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Chapter 1 - Purpose and Need

Summary

The Mt. Baker–Snoqualmie National Forest (MBSNF) proposes to update the Evans Creek Off–Road Vehicle (ORV) Management Plan. The project area is located in T17N, R07E, Sections 05, 08, 09, 16–21, 28, and 29 and is within the Snoqualmie Ranger District, Mt. Baker-Snoqualmie National Forest , WA. This action is needed to bring the ORV area into compliance with the 1990 Forest Plan, as amended, and was identified as a recommendation in the Carbon River Watershed Analysis (USDA Forest Service 1998).

The proposed action would develop and approve an updated Evans Creek Off–Road Vehicle Area Management Plan. This would include facilities redesign, upgrades and improvements; trail repair, improvements or decommissioning; and road assessment resulting in improvements, decommissioning/closure or conversion to trails.

In addition to the proposed action, the Forest Service also analyzed the following alternatives:

No Action Alternative–that if chosen would result in the continuation of management of the ORV area under the Proposed Off–Road Vehicle Use Evans Creek Area Environmental Assessment (EA) (USDA FS 1980).

Document Structure

The Forest Service has prepared this EA in compliance with the National Environmental Policy Act (NEPA) and other relevant Federal and State laws and regulations. This EA discloses the direct, indirect, and cumulative environmental impacts that would result from the proposed action and alternatives. The document is organized into six parts:

- Introduction: The section includes information on the history of the project proposal, the purpose of and need for the project, and the agency's proposal for achieving that purpose and need. This section also details how the Forest Service informed the public of the proposal and how the public responded.
- Comparison of Alternatives, including the Proposed Action: This section provides a more detailed description of the agency's proposed action as well as alternative methods for achieving the stated purpose. These alternatives were developed based on significant issues raised by the public and other agencies. This discussion also includes possible mitigation measures. Finally, this section provides a summary table of the environmental consequences associated with each alternative.
- Environmental Consequences: This section describes the environmental effects of implementing the proposed action and other alternatives. This analysis is organized by resource area. Within each section, the affected environment [if

any] is described first, followed by the effects of the No Action Alternative that provides a baseline for analysis and comparison of the other alternatives that follow.

- Agencies and Persons Consulted: This section provides a list of agencies consulted during the development of the environmental assessment.
- Preparers: This section contains a list of preparers, ID Team Members, Consultants, and other Team Support.
- Appendices: The appendices provide more detailed information to support the analyses presented in the environmental assessment.

Additional documentation, including more detailed analyses of project–area resources, may be found in the Project Record located at the Snoqualmie Ranger District Office in North Bend, WA..

Purpose and Need for Action

The purpose of this project is to update the Management Plan for Evans Creek Off-Road Vehicle (ORV) Area as identified in the Carbon River Watershed Analysis (USDA, FS 1998, p. 4-8) and to bring the ORV Area in to compliance with Mt. Baker-Snoqualmie 1990 Forest Plan, as amended Standards and Guidelines.

There is a need to:

1. Reduce erosion and sedimentation due to on-going road and trail use activities. There is a need to decommission or bring the roads and trails into compliance with the Forest Plan, as amended. Currently most of the roads and trails fail to meet the management standards for depth, width, drainage, tread, etc., which are contributing to erosion problems, devegetation, and increased sedimentation reaching the aquatic systems within the area. The desired condition would be to provide an Off-Road Vehicle experience that can be maintained over the long term without degrading the health of the forest or other environmental resources (USDA FS 1990, p 4-86, 87, 140 and FSH 2309.18/FSM 2300 Trail Management; FSM 2500-R6 Supplement 45 Soils Management).

There is a need to obliterate user-built, non-system trails due to lack of appropriate design elements, contribution to erosion, devegetation, and increased sedimentation migration (MBSLMP p. 4-86, 87, 92; NWFP ROD 1994, Standards and Guidelines C-16 Road Construction and Maintenance–Road Construction in Late-Successional Reserves for silvicultural, salvage, and other activities generally is not recommended unless potential benefits exceed the cost of habitat impairment; and C-18, Recreation Uses–Dispersed recreational uses, including hunting and fishing, generally are consistent with the objectives of Late-Successional Reserves). Use adjustment measures such as education, use limitations, traffic control devices, or increased maintenance when dispersed and developed recreation practices retard or prevent attainment of Late-Successional Reserve objectives).

2. Provide safe access to area trails and facilities, reduce potential conflicts between users on area roads and trails, and meet Forest-wide Roads Analysis Objectives. The roads within the ORV area are currently open to licensed vehicle traffic only. The trails are defined in two ways, as Jeep Trails (dual track) and Motorcycle Trails (single track). The current design of the trails, both jeep and motorcycle, make access to the area facilities difficult. Many trails end at roads without opportunities to return to parking areas without retracing the same tread back or illegally riding on the road system. The desired condition would be to provide users with safe access to facilities, loop opportunities, and minimize conflicts with other users (USDA FS 1990, p 4-92, 140; Executive Order 11644, as amended by EO 11989). Use of roads, by unlicensed vehicles,

as a connector route is common and leads to potential conflicts between approved and unapproved uses (Title 46 RCW; 36 CFR 261.16).

Several of the roads in this area were identified for decommissioning or reduced maintenance to Level 1 (Closed) in the Forest-wide Road Analysis (2003), as either no longer being needed or not currently being needed, respectively. Roads with a Road Analysis Objective of decommission include 7920-610, 7930 MP 3.2 to end, 7930-320, 7930-330 and roads with objective to reduce to Level 1 (Closed) include 7920-280, 7920-281, 7920-300, 7920-410, 7930-310 MP 0.5 to end, 7930-410, 7930-414, 7930-418, 7930-419.

3. Redesign existing facilities (campground, day-use area and entrance) to provide for sanitation needs and safety of users. Currently there are three developed facilities within the ORV area. The facilities, originally constructed in the mid-1980s and, as a result, are undersized, lack adequate controls, and were not designed to accommodate the types of vehicles using the area today. The desired condition would be to redesign the facilities to provide adequate sanitation and safety controls (signage, parking controls, site design, ingress/egress patterns, and amenities) for users (USDA FS 1990, p 4-85, -140; USDA FS, USDI BLM 1994, Standards and Guidelines C-17 Developments–Existing developments in Late-Successional Reserve (LSR) such as campgrounds, recreation residences, ski areas, utility corridors and electronic sites are considered existing uses with respect to LSR objectives, and may remain, consistent with other standards and guidelines; and C-34 Recreation Management—For existing recreation facilities within Riparian Reserves, evaluate and mitigate impact to ensure that these do not prevent, and to the extent practicable contribute to, attainment of Aquatic Conservation Strategy (ACS) objectives).

