement regarding management of cultural resources on Washington State National Forests (1997).

Effects of No Action on Cultural Resources

Historic Properties

By not implementing the project, there would be no new risk of effects to any known or unknown historic properties as a result of project activities. Effects to unknown cultural resources would be limited to impacts from natural processes and current human use patterns. Anticipated impacts would include natural deterioration, decomposition, erosion, breakage, and displacement related to such causal factors as exposure to elements, natural catastrophes, storm events, and animal and human activity.

Forest Service Trust Responsibility

Effects to tribal use and practices in the 3300 Flood Repair project area would be limited to impacts from natural processes and current human use patterns. By not implementing proposed project activities, there would be no new risk of impacting or impeding Tribal use patterns and practices.

Effects of Alternative A on Cultural Resources

<u>Direct, Indirect and Cumulative Effects of Alternative A on Historic Properties</u>

The project area is considered the boundary for effects analysis with respect to historic properties. An ‘Appendix B’, Archaeological Field Survey, was completed and it was determined the project would have “an adverse effect” to the Taneum Campground Community Kitchen (Buchholz 2012: Report R2012061703004 located in the project file). The adverse effect to the contributing rock water fountain will be mitigated. Contract(s) for the project will include the Standard Clauses BT6.24 (Protection of Cultural Resources) and CT6.24 (Site Specific Protection Measures for Cultural Resources). These clauses allow the Forest service to modify or cancel portions of the contract to protect any newly discovered cultural resources. In

the event that cultural resources are discovered as a result of project activity, all work in the vicinity of the discovery would cease until professionally assessed.

Direct, Indirect and Cumulative Effects of Alternative A on Indian Practices

The project area is considered the boundary for effects analysis with respect to Indian practices. For both the preferred and alternative actions no direct, indirect or cumulative effects to tribal customs or practices are anticipated. The U.S. government maintains a permanent legal obligation to exercise statutory and other legal authorities to protect tribal land, assets, resources, and treaty rights, as well as a duty to carry out the mandates of Federal law with respect to American Indian and Alaska Native Tribes. The Forest Service will continue to fulfill its trust responsibility through consultation with tribes. Adjustments to project implementation strategies could be made in order to eliminate or minimize impacts as appropriate when the Forest Service is made aware of activities and practices within their control that are impeding Tribal activities and practices.

Effects of Alternative B on Cultural Resources

Direct, Indirect and Cumulative Effects Alternative B on Historic Properties

Further survey, consultation with the State Historic Preservation Officer, and/or possible mitigation measures would need to be completed before the alternative to reclaim all of the Taneum Campground to flood plain could be addressed. There are cultural properties, such as the historical shelter, within the boundary of the campground and effects to these properties would be dependent on the final campground decommissioning contract details. Reclaiming all of the Taneum Campground to flood plain would lead to a potential adverse impact on the properties and mitigation measures would take substantial resources to complete.

Direct, Indirect and Cumulative Effects of Alternative B on Indian Practices

See effects for Alternative A on Indian Practices.

OTHER REQUIRED DISCLOSURES

Areas with Unique Characteristics or Uncertainty

It was found that no parklands, Inventoried Roadless Areas (IRAs), Potential Wilderness Areas, or Wilderness Areas are within the project area, adjacent to the project area, or would be measurably impacted by any action alternative.

Clean Air Act

Alternatives A and B do not include any burning or actions that would cause more than incidental dust. The project will not compromise air quality and is therefore consistent with the Clean Air Act of 1963 as amended.

Establishment of Precedent

Alternatives A and B do not establish a precedent for future actions. The decisions made and analysis completed was site and temporal specific. The purpose and need are only relevant to the specific affected environment.

Environmental Justice, Social Groups, and Civil Rights

Alternatives A and B of the 3300 Flood Repair Project will not disproportionately affect any social groups or civil rights. This project includes purchase work, Forest Service contracted work, and Forest Service employee accomplished work. Under Executive Order 11246 (1965), companies with the Federal contracts or subcontracts are prohibited from job discrimination on the basis of race, color, religion, sex or national origin. The U.S. Department of Agriculture prohibits discrimination in its employment practices based on race, color, national origin, gender, religion, age, disability, political beliefs, sexual orientation, and marital and family status. Alternatives A and B are consistent with the Civil Rights Act of 1964.

Alternatives A and B will not have any disparate effects on any consumers, minority groups, women, civil rights, or social/ethnic groups. All contracts would meet Equal Employment Opportunity requirements.

Alternatives A and B are consistent with Executive Order 12898. This project will not have any disparate effects on minority populations or low-income populations. This project is site specific and will not have human health effects on any group.

Prime Rangeland, Farmland, and Forest Land

Alternatives A and B comply with the federal regulations for prime land. None of the project areas is within prime forest, rangeland, or farmland; therefore there is no effect on any prime land.

Wild and Scenic Rivers

Alternatives A and B comply with the regulations of Wild and Scenic Rivers. There are no Wild and Scenic Rivers in the project area or impacted by the project, therefore, this project will have no to impact on designated Wild and Scenic Rivers.

Potential or Unusual Expenditures of Energy

This project has no potential or unusual expenditures of energy. All proposed activities are actions which the Forest Service routinely takes. This project does not involve energy production or storage.

Conflicts with Plans, Policies, or Other Jurisdictions

The IDT has cooperated with State and other local agencies to the fullest extent possible to reduce duplication between NEPA and State and local requirements. Washington State has been involved in the development of both Alternative A and B. The Forest Service will ensure that the necessary State analysis requirements will be met for the mile post 4.4 site prior to implementation. State, local, and federal laws were reviewed and this project has no inconsistences with approved State or local plan and laws.

Irretrievable or Irreversible Commitment of Resources

This project does not propose any commitments of resources that are irretrievable or irreversible. Alternative A and B do not include the commitment of natural, physical, or cultural resources that would be non-renewable or non-recoverable for later use by future generations. Detailed impacts of each action alternative can be found by resource area in Chapter III.

CHAPTER IV

Public Involvement Summary

Public Scoping

After the 2011 flood event, the sites along FSR 3300 were granted Emergency Relief of Federally Owned Roads (ERFO) funding and the project was assigned to the Inter-disciplinary Team (IDT) planning for all of the 2012 and 2013 flood repair projects on the Cle Elum and Naches Ranger Districts. The Project Initiation Letter (PIL on October 5, 2011) directed the IDT to include a compilation of specialists and planners from the Cle Elum and Naches Ranger Districts. For a full list of persons consulted, see Chapter V.