4. Restore passage to resident fish populations in Evans Creek above road crossings. There is a need to replace or remove two road culverts located on Evans Creek (Road 7920 MP 1.54 and Road 7930-110 MP 0.06) to a standard that allows for movement of resident fish species within the available system. The desired condition would be to provide for unobstructed fish passage to historically accessible fish habitat (USDA FS 1990, p 4-126; USDA FS, USDI BLM 1994, Riparian Reserves standard RF-6).

This action responds to the goals and objectives outlined in the Mt. Baker-Snoqualmie Forest Plan, as amended and helps move the project area towards desired conditions described in that plan (USDA 1990 and USDA FS, USDI BLM 1994).

Background

The Evans Creek ORV Area Management Plan planning area includes approximately 5,078 acres of a mix of second–growth mixed conifer stands associated with railroad and other logging operations, as well as patches of old–growth forest. It is located on the

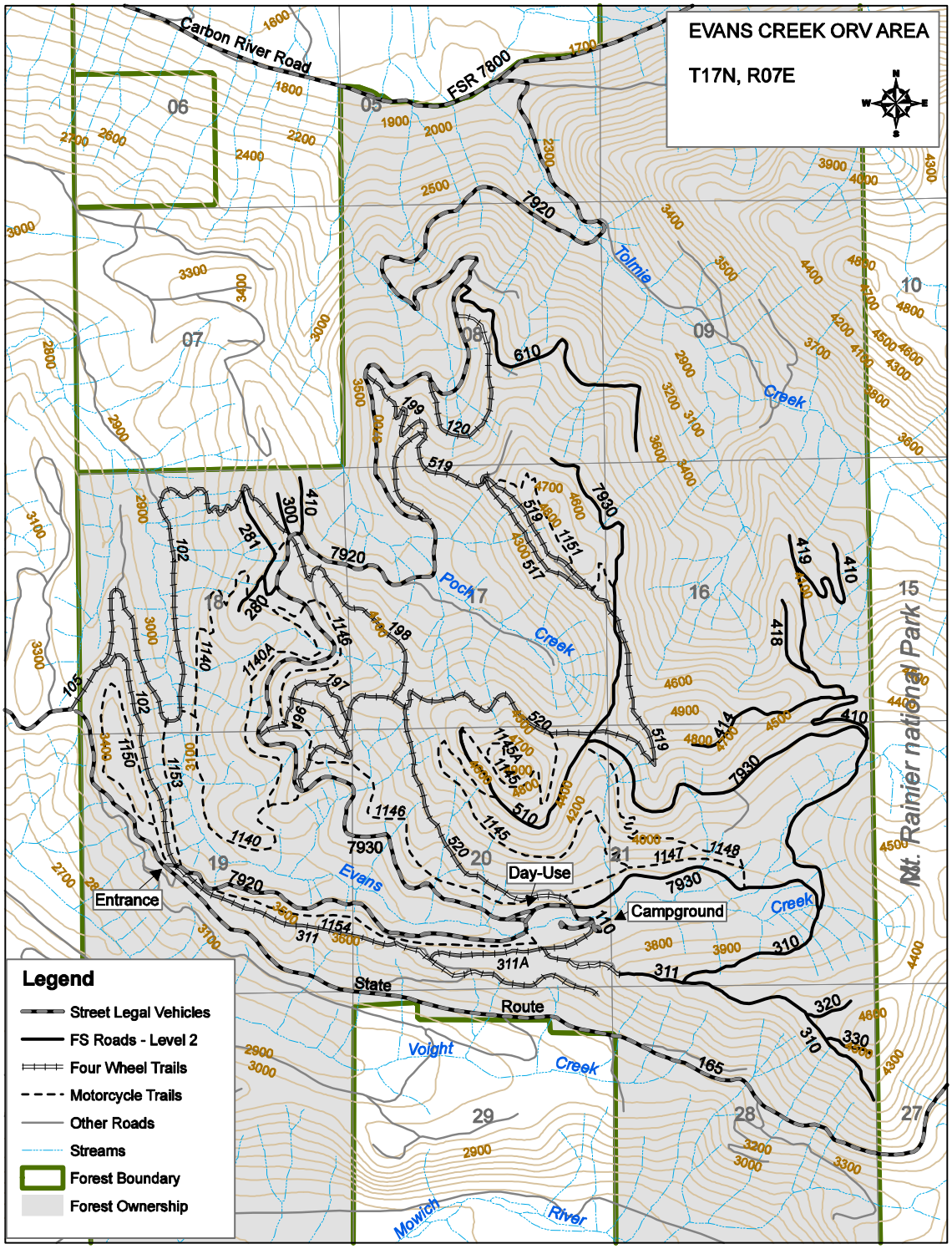
Snoqualmie Ranger District, Mt. Baker–Snoqualmie National Forest in Pierce County, Washington (T. 17N, R. 07E, Sections 5, 8, 9, 16–21, 28, 29, Willamette Meridian) approximately 21 miles southwest of Enumclaw, WA. The project area is accessible by way of State Route 165 along Forest Service Road (FSR) 7920 (see Figure 1. Evans Creek ORV Area Map).

Evans Creek ORV Area is a high–use, multi–season recreation area on the Snoqualmie Ranger District of the Mt. Baker–Snoqualmie National Forest. Designed and constructed in the early to mid–1980s, using a mix of Interagency Committee (IAC) Grant and Forest Service funding, it is the only area on the forest dedicated primarily to the use of motorized off–road vehicles such as jeeps, ATVs, and motorcycles. It currently contains approximately 13.5 miles of constructed Jeep and ATV trails and approximately 17 miles of Motorcycle trails, which are maintained by volunteer work parties in conjunction with the Forest Service. It also includes a Campground (23 sites, 5 toilets, water pump, information kiosk), Day–Use Area (open parking area, toilet, information kiosk) and Entrance Area (open parking area, information kiosk) requiring routine patrols, maintenance, and suitable access. Several dispersed campsites along the roads require cleaning and monitoring for unattended fires, garbage, and vandalism (such as tree cutting).

The Evans Creek ORV Area is currently under the Northwest Forest Pass program and a pass, or its equivalent, is required to use the area. Forest Service employees and Law Enforcement personnel patrol the area and are responsible for randomly checking the area for compliance with the pass program; providing conservation education and interpretation for users; and documenting and recording vehicle break–ins and suspicious activities. Forest Service employees are also responsible for cleaning and maintaining facilities and making contact with users to dispense information pertaining to area rules and regulations.

The current road system is a result of logging activities as far back as the early 1900s when railroad logging was at its height. As time passed, railroads gave way to trucks and more roads were constructed to access timber and other natural resources.

Figure 1. Evans Creek ORV Area Map



Proposed Action

The Snoqualmie Ranger District proposes to develop and implement a Management Plan for the Evans Creek ORV Area that is consistent with the Forest Plan, as amended. The following describes problem areas and prescribed solutions (for detailed information, see Alternative 2–Proposed Action in Chapter 2). Refer to Figure 5. Alternative 2–Proposed Action Map.

Roads in this area were assessed as part of the Forest-wide Roads Analysis (2003) and many were identified for reduced Maintenance Level to Level 1 (Closed). For all roads regardless of maintenance level; design, lack of enforcement and lack of controls entice/enable use by non-street legal vehicles (mixed motorized traffic).

- Approximately 8.8 miles of road are proposed for decommissioning and approximately 2.4 miles of road are proposed for reduction to Maintenance Level 1 (Closed).
- To increase loop/trail connectivity, remove trail user/road user conflicts, approximately 9.15 miles of road are proposed for conversion to jeep trails and approximately 0.48 miles of road are proposed for conversion to motorcycle trail.
- Approximately 2.14 miles of road would be upgraded and 0.1 mile new road construction, maintained for passenger cars for access to the campground and day-use parking area from the entrance area.

Jeep trails (dual track) do not meet current FSH/FSM Trail Management Standards for depth, width, drainage, tread, etc. except Trails 120 and 199. There is a need to bring all trails in to compliance with Forest Service (FS) Handbook/FS Manual standards (USDA FS 1990, p 4-86; FSH 2309.18/FSM 2300 Trail Management; and FSM 2500-R6 Supplement 45). As a Management Plan, mileages include total trail miles, not only those portions that require work at this time.

- Approximately 3.9 miles of jeep trail are proposed for maintenance work, including but not limited to drainage construction, tread rehabilitation, run-off management, and revegetation on a moderate level to correct area deficiencies.
- Approximately 7.8 miles of jeep trail are proposed for heavy maintenance work due to severe rutting, downcutting, surface erosion, and devegetation in localized segments. Activities may include but are not limited to segment redesign, re-routes, access controls, drainage construction, tread rehabilitation, run-off management, and revegetation.
- Approximately 1.35 miles of jeep trail are proposed for decommissioning.
- Approximately 0.25 mile of jeep trail is proposed for conversion to a road to provide for campground access due to the proposed FSR 7930-110 decommissioning. This would require the construction of a road segment (<0.1 mile) to connect the campground to Road 7920 below the Evans Creek crossing.

Motorcycle trails (single track) do not meet current FSH/FSM Trail Management Standards for depth, width, drainage, and tread. These trails do not display the same level of impacts as the Jeep Trails given the overall difference in weight, horsepower, size, etc. There are however localized areas with rutting, puddling, ineffective grid blocking, trail widening, etc.

There is a need to bring all motorcycle trails in to compliance with FS Handbook/FS Manual standards (USDA FS 1990, p 4-86 and FSH 2309.18/FSM 2300 Trail Mgmt). As a Management Plan, mileages include total trail miles, not only those portions that require work at this time.

- Approximately 17 miles of motorcycle trail require some degree of work.

Facilities located within the Evans Creek ORV Area (campground, day-use area, and entrance area) have expanded use beyond the original design standards identified in the 1980 EA and Decision Notice, creating unsafe situation for users.

There is a need to redesign these areas to allow for the safety of users. This would include designated controls for ingress/egress to allow for access by users and emergency vehicles, designated parking controls, and redesign to accommodate current demands and use (USDA FS 1990, p 4-85).

The Campground, originally constructed with access via the 7930-110 spur, currently consists of 23 single-vehicle, back-in sites, 5 toilets, water hand pump, information kiosk and two shelters. Vehicles observed in the campground at this time vary greatly, from jeepers with tents to 30+ foot motorhomes towing trailers (in excess of 20 feet in length) with associated equipment and everything in-between. The access road is narrow, steep and contains two sharp curves that make navigation into the campground difficult at best for large vehicles or vehicles pulling trailers. It crosses Evans Creek using a culvert to maintain stream flow under the roadway. This culvert is undersized, restricting fish passage to up-stream areas. Run-off and sedimentation loading are occurring at this point on Evans Creek and are concerns for effects to resident fish populations. Current campground design is not suitable for a majority of the types of vehicles using the area. Campsites are undersized and lack adequate design for vehicle parking. Turning radius in loops is inadequate. User demands out-weigh campground capacity. Site controls (such as defined parking area, tent pads, boundary, etc) no longer exist or are ineffective.

In order to provide a safe campground facility for users and minimize or remove the impacts from Evans Creek and resident fish populations, the following activities are proposed. Develop a new entrance into the campground that does not cross Evans Creek (from Road 7920 below Evans Creek crossing), construct a connector road to connect into Jeep Trail 311A, reconstruct a portion of Jeep Trail 311A to road (design and construct to passenger car standards). Provide graveled shoulder adjacent to the

campground access road and along Road 7920 to access the Day-Use Area and trailheads, eliminating the need for motorcycles and All Terrain Vehicles (ATVs) to travel on roadway. Decommission access Road 7930-110, and remove the culvert in Evans Creek. Restore the creek banks to a natural state and reestablish vegetation. Redesign the campground configuration, from current two-way traffic pattern with turn-a-rounds, to a more traditional loop design, with one-way traffic pattern through campground and adequate turning radius. Create a designated host site with capacity for an information kiosk and iron ranger (self-pay station for area use fee). Redesign current camp sites to better serve current use, increase camper capacity by developing additional individual and group sites along the campground loop adequately sized with appropriate parking/pullouts, provide tent pads at each site, add 2 additional vault toilets and 1 additional water source with pump. Provide access controls (such as fence, guardrail, boulders, or logs) and signage to define sites and travel routes, as needed, to eliminate ORV traffic from interior buffer areas.

The Day-Use Area, designed as an area for users to park vehicles, off/on-load equipment, and access trails without driving on roads, consists of an open flat area with one toilet and informational kiosk bounded by Roads 7920, Road 7930 and the parking access connector. The parking area is accessible from both roads via the connector. Currently there are no controls for ingress, egress or established parking patterns. Parking ends up being haphazard at best on a busy day and demand out-weighs capacity. This area is used for camping when the campground is full or by large groups that wish to camp together. A large, bon-fire type, fire ring, constructed by area users, is rebuilt each time FS personnel deconstruct it, and often occupies a large area. This use reduces or eliminates the day-use parking capabilities for which the area was intended.

In order to provide for the safety of users in the Day-Use Area the following activities are proposed for implementation. Eliminate the overnight camping in this area by designating as day-use only, no overnight parking. Establish traffic patterns and controls for safe ingress and egress, with appropriate turning radius, to and from this area. This would include one-way traffic through the area. Establish parking patterns and controls to maximize available parking spaces and prevent vehicles from being blocked-in by others. Increase parking opportunities along Roads 7920 and 7930, for single vehicles and provide a designated crossing for ATVs and motorcycles to move from shoulder to access trails. Build a picnic shelter with fire place/ring, picnic table, and install a well for potable water in day-use area. Upgrade kiosk and install an iron ranger self-pay station.