The 2013 Flood Repair Project Proposals (scoping letter in Appendix A) contained the proposal for FSR 3300. The tribal scoping letter was sent to the Yakama Nation on July 10, 2012 and on July 20, 2012 the public scoping letter was sent to over 1,000 recipients. The current Taneum Campground concessionaire (Thousand Trails) was notified of the proposed action on August 28, 2012.

Additional public outreach included presentations and available information at:

- Forest Service Schedule of Proposed Actions (SOPA)
- 2012 Central Washington Sportsmen Show
- Multiple (2011-2013) Trails and Wilderness Interest Group Meetings (TWIG)
- 2012 Central Washington State Fair
- Pacific Northwest 4-Wheel Drive Association meetings, both local and regional
- Dust Dodger Motorcycle Club meetings
- Cascade Quad Squad Club meetings
- 2013 Central Washington Sportsmen Show
- Naches Ranger District foyer

Comments

The IDT received 18 comments total on the 3300 Flood Repair project during the scoping period. Comments included:

- 11 individuals
- Pacific Northwest 4-Wheel Drive Association (PNW4WD)
- Washington State Department of Fish and Wildlife
- NOAA Fisheries
- Yakama Nation
- Thousand Trails
- S. Martinez Livestock Inc., Manastash Allotment Permittee
- US Fish and Wildlife Service

Topics within the comments included safety concerns, firefighting access, travel access, illegal use, recreational access, hunting access, capital improvement retention, economics, wildlife habitat improvement, aquatic habitat improvement, access for allotment, and access for elderly. For a complete list of comments and topics, see the project file.

In December 2012, Washington Fish and Wildlife, Yakama Nation, NOAA Fisheries, and U.S. Fish and Wildlife Service expressed concern over not being able to provide adequate fish habitat along the side of the roadway and suggested to provide a greater flood plain area. At mile post 3.9 they specifically suggest relocating or abandoning the campground. The inter-disciplinary team (IDT) discussed comments and information gathered during scoping and determined that concerns raised by Washington Fish and Wildlife, Yakama Nation, NOAA Fisheries, and U.S. Fish and Wildlife Service warranted an additional alternative to be developed in detail. Alternative B is described in detail in Chapter II and effects are outline in Chapter III. No other comments warranted an additional alternative.

In April 2013, Forest and District-level fisheries biologist met with multiple partner agencies to refine Alternative A and both mile post 3.9 and 4.4. The group visited the project site and discussed ways to improve implementation of the road repair. Alternative A in this Final EA reflects those discussions.

CHAPTER V

Organizations, Agencies, and Persons Consulted

Forest Service

Naches and Cle Elum Ranger District Interdisciplinary Team (IDT)

Mike Carroll	Team Leader, Engineer
Michelle King	NEPA Planner
KC Briggs	Fisheries
Emily Johnson	Fisheries
Bill Garrigues	Hydrology
Jo Ellen Richards	Wildlife
Kathryn Buchholz	Cultural Resources
Chris Ownby	Geographic Information Systems
Sue Ranger	Recreation
Jason Emhoff	Fire, Public Safety, Fuels, Vegetation Management
Carla Jaeger	Range
Helen Lau	Botany
Lauren DuRocher	Recreation

Other Participants

Irene Davidson	Naches District Ranger
Judy Hallisey	Cle Elum District Ranger
Jodi Leingang	Environmental Coordinator, Naches Ranger District
Marge Hutchinson	Engineer, Okanogan Wenatchee National Forest
Richard Vacirca	Forest Fisheries Program Leader, Okanogan Wenatchee National Forest

Agencies Consulted

NOAA Fisheries
US Fish and Wildlife Service

Agencies Notified

WA Department of Fish and Wildlife
WA Department of Natural Resources
WA Department of Ecology
WA State Parks and Recreation
Yakima County Sheriff's Office
Yakima Regional Clean Air Agency

CHAPTER VI

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OKANOGAN-WENATCHEE NATIONAL FOREST | JULY 2012

Flood Repair *projects*

PROPOSED ACTIONS FOR THE NACHES AND CLE ELUM RANGER DISTRICTS 2013 FLOOD REPAIR PROJECTS

In May 2011, the Naches and Cle Elum Ranger Districts experienced a 100-year flood impacting 40 roads, multiple campgrounds, and several other recreational areas. In June 2011, the Okanogan-Wenatchee South Engineering Zone documented the extent of the damage and was granted Federal Lands Highway funding for emergency relief.

Currently, the planning team has completed the analysis for four flood repair projects including: Forest System Road (FSR) 3100 mile post 0.9 - 2.2, FSR 3100 mile post 10.4, FSR 1808 mile post 4.2, and FSR 1601 mile post 0.3. All four of these projects are scheduled to be constructed July-September of 2012.

This brochure outlines the proposed actions for the five 2013 flood repair projects. The damaged sites are broken up into the following analysis groups: FSR 1501, FSR 1700, FSR 1901, FSR 3300, FSR 4517-117. All projects will undergo an environmental analysis consistent with the National Environmental Policy Act (NEPA).

The Okanogan-Wenatchee National Forest will accomplish multi-use objectives by working with the Yakama Nation, WA Department of Fish and Wildlife, WA Department of Natural Resources, U.S. Fish and Wildlife, National Marine Fisheries Service, and several other vested parties. At this time, the team is asking for public comment and feedback. Please review the proposed actions and provide us with questions, comments, and concerns.

Is this a road or a stream? This is FSR 1708 in May 2011. In some places, the stream completely overtook the road.

Naches Ranger District
10237 U.S. Highway 12
Naches, WA 98937
(509) 653-1401

Cle Elum Ranger District
803 W. 2nd Street
Cle Elum, WA 98922
(509) 852-1100

Okanogan Wenatchee National Forest Supervisor's Office
215 Melody Lane
Wenatchee, WA 98801
(509) 664-9200

Project Objectives

The objectives of the 2013 Flood Repair Projects are:

- Address roads with serious damage caused by a natural disaster or catastrophic failure.
- Reduce road and stream interactions.
- Maintain aquatic and wildlife habitat standards in respect to the Forest Plan and national direction.

STAY INVOLVED:

Join the project mailing list to get updates on the status of the 2013 Flood Repair Projects.
Please contact Michelle King at 509-653-1420; mdking02@fs.fed.us

We thank those individuals who choose to be contacted via email as it helps the Naches Ranger District save paper and money.