The Entrance Area, designated as the main entrance to the Evans Creek ORV Area, is located on Road 7920 near the junction with State Route 165. This area consists of an open flat (that is expanding due to use), information kiosk, and has several Jeep and Motorcycle Trails that converge at this area. Designed as a drive-through to other points within the ORV area, it has become a parking and off/on-loading area due to limited

availability of parking elsewhere. As in the day-use lot, parking ends up being haphazard at best on a busy day and demand out-weighs capacity. Currently there are no controls for ingress/egress into the ORV area, for trail users coming into opening or parking patterns controls. Parking use and lack of a toilet facilities at this area, has resulted in sanitation problems. In the winter, when the campground and day-use areas are inaccessible to vehicles, users are camping within the entrance clearing, building campfire rings on the trail or road surfaces and further adding to sanitation and safety concerns.

In order to provide for safety of users in the Entrance Area, the following activities are proposed for implementation. Eliminate the overnight camping in this area and designate it as day-use only. Establish traffic patterns and controls for safe ingress and egress from State Route 165 through the Entrance area to other facilities within the ORV area. Establish parking patterns and controls to maximize available parking spaces and prevent vehicles from being blocked by others. Establish controls (safe crossings) to eliminate potential conflicts between trail users and vehicles passing through to other facilities. Upgrade kiosk and install a vault toilet to provide for user sanitation in this area. Gravel entrance area to reduce mud and puddling and to aid in area definition.

User Built Trails are located along roads and trails throughout the ORV area. These trails were and continue to be created by users for a number of reasons. They lack design, form and function. Most user built trails are shortcuts between trails or by-pass the system trails, while some are just hill climb or pioneering attempts. Others are motorized use on previously decommissioned logging spurs. One user built trail (trail on Road 105) acts as a secondary, unauthorized, entrance into the trail system. The use of these trails contributes heavily to the overall resource damage in the area.

Due to the nature of the creation, lack of design, and contributions to resource damage, decommissioning or obliteration with restoration work of all user-built trails is proposed.

- There are approximately 3 miles of user built trails in the ORV area that would be decommissioned (obliterated).
- Signage and other avenues for educating the users about resource damage/destruction associated with user built trails would be used.

Operation Seasons–Currently there exists a Forest Closure Order #06-05-FO-06-01, titled “National Forest System Trails”, signed July 3, 2006 by Forest Supervisor Y. Robert Iwamoto, that lists the Jeep Trails in the Evans Creek ORV Area as being open to motorized vehicles under 60” wide and motorcycles annually from July 16 through November 12 (otherwise closed November 13 through July 15). The Proposed Action would establish the following revised operating season for the ORV area to allow more flexibility in determining when there is a resource need to temporarily close individual trails to minimize potential resource damage during the fall and spring wet seasons and to close the area entirely for wildlife concerns during the winter season.

Dates	Extent/Concern	Duration
January 1 – March 31	Area Closed – Wildlife Concern	3.0 months
April 1 – June 30	Individual Trail Closures as Needed*	3.0 months
July 1 – September 30	Area Open*	3.0 months
October 1 – December 14	Individual Trail Closures as Needed*	2.5 months
December 15 – 31	Area Closed – Wildlife Concern	0.5 months

*Potential for individual trail closures would be based on trail conditions during and after severe weather events.

Decision Framework

The District Ranger for the Snoqualmie Ranger District, Mt. Baker-Snoqualmie National Forest is the Deciding Officer for this project. Given the purpose and need, the District Ranger will review the proposed action and the other alternatives in order to make the following decisions:

- Whether to select the proposed action, or an alternative to the proposed action;
- What management requirements and mitigation measures to apply; and
- What monitoring and evaluation to require for project implementation and effectiveness.

The District Ranger will document his decision and rationale through a Decision Notice (DN) and Findings of No Significant Impact (FONSI) and will establish findings as required by NEPA. The DN will address consistency with the Forest Plan, as amended.

Relationship to the Forest Plan

This EA has been prepared in accordance with regulations for implementing the 1969 National Environmental Policy Act (NEPA), located at 40 CFR 1500–1508. It is tiered to the Final Environmental Impact Statement (FEIS) for the Mt. Baker–Snoqualmie National Forest (MBS) Land and Resource Management Plan (USDA FS 1990), as amended. Major Forest Plan amendments include:

- Final Supplemental Environmental Impact Statement on Management of Habitat for Late Successional and Old–growth Forest Related Species Within the Range of the Northern Spotted Owl, as adopted and modified by the April 1994 Record of Decision, which provides additional standards and guidelines (USDA FS, USDI BLM 1994), and commonly known as the ROD or Northwest Forest Plan.
- Record of Decision and Standards and Guidelines for Amendments to the Survey and Manage, Protection Buffer, and other Mitigation Measures Standards and Guidelines (USDA FS, USDI BLM 2001), as reinstated by U.S. District Court Order (January 9, 2006).

The 1994 ROD includes seven land allocations, which amend the allocations in the 1990 Forest Plan[1]. There is considerable overlap among some allocations, and more than one set of standards and guidelines may apply. Where the standards and guidelines of the 1990 Forest Plan are more restrictive or provide greater benefits to late–successional forest–related species than do those of the 1994 ROD, the existing standards and guidelines apply. The 1994 Forest Plan amendment also includes Forest–wide standards and guidelines, in addition to those in the 1990 Plan, and an Aquatic Conservation Strategy (ACS) designed to help improve the health of the aquatic ecosystem.[2]

Land Allocation

The Evans Creek ORV Area roads, trails, facilities, and user built trails are located within the following Forest Plan, as amended, land allocations. For additional details, see either the 1990 Forest Plan or the 1994 ROD (see Figure 2. Merged Land Allocation Map and Figure 3. Riparian Reserves Map.

Late Successional and Old Growth: This allocation includes approximately 4,641 acres of the project area (sections 16–18, 20, 21 and portions of sections 5, 8, 9, 19, 28 and 29). Areas identified with an objective to protect and enhance conditions of late–successional and old–growth forest ecosystems, which serve as habitat for late successional and old growth related species including the northern spotted owl. Existing development in Late Successional Reserves (LSRs) such as campgrounds, recreation residences, ski areas, utility corridors, and electric sites are considered existing uses with respect to LSR objectives, and may remain, consistent with other standards and guidelines.

Management Area 17 (MA 17), Timber Management Emphasis: This allocation includes approximately 234 acres of the project area.

The objective of MA 17 is to provide for production of timber. Recreational opportunities will generally be located in Roaded Natural and Roaded Modified Recreation Opportunity Spectrum (ROS) Classes. ORV use is permitted as provided in the Forest-wide Standard and Guidelines. Roaded and non–roaded dispersed recreation is permitted. New trail location is permitted provided that it does not conflict with the long–term timber objectives.

Management Area 1D (MA 1D), Roaded Natural: This allocation includes approximately 202 acres of the project area.

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1 The MBS National Forest has no Managed Late Successional Reserve allocations.

2 The Aquatic Conservation Strategy (ACS) has four components: Riparian Reserves, Key Watersheds, watershed analysis, and watershed restoration.

The objective of MA 1D is to provide users with an equal opportunity to experience recreational contact with other user groups or isolation from the sights and sounds of human activity. It is intended to allow users to establish an interest in the natural environment and to develop and test outdoor skills associated with either motorized or non–motorized recreation use with little challenge or risk. Emphasis within MA 1D is given to day–use recreation and facilities.

Riparian Reserves: Riparian Reserves overlay all other management areas, and the Riparian Reserves standards and guidelines apply wherever Riparian Reserves occur. Approximately 1,498 acres of Riparian Reserve are identified in the project area. Riparian Reserves include areas along all streams, wetlands, ponds, lakes, and unstable or potentially unstable areas. Riparian Reserves generally parallel the stream network, but also include other areas necessary for maintaining hydraulic, geomorphic, and ecological processes. Figure 4 shows the Riparian Reserves in and adjacent to the proposed project. These Riparian Reserves were generated using Geographic Information System (GIS) buffers along the perennial drainage systems, and with buffers to meet Aquatic Conservation Strategy objectives on intermittent drainages identified on the ground.

Figure 2. Merged Land Allocation Map

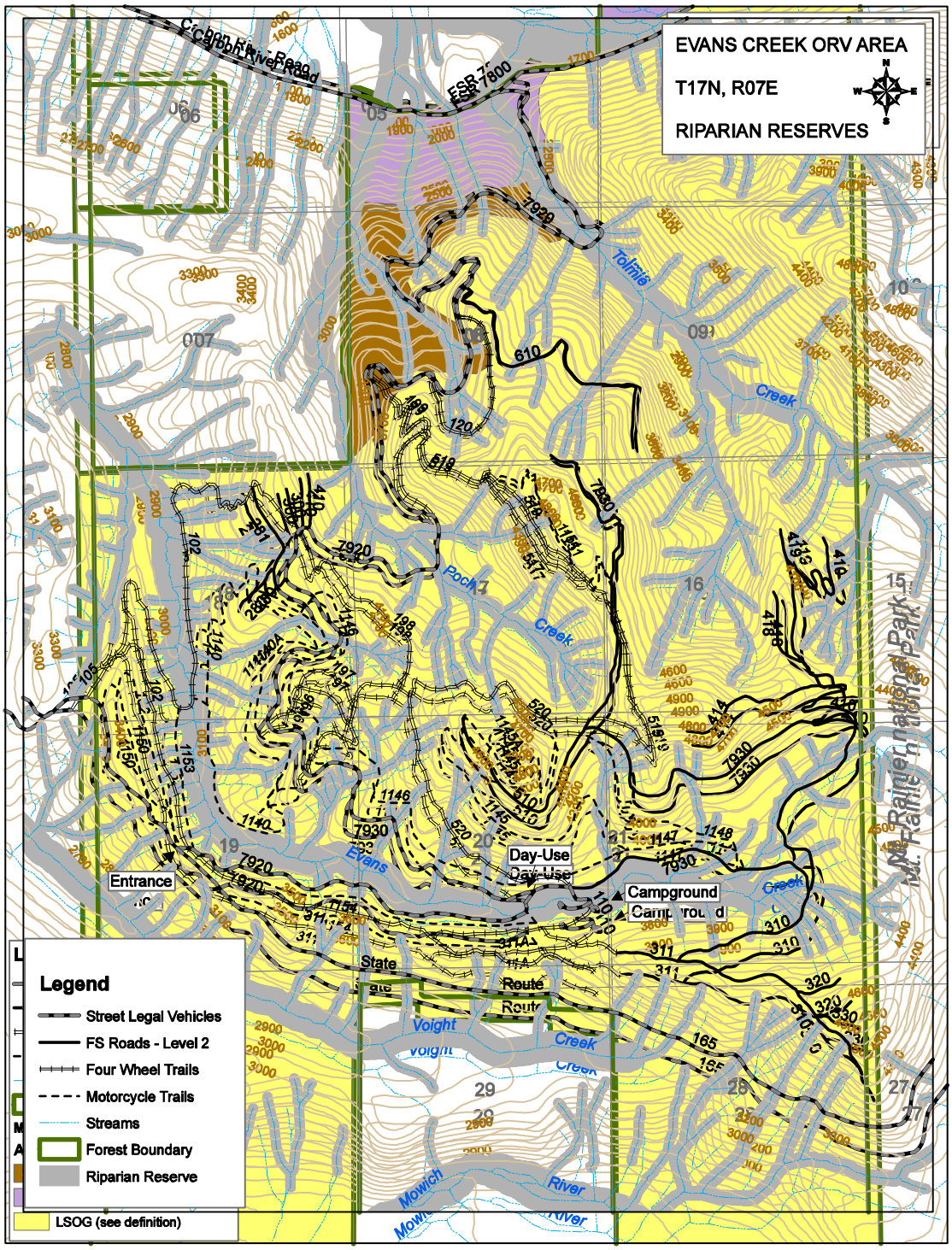


Figure 3. Riparian Reserves Map

Selected Forest Plan Goals and Standards and Guidelines

From the 1990 Forest Plan

Page 4–3:

- Identify threatened, endangered, and sensitive plant and animal species habitat. Protect, maintain, and/or enhance this habitat in accordance with recovery plans. The overall goal is to prevent the federal listing of sensitive species and/or to purse the delisting of federally listed species.
- Protect special and unique habitats and ensure the maintenance of fragile or uncommon habitats.

Page 4–84

- Inventory, evaluate, and manage dispersed occupancy sites.
- Manage public use as necessary to protect resource values, provide a quality experience and provide for public safety.

Page 4–85

- Developed facilities will be administered and maintained to provide visitor safety and sanitation, protect facility and site resources, and provide for visitor recreation needs and convenience; while reducing unit costs. Work towards concentrating developed campground facilities in high use zones where cost and service efficiency is highest.
- Developed facilities will be kept in a satisfactory condition, otherwise they should be closed to use or removed.
- The minimum level of management for any developed site will be determined by Forest Service monitoring for health and safety. The public will be expected to provide self–service or to pay a user fee where such measures will help reduce federal expenditures.