Federal Highway Standards and Forest Service Roads

Did you know that all Forest Service Roads must meet Federal Highway Standards? Although Forest System Roads (FSRs) are managed at different levels, every road must meet basic Federal Highway Standards. For example, every road and crossing must be able to handle the weight and turning radius of a **loaded logging truck**. Even if a FSR is not paved, the river and stream crossing must be strong enough to handle the weight of these heavy vehicles. For more information on Federal Highway Standards visit: https://fhwapap04.fhwa.dot.gov/nhswp/.

Project Consistency and Environmental Protection

The objectives of the proposed 2013 Flood Repair Projects are consistent with recommendations present in relevant national and regional direction. Projects on the Forest will follow the direction for land and habitat management as per the **Wenatchee National Forest Land and Resource Management Plan** (1990) as amended by the **Northwest Forest Plan** Standards and Guidelines for Management of Habitat for Late Successional and Old-Growth Forest Related Species within the Range of the Northern Spotted owl (1994). By applying site specific road designs and implementing appropriate maintenance requirements, all projects on the Forest will be consistent with the **Aquatic Conservation Strategy** objectives.

In compliance with the **National Environmental Policy Act** (NEPA), each project is classified as an Environmental Assessment (EA) or a Categorical Exclusion (CE). Each EA will discuss the project's purpose and need, affected environment, potential alternatives, environmental and social effects, and public involvement. As part of the **Endangered Species Act** (1973) consultation process, a Biological Evaluation will be completed for each project. Each project will comply with the **Pacific Northwest Region Invasive Plant Program Record of Decision** (2005), the **Clean Water Act** (1972), the **Clean Air Act** (1963), **Executive Order 11988** for Floodplain Management, **Executive Order 11990** for Wetland Protection, and the **Magnuson-Stevens Fishery Conservation and Management Act**.

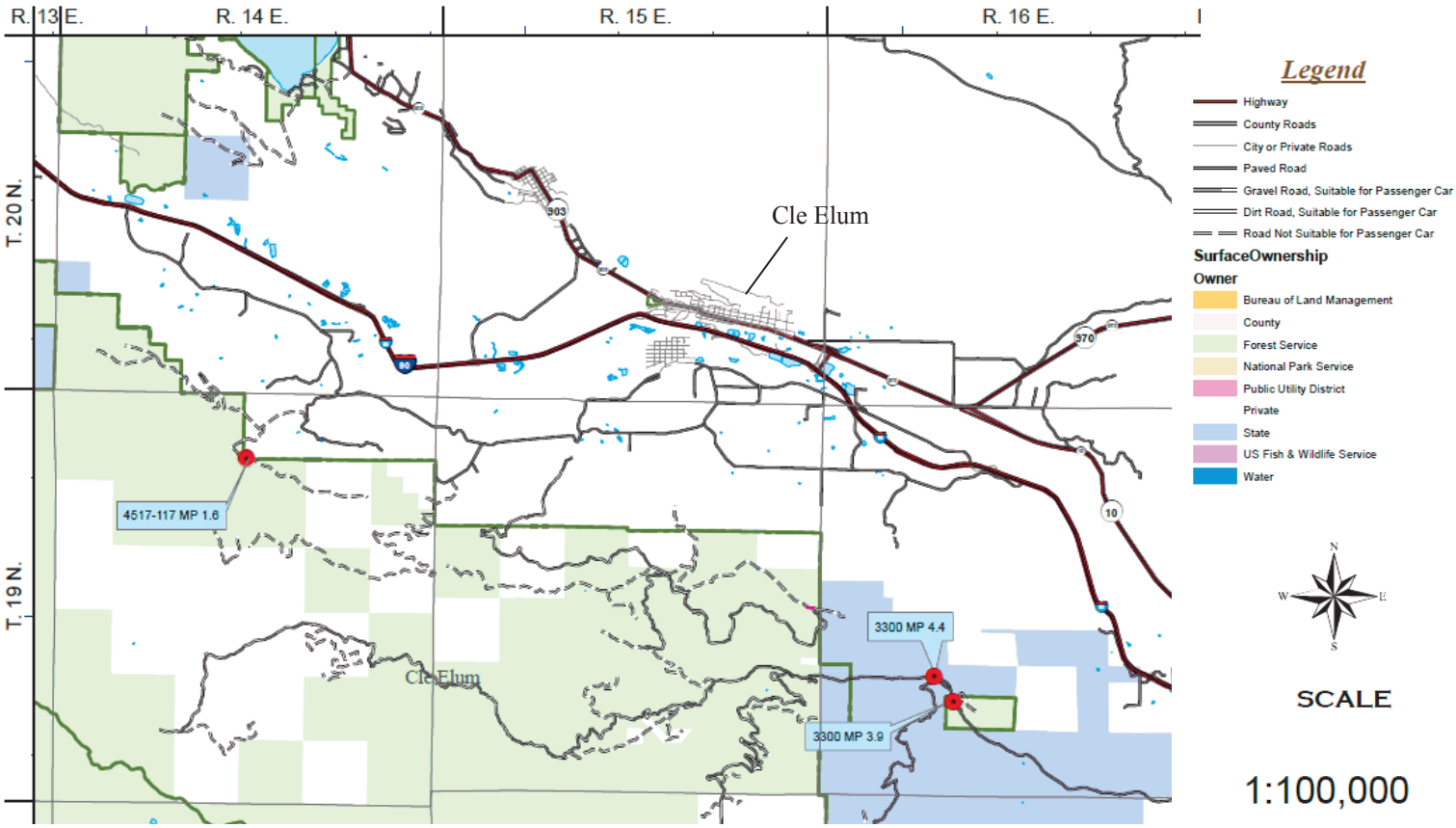
Although the Okanogan-Wenatchee is enacting public scoping for all of the 2013 proposed projects at the same time, each of the five projects will be individually analyzed and will have separate project files. The Potential Repair Options at each site represent possible actions the planning team has began to review. Your knowledge of the area and feedback could lead to the development of a new potential repair. Scoping is an important time for the planning team to gather additional information while beginning the environmental analysis.