Page 4–86

- To provide a system of trails with routes, construction standards and maintenance standards that compliment the resource capabilities and management objectives of the area served. The system will also provide for necessary administrative access, provide for safe use on various difficulty levels of trails, and have a minimum impact on soil, water, visual and other sensitive values.
- To proceed from the present trail system to an optimum future system as rapidly as is practicable through reconstruction, relocation, new construction, and the rehabilitation of unneeded trails to natural condition.
- To assure that the trail system meets the needs of trail users, while remaining consistent with resource capabilities and land allocations.
- Motorized and/or pack and saddle use of existing trails will be allowed only where the trail as presently constructed (and soil and vegetation adjacent to the

trail), can absorb such use without unacceptable damage. In some cases the long range "primary objective" may not exist until the trail is reconstruction to that standard. Closures may exist until the trail meets the planned "primary objective" standard.

Page 4–87

- Trail systems should provide for loop trails and interconnecting links where consistent with other needs, constraints, and land allocations.
- Seasonal use restrictions will be used where appropriate to protect soil, vegetation, wildlife, and to manage conflicts in use.
- Only systems trails are considered safe for use. Only system trails will be signed on the ground and shown on maps.

Page 4–92

- Ensure that motorized use, including over snow type is managed to mitigate their impacts on other resources, promote safety of users, and minimize conflict (Executive Order 11644, as amended by EO 11989).
- Provide a diverse system of maintained trails for the enjoyment of all users and to meet the needs for administrative and resource management purposes.
- Use ORV closures only when needed to minimize disturbance of wildlife, minimize recreation use conflicts, or protect soil and water resources.

Page 4–97

- Maintain and update the "Inventory of American Indian Religious and Cultural Use, Practices, Localities, and Resources".
- Review the "Inventory of American Indian Religious and Cultural Use, Practices, Localities, and Resources" during the scoping phase of environmental analysis.
- Present information about planned project activities in all management areas to religious and political leaders of tribal groups whose traditional practices might be affected.

Page 4–98

- A professionally supervised cultural resource inventory program will be conducted, on a project specific level, for all activities that might affect resources eligible for the National Register of Historic Places.
- Results of project level cultural resource inventories shall be documented through environmental analysis for the project. Cultural resource compliance shall be documented according to the current MOU between the Washington State Historic Preservation Office (SHPO) and Mt. Baker–Snoqualmie National Forest.

Page 4–99

- Until proper evaluation occurs, all known cultural resource properties shall be protected.

Page 4–117

- Plan and conduct land management activities so that reductions of soil productivity potentially caused by detrimental compaction, displacement, puddling, and severe burning are minimized. Nutrient capital on forest and rangelands is to be maintained at acceptable levels as determined by state of the art technology.
- Plan and conduct land management activities so that soil loss from surface erosion and mass wasting, caused by these activities, will not result in an unacceptable reduction in soil productivity and water quality (as stated in FSM 2500, R–6 Supplement No. 2500.98–1).
- No more than 20 percent of an activity area may be severely burned, compacted, puddled, or displaced as a result of the activity. Only permanent features of the transportation system will remain in a detrimentally compacted, puddle, and/or displaced condition.
- Surface erosion will be minimized by maintaining effective ground cover after cessation of any soil disturbing activity:

Erosion Hazard Class	Minimum PercentEffective Ground Cover	
	1st Year	2nd Year
Low	20–30	30–40
Medium	30–45	40–60
Severe	45–60	60–75
Very Severe	60–75	75–90

- Plan and accomplish rehabilitation projects as necessary to meet soil and water objectives and standards.

Page 4–122:

- During project planning, develop site–specific management prescriptions that meet objectives for biological diversity and ecosystem function. Vegetation management should allow for all natural species to function. None should be eliminated from the site.

Page 4–124

- Maintain a viable population of all native and desired non–native vertebrate species and maintain, protect, and improve habitat of management indicator species. The indicator species for this Forest are the American peregrine falcon, bald eagle, grizzly bear, northern spotted owl, pileated woodpecker, pine marten, mountain goat, and primary cavity excavators.

Page 4–126

- Water quality shall be maintained or enhanced through application of Best Management Practices. This meets the requirements of the Clean Water Act and state water quality standards (includes temperature, turbidity, and sediment).

Page 4–127

- Maintain or improve habitat for all threatened or endangered plant and animal species on the Forest, and manage habitats for all sensitive (5) species to prevent their becoming threatened or endangered. Management of threatened, endangered, and sensitive species habitats is addressed below and under Management Area 16, Threatened and Endangered (T&E) Species. These Forest-wide standards and guidelines describe typical management practices in T&E habitats. The Forest will consult with the USDI Fish and Wildlife Service in determining protection, enhancement, and mitigation measures for specific T&E habitat areas.
- All proposed management actions which have the potential to affect habitat of endangered, threatened, or sensitive species will be evaluated to determine if any of these species are present.
- When sensitive species are present, a Biological Evaluation shall be completed as described in Forest Service Manual 2670. Habitat for sensitive plants and animals shall be managed to ensure that management activities do not contribute to these species becoming threatened or endangered.

Page 4–169

- Generally, easy access is provided to highway vehicles on single or double lane dirt (Native) or gravel land roads built to accommodate dispersed recreationists. Roads may be built for providing expanded recreational opportunities in Roaded Natural.

Page 4–243

- **Use Administration:** The objective is to provide for production of timber. (East ½ of Section 8, south ½ of section 5, T17N; R7E) Developed recreation sites will be allocated to, and managed under direction contained in Management Area 3A.

  Recreation opportunities will generally be in Roaded Natural and Roaded Modified ROS classes.

  ORV use as provided in Forest-wide Standards and Guidelines.

From the 1994 ROD Amending the Forest Plan

Late-Successional and Old-Growth Forests

Page B–4

Ecological Processes: Given the relatively low remaining proportions of late–successional ecosystems in the landscape at present, these older forests should be protected from fire and other stand resetting disturbances.

Page C–6

Manage Recreation Areas to Minimize Disturbance to Species: This standard and guideline applies throughout all land allocations. This standard and guideline will benefit a number of fungi and lichen species whose known locations are predominantly within established recreation sites. This standard and guideline falls within the category of the survey and manage standard and guideline above, and species to be protected through this standard and guideline are among those shown in ROD Table C–3 at the end of this section of these standards and guidelines. Additional information on the habitat requirements of these species are discussed in Appendix J of the Final SEIS.

Page C–11

Objective: Late–Successional Reserves (LSRs) are to be managed to protect and enhance conditions of late–successional and old–growth forest ecosystems, which serve as habitat for late–successional and old–growth related species including the northern spotted owl. These reserves are designed to maintain a functional, interacting, late–successional and old–growth forest ecosystem. See additional information in the Ecological Principles for Management of Late–Successional Forests discussion in ROD Section B of these standards and guidelines.