Project Locations

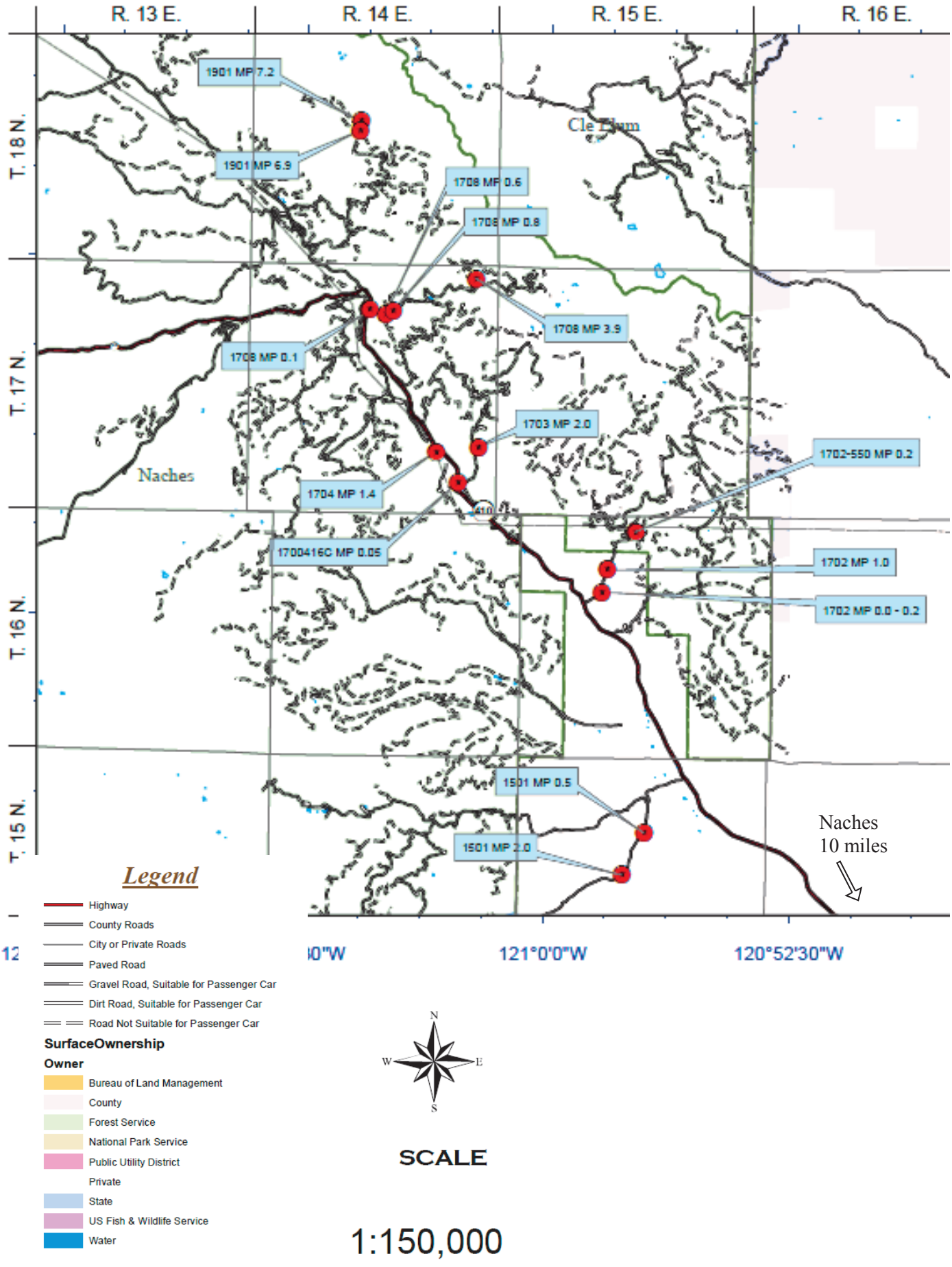
Washington State

General vicinity of the five project sites

Cle Elum Ranger District Project Locations



Naches Ranger District Project Locations



Forest Service Road 1901

Naches Ranger District

Project Analysis Type: Categorical Exclusion, 36 CFR 220.6(d)(4)

This project is not required to have an Environmental Assessment but will still be subject to Appeal Regulations CFR 215. A Categorical Exclusion (CE) is a more streamlined method of analysis used in cases where the expected impact is limited. There will be an Official Comment Period and Decision Memo associated with this project.

Mile Post 6.9

Location

This damaged site is located in the Little Naches drainage on the Naches Ranger District. Forest System Road 1901 is also known as Quartz Creek Road. This site is located in Township 18N, Range 14E, Section 16 in Kittitas County. This area is currently closed at the FSR 1901 and 1916 junction. This is a maintenance level two road at the project site.

Flood Damage

During the May 2011 flood, flood water caused the road fill and slope to fail as it ran down and crossed the roadway. When the road began to erode, it caused a debris flow down the side of the slope. Approximately half of the existing road prism is missing at this location. The damaged area spans 46 feet.

Potential Repair

Option A: Repair the road in place. Excavate the existing shoulder slump area and install a 50 foot long wall with rock backfill upslope of the road. Re-vegetate the eroded slope and rebuild the aggregate road surface.

Option B: Close the road at the current junction with FSR 1916. Stabilize the slope to prevent further damage and sedimentation. This site is also in a potential restoration project area and the outcome of the road in its entirety will be analyzed in the future.

Forest Service Road 1901

Naches Ranger District

Mile Post 7.2

Location

This damaged site is located in the Little Naches drainage on the Naches Ranger District. The FSR is also known as Quartz Creek Road. This site is located in Township 18N, Range 14E, Section 16 in Kittitas County. This area is currently closed at the FSR 1901 and 1916 junction. This is a maintenance level two road.

Flood Damage

During the 2011 flood event, the existing 60 inch culvert failed to properly transport water below the road. The stream deposited streambed material upstream of the crossing and into the culvert. With the stream flowing over the road, a large amount of roadway and road fill washed away.

Potential Repair

Option A: The crossing will be fixed and the road would be repaired to pre-existing single lane width.

Option B: Close the road at the junction with FSR 1916. Remove roadway and road fill that could continue to put sediment into the stream. Remove the culvert and stabilize the roadway away from the crossing.

Forest Service Road 1501

Naches Ranger District

Project Analysis Type: Environmental Assessment

This project was first initiated in July of 2011 but has now been reinitiated to be included in the South-Zone flood repair projects. The previous proposed action should be disregarded.

Mile Post 0.5

Location

This damaged site is located in the Rattlesnake drainage. The FSR 1501 is also known as the Little Rattlesnake. This project is unique as the repair sites are within WA State Department of Natural Resources land, however, as a FSR it is maintained by the Naches Ranger District. This site is located in Township 15N, Range 15E, Section 10 and is in Yakima County. It is currently a maintenance level four road.

Flood Damage

Damage at this location occurred in 2009 and during the 2011 flood event. The stream began flowing into the road ditch and then across the road. From mile post 0.5 for 350 feet, the stream is now running across and on the road, eroding some of the asphalt pavement surface as well as the aggregate road base. From 350 to 800 feet beyond mile post 0.5, the stream is occupying and eroding the roadside ditch. It is continually eroding the road prism pavement, and road fill along the shoulder.

Potential Repair

Option A: Shift the roadway up and away from the channel at this location. Obliterate the old road section and restore a flood plain area with vegetation. The new road piece would be armored with rocks and large pieces of wood.

Option B: Decommission FSR 1501 from mile post 0.0 to 5.1. This would include obliterating the road, removing necessary road fill and asphalt that could wash out into the stream, and creating wood and rock structures to stabilize the area.

Forest Service Road 1501

Naches Ranger District

Mile Post 2.0

Location

This damaged site is located in the Rattlesnake drainage. The FSR 1501 is also known as the Little Rattlesnake. This project is unique as the repair sites are within WA State Department of Natural Resources land, however, as a FSR it is maintained by the Naches Ranger District. This site is located in Township 15N, Range 15E, Section 16 and is in Yakima County. It is currently a maintenance level four road.

Flood Damage

During a high water event, the Little Rattlesnake stream activated a side channel that cut into the road prism and eroded approximately three feed of road surface. The damage to the road surface extends 26 feet and damage to the road embankment spans a total of 74 feet.

Potential Repair

Option A: Shift approximately 200 feet of roadway up and away from the channel. Remove the old road bed and restore a flood plain area with vegetation. The new road would be armored with rocks and large pieces of wood for stabilization.

Option B: Decommission FSR 1501 from mile post 0.0 to 5.1. This would include obliterating the road, removing necessary road fill and asphalt that could wash out into the stream, and creating wood and rock structures to stabilize the area.

Forest Service Road System 1700

Naches Ranger District

Project Analysis Type: Environmental Assessment

Analysis Area

In order to properly address the cumulative and collective impacts of all of the repairs east of Highway 410, the planning team is analyzing multiple roads within one Environmental Assessment. There are six FSRs with a total of ten damaged sites:

- FSR 1700-416, mile post 0.1
- FSR 1702, mile post 0.0 and 1.0
- FSR 1702-550, mile post 0.2
- FSR 1703, mile post 2.0
- FSR 1704, miles post 1.3
- FSR 1708, mile post 0.0, 0.6, 0.8, and 3.9

The Naches River Drainage

Although the different damage sites may seem far apart, they are all near the Naches River or near a tributary of the Naches River. Furthermore, these roads are inter-connected and provide access to the same system on the forest. For example, a closure in one area would impact travel on other roads near by. The analysis team will analyze all sites as one project to be able to better measure the total effects of all the potential repairs. Beyond effects to wildlife and aquatic species, the team must analyze the effects to recreation, vegetation management, fire management, cultural resources and other uses of this area.

In order to provide useful comments on this project, **please be clear as to which FSR and which exact damage site you are commenting on**. The analysis is one document but each site will have a separate repair selection.

Forest Service Road System 1700

Naches Ranger District

FSR 1700-416
Mile Post 0.1

Location

This damaged site is located in the Gold Creek drainage on the Naches Ranger District. The road is a connector road in a summer home tract. The site is in Township 17N, Range 14E, Section 36 within Yakima County. This road is classified as a maintenance level two road.

Flood Damage

In the 2011 flood, Gold Creek washed out a 30 foot wide section of the road at the location of two 48 inch culverts. The culverts did not fill with debris but were unable to handle the large amount of water flowing through. A significant amount of road, road fill, and road shoulder was washed downstream. There are summer homes on both sides of the washout and both tracts can be accessed by State Highway 410.

Potential Repair

Option A: Install an open bottom arch of approximately 15 feet in length to replace the two failed culverts. Remove the two culverts, install arch, reconstruct the road, and re-vegetate exposed soil around the area.

Option B: Close the road at the crossing and remove approximately 100 feet of the road centered on the stream crossing. After removing the road and road fill, the stream bank would be stabilized and re-vegetated to prevent erosion.

Forest Service Road System 1700

Naches Ranger District

FSR 1702

Mile Post 0.0

Location

This damaged site is located along Rock Creek just off Okanogan-Wenatchee National Forest land. Rock Creek Road (FSR 1702) is currently closed from mile post 1.0-1.1, but before the flood damage occurred it accessed both Forest and State land. The site is located in Township 16N, Range 15E, Section 17. This road is a maintenance level three road and managed by the Naches Ranger District.

Flood Damage

In May 2011, flood water overtopped multiple culverts, forcing the creek over and down the road. The water moved over the road and damaged the aggregate surface for approximately 2,450 feet. Debris was deposited on the road and in the roadside ditches.

Potential Repair

Option A: Clean and repair approximately 1,900 feet of roadway ditch, install 430 feet of rock armor protection on the creek bank, and clear the existing culverts. Road will be resurfaced for approximately 200 feet.

Option B: Stabilize the crossings and relinquish the road easement. Permanently close FSR 1702 beyond mile post 1.

Forest Service Road System 1700

Naches Ranger District

FSR 1702

Mile Post 1.0

Location

This damaged site is located along Rock Creek just off Okanogan-Wenatchee National Forest land. Rock Creek Road (FSR 1702) is currently closed from mile post 1.0 to 1.1, and before the flood damage occurred it accessed both Forest and State land. The site are located in Township 16N, Range 15E, Section 8/9. This road is a maintenance level three road and managed by the Naches Ranger District.

Flood Damage

In the 2011 flood, high water flows eroded and damaged the road, road fill, and road shoulder. Rock creek narrows at this point in the valley with higher velocity flows. On the other side of the road is a steep slope.

Potential Repair

Option A: Build a precast concrete block wall to armor the road shoulder and prevent more erosion. Stabilize the area around the road.

Option B: Stabilize the road and bank and relinquish the road easement. Permanently close FSR 1702 beyond mile post 1.

Forest Service Road System 1700

Naches Ranger District

FSR 1702-550
Mile Post 0.2

Location

This damaged site is located on a spur road that connects with Rock Creek Road 1702. It is a maintenance level two road on the Naches Ranger District. The site is located in Township 16N, Range 15E, Section 4. The stream pictured is the righthand fork of Rock Creek.