Page C–16

Road Management: Road Construction and Maintenance–Road construction in LSRs for silvicultural, salvage, and other activities, generally, is not recommended unless potential benefits exceed the costs of habitat impairment. If new roads are necessary to implement a practice that is otherwise in accordance with these guidelines, they will be kept to a minimum, be routed through non late–successional habitat where possible, and be designed to minimize adverse impacts. Alternative access methods, such as aerial logging, should be considered to provide access for activities in reserves.

Road maintenance may include felling hazard trees along rights-of-way. Leaving material on site should be considered if available coarse woody debris is inadequate. Topping trees should be considered as an alternative to felling.

American Indian Uses: The exercise of tribal treaty rights will not be restricted by these standards and guidelines unless Regional Interagency Executive Committee determines that the restriction is: 1) reasonable and necessary for preservation of the species at issue, 2) the conservation purpose of the restriction cannot be achieved solely by regulation of non–Indian activities, 3) the restriction is the least restrictive available to achieve the required conservation purpose, 4) the restriction does not discriminate against Indian activities either as stated or as applied, and 5) voluntary tribal conservation measures are not adequate to achieve the necessary conservation purpose.

Multiple Use Activities other than Silviculture: As a general guideline, non silvicultural activities located inside Late-Successional Reserves that are neutral or beneficial to the creation and maintenance of late-successional habitat are allowed.

While most existing uses and development are envisioned to remain, it may be necessary to modify or eliminate some current activities in LSRs that pose adverse impacts. This may require the revision of management guidelines, procedures, or regulations governing these multiple–use activities. The Regional Forester must review adjustments to standards and guidelines.

Page C–17

Developments: Development of new facilities that may adversely affect LSRs should not be permitted. New development proposals that address public needs or provide significant public benefits, such as powerlines, pipelines, reservoirs, recreation sites, or other public works projects will be minimized and mitigated. These will be planned to have the least possible adverse impacts on LSRs. Developments will be located to avoid degradation of habitat and adverse effects on identified late–successional species. Existing developments in LSRs such as campgrounds, recreation residences, ski areas, utility corridors, and electronic sites are considered existing uses with respect to LSR objectives, and they may remain, consistent with other standards and guidelines. Routine maintenance of existing facilities is expected to have less effect on current old–growth conditions than development of new facilities.

Fire Suppression and Prevention: Each LSR will be included in fire management planning as part of watershed analysis. Fuels management in LSR will utilize minimum impact suppression methods in accordance with guidelines for reducing risks of large–scale disturbances. Plans for wildfire suppression will emphasize maintaining late–successional habitat. During actual fire suppression activities, fire managers will consult with resource specialists familiar with the area, these Standards and Guidelines, and their objectives, to assure that habitat damage is minimized.

Page C–18

Recreational Uses: Dispersed recreational uses, including hunting and fishing, generally are consistent with LSR objectives. Use adjustment measures such as education, use limitations, traffic control devices, or increased maintenance when dispersed and developed recreation practices retard or prevent attainment of LSR objectives.

Riparian Reserves

Pages C–32 and 33

Road Management, RF–2: For each existing or planned road, meet Aquatic Conservation Strategy objectives by:

a. Minimizing road and landing locations in Riparian Reserves.

b. Completing watershed analyses (including appropriate geotechnical analyses) prior to construction of new roads or landings in Riparian Reserves.

c. Preparing road design criteria, elements, and standards that govern construction and reconstruction.

d. Preparing operation and maintenance criteria that govern road operation, maintenance, and management.

e. Minimizing disruption of natural hydrologic flow paths, including diversion of stream flow and interception of surface and subsurface flow.

f. Restricting side casting as necessary to prevent the introduction of sediment to streams.

g. Avoiding wetlands entirely when constructing new roads.

Road Management, RF–3: Determine the influence of each road on the Aquatic Conservation Strategy objectives through watershed analysis. Meet Aquatic Conservation Strategy objectives by:

a. Reconstructing roads and associated drainage features that pose a substantial risk.

b. Prioritizing reconstruction based on current and potential impact to riparian resources and the ecological value of the riparian resources affected.

c. Closing and stabilizing, or obliterating and stabilizing roads based on the ongoing and potential effects to Aquatic Conservation Strategy objectives and considering short-term and long-term transportation needs.

Road Management, RF–4: New culverts, bridges and other stream crossings shall be constructed, and existing culverts, bridges and other stream crossings determined to pose a substantial risk to riparian conditions will be improved, to accommodate at least the 1OO-year flood, including associated bedload and debris. Priority for upgrading will be based on the potential impact and the ecological value of the riparian resources affected.

Crossings will be constructed and maintained to prevent diversion of streamflow out of the channel and down the road in the event of crossing failure.

Road Management, RF–5: Minimize sediment delivery to streams from roads. Outsloping of the roadway surface is preferred, except in cases where outsloping would increase sediment delivery to streams or where outsloping is unfeasible or unsafe. Route road drainage away from potentially unstable channels, fills, and hillslopes.

Road Management, RF–6: Provide and maintain fish passage at all road crossings of existing and potential fish-bearing streams.

Road Management, RF–7: Develop and implement a Road Management Plan or a Transportation Management Plan that will meet the Aquatic Conservation Strategy objectives. As a minimum, this plan shall include provisions for the following activities:

a. Inspections and maintenance during storm events.
b. Inspections and maintenance after storm events.
c. Road operation and maintenance, giving high priority to identifying and correcting road drainage problems that contribute to degrading riparian resources.
d. Traffic regulation during wet periods to prevent damage to riparian resources.
e. Establish the purpose of each road by developing the Road Management Objective.

Page C–34

Recreation Management, RM–1: For existing recreation facilities within Riparian Reserves, evaluate and mitigate impact to ensure that these do not prevent, and to the extent practicable contribute to, attainment of Aquatic Conservation Strategy objectives.

Recreation Management, RM–2: Adjust dispersed and developed recreation practices that retard or prevent attainment of Aquatic Conservation Strategy objectives. Where adjustment measures such as education, use limitations, traffic control devices, increased maintenance, relocation of facilities, and/or specific site closures are not effective, eliminate the practice or occupancy.

Aquatic Conservation Strategy (Page B–11)

Objective 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.

Objective 2: Maintain and restore spatial and temporal connectivity within and between watersheds…These network connections must provide chemically and physically

unobstructed routes to areas critical for fulfilling life history requirements of aquatic and riparian-dependent species.

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

Objective 6: Maintain and restore instream 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.

Objective 7: Maintain and restore the timing, variability, and duration of floodplain inundation and water table elevation in meadows and wetlands.

Objective 8: 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.