Flood Damage

During the May 2011 flood, debris plugged the culvert and washed out 30 feet of road. There is currently no crossing and the 36 inch culvert is partially exposed.

Potential Repair

Option A: Clear and repair roadway and ditches. Install a 60 inch culvert to replace the 36 inch culvert. The crossing would be at the same location.

Option B: Reduce road to maintenance level 1 (closed) and stabilize the crossing. Remove the old culvert and road fill that could potentially be washed downstream.

Forest Service Road System 1700

Naches Ranger District

FSR 1703
Mile Post 2.0

Location

This damaged site is located along Gold Creek and is known as Gold Creek Road on the Naches Ranger District. This road is a loop road that connects with FSR 1705. The site is located in Township 17N, Range 14E, Section 25 in Kittitas County. This road previously was a snow mobile route in the winter and now is a maintenance level three road. The road is currently closed from mile post 0.0 to the FSR 1705 junction.

Flood Damage

Gold Creek washed out approximately 300 feet of road way. Above is the space where the road has washed away and where debris and boulders have filled in. During the 2011 flood event, the 60 inch culvert filled with rocks and debris and allowed the stream to overtop the road. The washout changed the course of the stream channel and created a large log jam that is causing river head-cutting.

Potential Repair

Option A: Rebuild the road in the same location allowing the stream to reclaim the old channel. The new crossing structure would be a 25 foot bottomless arch at the previous location of the culvert.

Option B: Reduce road to maintenance level 1 (closed) at crossing. Stabilize crossing and remove road and roadway fill that could erode further.

Forest Service Road System 1700

Naches Ranger District

FSR 1704

Mile Post 1.3

Location

This damaged site is located next to the main stem of the Naches River. Lower River Road (FSR 1704) and is classified as a maintenance level three road. The site is located in Township 17N, Range 14E, Section 26 in Yakima County. This is a connecter road between two summer home tracts and is currently open with a narrowed capacity.

Flood Damage

During the 2011 flood, high flows eroded the bank, road shoulder, and roadway. There is approximately 90 feet of damage resulting in a slumped road shoulder and roadway with a reduced width. At this site, the road is confined between the Naches River and a vertical rock face.

Potential Repair

Option A: Reconstruct eroded portion of road armoring river interface with extensive large rock and woody debris. Reconstruct road surface to minimize sedimentation into the river.

Option B: Close 1,500 to 2,000 feet of the road allowing for a turn around area on each side. Remove two thirds of the roadway to prevent additional erosion. Keep some surfacing to assist in stability.

Forest Service Road System 1700

Naches Ranger District

FSR 1708

Mile Post 0.0

Location

This damaged site is located along Milk Creek Road on the Naches Ranger District. Milk Creek Road (FSR 1708) intersects with State Highway 410 and has previously been the location of a snow park and groomed snowmobile route. The site is located in Township 17N, Range 14E, Section 9, in Kittitas County. This is a maintenance level three road and typically is heavily used. The road is currently closed from mile post 0.0 to the FSR 1708-590 junction.

Flood Damage

In 2011, the culvert at the Milk Creek crossing filled and allowed water to overflow onto the road and down towards Highway 410. Approximately 1,700 feet of road surfacing was damaged below the failed crossing. The 72 inch culvert is still in place.

Potential Repair

Option A: Pull out wood and debris that is partially blocking the pipe. Repair washed out portions of the road surface with aggregate surfacing.

Forest Service Road System 1700

Naches Ranger District

FSR 1708

Mile Post 0.6

Location

This damaged site is located along the heavily used Milk Creek Road on the Naches Ranger District. Milk Creek Road (FSR 1708) intersects with State Highway 410 and has previously been the location of a snow park and groomed snowmobile route. The site is located in Township 17N, Range 14E, Section 10, in Kittitas County. This is a maintenance level three road and is currently closed at mile post 0.0 to the FSR 1708-590 junction.

Flood Damage

During the 2011 flood, high flows eroded the road shoulder and bank. Portions of the road shoulder and road way were washed away narrowing the width of the road.

Potential Repair

Option A: Re-align the road to go up through the adjacent spur road. The spur road goes to a near-by rock pit and connects back to FSR 1708 at mile post 0.8. The re-aligned road would be made to level three maintenance road standards. The existing road would be decommissioned and the slope would be armored to prevent excess erosion.

Forest Service Road System 1700

Naches Ranger District

FSR 1708

Mile Post 0.8

Legal Description

This damaged site is located along the heavily used Milk Creek Road on the Naches Ranger District. Milk Creek Road (FSR 1708) intersects with State Highway 410 and has previously been the location of a snow park and groomed snowmobile route. The site is located in Township 17N, Range 14E, Section 10, in Kittitas County. This is a maintenance level three road and is currently closed at mile post 0.0 to the FSR 1708-590 junction.

Flood Damage

During the 2011 flood, high flows and debris eroded the road shoulder and bank. Portions of the road shoulder and road way were washed away narrowing the width of the road.

Potential Repair

Option A: Re-align the road to go up through the adjacent spur road. The spur road goes to a near-by rock pit and connects back to FSR 1708 at mile post 0.6. The re-aligned road would be made to level three maintenance road standards. The existing road would be decommissioned and the slope would be armored to prevent excess erosion.

Forest Service Road System 1700

Naches Ranger District

FSR 1708

Mile Post 3.9

Legal Description

This damaged site is located along the heavily used Milk Creek Road on the Naches Ranger District. Milk Creek Road (FSR 1708) intersects with State Highway 410 and provides access to several four wheel drive trails. The site is located in Township 17N, Range 14E, Section 1, in Kittitas County. This is a maintenance level three road and is currently closed at mile post 0.0 to the FSR 1708-590 junction.

Flood Damage

The creek crossing the road is a tributary to Milk Creek and is in an area with high sediment dispersal. During 2011, the culvert plugged with debris and created a new crossing down the ditch and then over the road.

Potential Repair

Option A: Remove the existing buried culvert and replace it with a larger culvert (approximately 60 inches) in the same location. Repair the road and road shoulder and return the stream to the pre-flood channel. Road and ditch would be armored for protection from future flood events.

Forest Service Road 4517-117

Cle Elum Ranger District

Project Analysis Type: Categorical Exclusion, 36 CFR 220.6(d)(4)

IMPORTANT: This project is not required to have an Environmental Assessment and is not subject to Appeal Regulations CFR 215. This means that the public will have one opportunity to comment on this project during the Scoping Period (see page 24). This type of analysis is generally shorter than an Environmental Assessment and will not require an Official Comment Period or Decision Memo.

Mile Post 1.6

Legal Description

This damaged site is located on Granite Road on the Cle Elum Ranger District. The road is a maintenance level two road and the project site is Township 19N, Range 14E, Section 4 in Kittitas County.

Flood Damage

The damaged crossing is at the location of a stream alluvial fan. During the 2011 flood, high flows and debris washed away the road around the existing culvert and deposited debris all over the site.

Potential Repair

Option A: Remove the existing culvert and make the crossing a natural-material ford. The ford would not be armored and would allow for traffic to drive through the site in low-flow or no-flow periods. The surface of the ford would be compacted. There would be a widened road area added before the ford to allow vehicles that did not want to cross to be able to turn around.

Forest Service Road 3300

Cle Elum Ranger District

Project Analysis Type: Environmental Assessment

Mile Post 3.9

Legal Description

This damaged site is located along Taenem Road on the Cle Elum Ranger District. This is a maintenance level four road and is currently open with a narrowed driving width. This site is directly across from the Taenem Campground. The site is located in Township 19N, Range 16E, Section 28 in Kittitas County.

Flood Damage

During the 2011 flood, the gabion baskets and bank failed to protect the road and the road collapsed into the stream. Portions of the roadway and road shoulder are missing and the road width is narrowed. Currently, the stream is confined on the road and the campground side at this location.

Potential Repair

Option A: Replace failed gabion baskets with a pre-cast concrete block wall. Remove the berm between the stream and the campground, allowing the river to regain that portion of the floodplain. The historic structures of the campground will be protected, however, the picnic area and two campground locations will become part of the river flood plain. These sites are closest to the stream bank. The road would be repaired to pre-flood conditions.

Forest Service Road 3300

Cle Elum Ranger District

Mile Post 4.4

Legal Description

This damaged site is located in along Taenem Road managed by the Cle Elum Ranger District. This is a maintenance level four road and is currently open with a narrowed driving width. The road is managed by the Forest Service but the site is located on Washington Department of Fish and Wildlife land. The site is located in Township 19N, Range 16E, Section 29 in Kittitas County.

Flood Damage

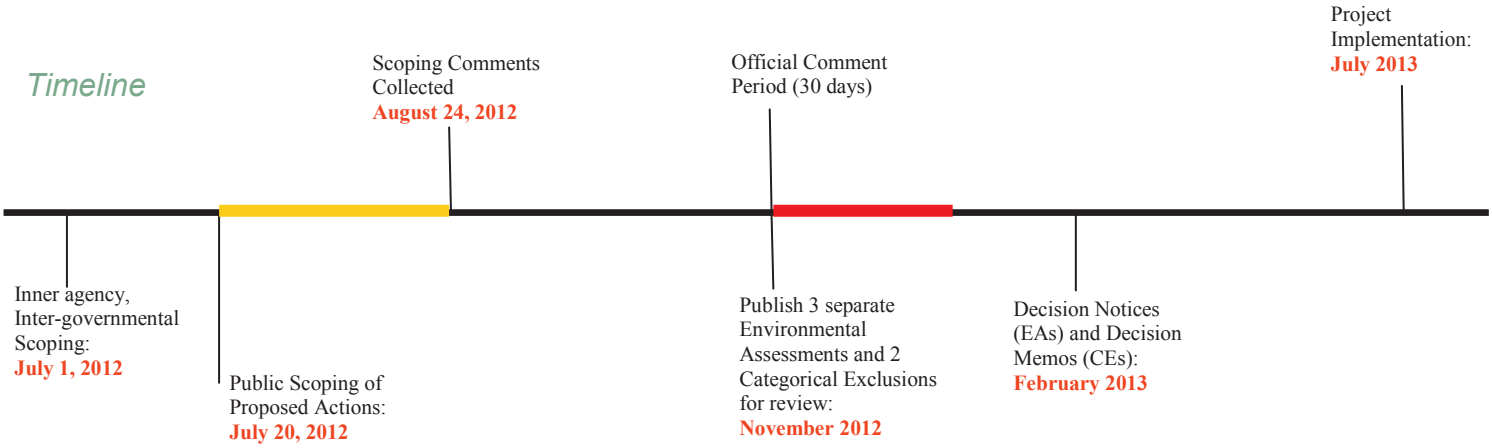
During the 2011 flood, the gabion baskets and bank failed to protect the road and the road collapsed into the stream. Portions of the roadway and road shoulder are missing and the road width is narrowed.

Potential Repair

Option A: Replace gabion baskets with a sheet pile wall. The wall would be made of connecting sheet piles that lock together and would be approximately 120 feet in length. Repair the road to pre-flood condition.

Getting Involved

Timeline

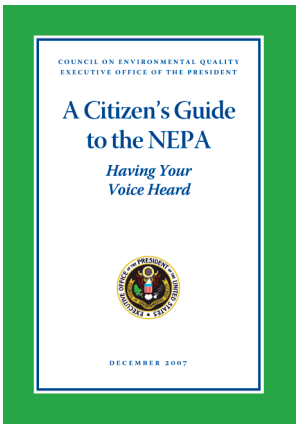


The planning processes for all five Flood Repair Projects are currently underway. The proposed actions presented here represent the planning team's initial proposal to address specific issues in each project area. Your personal knowledge of this area can help the team identify additional issues and opportunities not previously defined. In addition, your comments can provide the input necessary to develop alternative proposals that address these issues. Specific scoping comments will be most helpful to the planning team by **August 24th, 2012**. Comments received anytime during the analysis period will be accepted and give consideration and all comments will be part of the public record for this project. Please be aware that unless you request that this information not be disclosed and provide an adequate reason, it will become public record. To establish appeal rights, individuals or groups must make a substantive comment during the **'Official Comment Period'**. The Official Comment Period begins once legal notice is published in the Wenatchee World and the specific document has been made public for review. Please note– after scoping, each of the five projects may follow a different timeline.

Navigating the NEPA Process

A valuable reference for anyone wishing to get involved in the NEPA process is *A Citizen's Guide to the NEPA, Having Your Voice Heard* (Council on Environmental Quality). A copy of the guide can be found at:

http://ceq.hss.doe.gov/nepa/Citizens_Guide_Dec07.pdf



Some highlights:

- Citizens who want to raise issues with the agency should do so at the earliest possible state in the process. Agencies are much more likely to evaluate a new alternative or address a concern if it is raised in a timely manner.
- Comments may be the most important contribution from citizens. Accordingly, comments should be clear, concise, and relevant to the analysis of the proposed action. As a general rule, comments should be polite and respectful.
- Comments that are solution oriented and provide specific examples will be more effective than those that simply oppose the proposed projects.
- Remember that decision makers also receive other information and data such as operational and technical information related to implementing an action that they will have to consider when making a final decision.

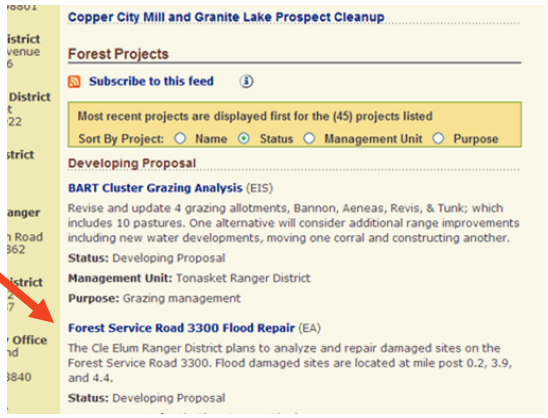
Comments or Questions?

The Naches and Cle Elum Ranger Districts are asking for questions, comments, and concerns on the presented proposed actions. Please send us your feedback by August 20, 2012. Visit the project websites to submit comments and find more information:

http://www.fs.usda.gov/projects/okawen/landmanagement/projects

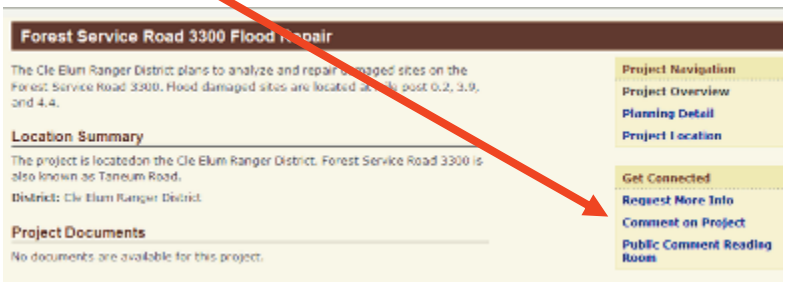
Once on the Project webpage, scroll down to 'Forest Projects' to search for the project you are interested in.

Select the project you are interested in



OR

Select 'Comment on Project'



Mail comments to:

Michelle King
Naches Ranger Station
10237 U.S. Highway 12
Naches, WA 98937

For questions or more information, please contact:

Michelle King
mdking02@fs.fed.us
509-653-1420

We look forward to hearing from you,

IRENE L. DAVIDSON
Naches District Ranger

JUDY HALLISEY
Cle Elum District Ranger

APPENDIX B

Applicable Standards, Guidelines, and Best Management Practices

All Action Alternatives

This is only a sampling of Forest Service standards that are relevant to the 3300 Flood Repair Project. As per Federal direction, the Cle Elum Ranger District during project implementation will follow all Forest Service applicable Standards and Guidelines, Best Management Practices, and other direction outlined in tiered Environmental Impact Statements.

These standards, guidelines, and best management practices apply to all action alternatives (Alternative A and Alternative B).

- Applicable standards from the 2005 USDA Forest Service Final Environmental Impact Statement and Record of Decision for Preventing and Managing Invasive Plants and 2002 USDA Forest Service Okanogan and Wenatchee National Forest Weed Management and Prevention Strategy and Best Management Practices
    - All mud, dirt, and plant parts would be removed from all heavy equipment (bulldozers, skidders, graders, backhoes, dump trucks, etc.) prior to operation outside the limits of the road prism on National Forest System Lands. This also includes public service vehicles (USDA Forest Service 2005, ROD Standard 2).
    - All equipment would be cleaned prior to leaving the project site, if moving to uninfested areas (USDA Forest Service 2005, ROD Standard 2).
    - When equipment is moving from one portion of project area that is weed infested to another portion that is weed free, it would be required to be cleaned as described above. A District Noxious Weed Coordinator or District Botanist would provide locations of weed-infested treatment units on project maps.
    - Forest personnel would inspect, remove, and properly dispose of weed seed and plant parts on their clothing, equipment, and vehicles (USDA Forest Service 2005, ROD Standard 2) .
    - Locally adapted native plant material or seeds are the first choice in revegetation or restoration where timely regeneration is not likely to occur. Under no circumstances will non-native invasive plant species be used for regeneration. (FSM 2070, 2008, USDA Forest Service 2005, ROD Standard 13).
    - Certified Weed free plant materials and mulch would be used for revegetation and site stabilization (USDA Forest Service 2005, ROD Standard 3).
    - All gravel, fill, sand, quarry and borrow material must be inspected by the county weed board or a district weed specialist before transport or used in the project area. Infested sources are required to be treated before any use of pit material is used (USDA Forest Service 2005, ROD Standard 7).
    - Road maintenance activities would be coordinated with invasive plant treatment (hand pulling, mowing, herbicide application, planting) to maximize efficacy (USDA Forest Service, 2002, BMP III-9.1; Standard 8).

- If rare species of plants, bryophytes, lichens, or fungi (threatened, endangered, sensitive, strategic, Survey & Manage) are found during implementation of the project, a botanist would establish protection measures so these species are not impacted.

- If weed (invasive species) abatement is necessary, the following native seed mix will be used:

Species	Lbs/Acre
Blue Wildrye *Elymus glaucus*) 'keechelus'	**8**
California Brome (*Bromus carinatus*) 'Reecer'	**15**
Idaho Fescue (*Festuca idahoensis*) 'Mt. Adams'	**1.5**
Bluebunch Wheatgrass (*Pseudoerigneria spicata*)'Squilchuck'	**2.5**
Yarrow (*Achilliea millifolium*) 'Ýakima'	**.12**

- Consistency with the National Historic Preservation Act of 1966 including if any new cultural resources are discovered during the course of project implementation, all work in that area would cease and the resources protected, until an archaeologist assess the find.
    - Alternative A- mitigation would include Standard Clauses BT6.24 Protection of Cultural Resources and CT6.24 Site Specific Protection Measures for Cultural Resources.
    - Alternative B- further survey, consultation with the State Historic Preservation Officer, and/or possible mitigation measures would need to be completed before the Taneum Campground was completely reclaimed by the flood plain (Alternative B) in reference to Cultural Resources within the campground.
- Consistency with the National Best Management Practices for Water Quality Management on National Forest System Lands (USDA 2012).