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

Applicable Laws, Regulations, and Policies

National Environmental Policy Act (NEPA): The Council on Environmental quality implementing regulations at 40 CFR Parts 1500-1508 and Forest Service implementing policy and procedures issues in Forest Service Manual 1950 and Forest Service Handbook 1909.15 establish the basic process for conducting and documenting environmental analysis, including public participation.

Endangered Species Act (ESA): The Act requires the Forest Service to manage for the recovery of endangered and threatened species and the ecosystems on which they depend. Implementing regulations are found in 50 CFR Part 402. The policy and process for Forest Service compliance with the ESA are found in Forest Service Manual 2670.31. Section 7 of the ESA requires a Biological Assessment (BA) for major federal construction projects requiring an environmental impact statement and projects that may affect listed species. The Forest Service consults with the U.S. Fish and Wildlife Service (FWS) and National Marine Fisheries Service (NMFS) if projects could potentially affect listed species or critical habitat. The Forest currently has three programmatic consultation documents with these regulatory agencies that cover much of the Forest’s program of activities for several years.

Standards and Guidelines for Management of Habitat for Late-Successional and Old-Growth Forest Related Species Within the Range of the Northern Spotted Owl: Record of Decision for Amendments to Forest Service and Bureau of Land Management Planning Documents Within the Range of the Northern Spotted Owl: Components of the Monitoring and Evaluation Plan—Late Successional Reserves—key items to monitor include: Other management activities in the Late-Successional Reserve consistent with the standards and guidelines (prescribed fire and resulting emissions) USDA FS, USDI BLM ROD 1994, p. E–5).

Magnuson-Stevens Fishery Conservation and Management Act: The Magnuson-Stevens Fishery Conservation and Management Act as amended by the Sustainable Fisheries Act of 1996, requires federal action agencies to consult with the Secretary of Commerce (NMFS) regarding certain actions. Consultation is required for any action or proposed action authorized, funded, or undertaken by the agency that may adversely affect essential fish habitat (EFH) for species managed in Federal Fishery Management Plans.

National Historic Preservation Act, Executive Order 11593, 36 CFR 800.9 (Protection of Historic Properties): Section 105 requires documentation of a determination of whether each undertaking would affect historic properties. The MBS operates under a programmatic agreement between the Washington State Historic Preservation Officer and the Advisory Council on Historic Preservation for consultation on project determination.

Clean Air Act (as amended through 1990): The Clean Air Act Amendments of 1977 gives federal land managers an affirmative responsibility to protect the air quality related values (including visibility) within Class 1 areas. The State of Washington has delegated the authority for attainment standards set by the Clean Air Act. The State of Washington Department of Natural Resources is the lead agency to develop and administer the State's Smoke Management Plan. These are guidelines and regulations for prescribed fire smoke emissions. The MBS manages smoke emissions based on the regulations outline in the State Smoke Management and Implementation Plans.

Code of Federal Regulations–36 CFR 261 (.12, .13, .14): These regulations establish prohibitions necessary to manage and control use on National Forest System trails; use of vehicles off Forest Development, State or County Roads; and manage and operate Developed Recreation Sites on National Forest System Roads.

Forest Service Manual 2330 (.3(6)): Establishes priorities for the development and management of sites.

Forest Service Manual 2353 (.01a, .01b, .01c, .03(1)): Contains Laws, Regulations and Accessibility requirements for National Forest System Trails.

Forest Service Manual 2672.4: Provides direction—a biological evaluation must be completed for sensitive species for all Forest Service planned, funded, executed, or permitted programs and activities.

National Native Plant Policy: USDA Forest Service, Federal Register February 2, 2008.

National Forest Roads and Trails Act (78 Stat. 1089, as amended; 16 USC 5320538): This act recognizes that construction and maintenance of an adequate system of roads and trails within and near the National Forest is essential to meeting the increasing demands for timber, recreation, and other uses. It authorizes and establishes procedures related to rights-of-ways, easements, construction, record keeping, and trails.

National Forest Management Act (NFMA): NFMA and its regulations (36 CFR 219 (1982) established guidelines for National Forest management.

Programmatic Agreement among the United States Department of Agriculture, Forest Service, Pacific Northwest Region (Region 6), the Advisory Council on Historic Preservation, and the Washington State Historic Preservation Officer regarding Cultural Resource Management on National Forests in the State of Washington: 1997, USDA Forest Service on file at the Mt. Baker-Snoqualmie National Forest, Forest Supervisor's Office, Everett, WA.

State of Washington Smoke Management Plan: 1993, (Revised 1998).

Washington State Department of Fish and Wildlife MOU: Memorandum of Understanding between USDA Forest Service and Washington State Department of Fish and Wildlife for Hydraulic Permits. This MOU lists conditions under which the Forest Service may complete projects affecting waters of the State without completing an HPA application.

Washington State Department of Agriculture MOU: Memorandum of Understanding between the USDA Forest Service and Washington State Department of Agriculture for the management of noxious weeds, to comply with the requirements of State law RCW 17.10.

Invasive Species Management: The 1999 Executive Order on invasive species (direction found in Forest Service manual 2080), the National and Regional strategies for noxious weed management, and the Mediated Agreement of May 24, 1989, identify prevention as the preferred strategy for managing competing and unwanted vegetation. In addition to treatment of known infestations, measures intended to prevent further infestations and weed-spread would be incorporated into the construction contract. These measures include cleaning of construction equipment, prompt revegetation of disturbed sites, and treatment of known weed sites before they become larger. These measures come form the Forest Plan, Forest-wide Standards and Guidelines, Prevention Strategies,

and Best management practices for noxious weeds MBS Forest Plan Amendment #14, 1999).

Record of Decision was signed for the *Pacific Northwest Region Invasive Plant Program: Preventing and Managing Invasive Plants, Final Environmental Impact Statement* (USDA 2005). This document amends all Forest Plans in Washington and Oregon with goals, objectives, and standards related to invasive plants that complement the Best Management Practices already in effects on the MBS. The 2005 ROD standards also prescribe prevention, cleaning of equipment, use of weed free straw and mulch, use of weed free rock and gravel sources, and prompt revegetation with native species or noninvasive non natives. This EA is tiered to this broader-scale analysis (The FEIS), and all activities proposed are intended to comply with the new management direction.

Record of Decision and Standard and Guidelines for Amendments to the Survey and Manage, Protection Buffer, and Other Mitigation Measure Standards and Guidelines, 2001 (as the 2001 ROD was amended or modified as of March 21, 2004).

Carbon River Watershed Analysis (USDA FS 1998): The Carbon River Watershed Analysis describes the current condition of the Carbon River watershed; compares historic and current conditions; describes how these ecosystems have functioned and are currently functioning; and based on current Forest Plan management direction, describes how they are likely to function in the future. The watershed analysis identified findings and recommendations that serve to highlight desired conditions and the corresponding resource needs. The proposed action was developed, in part, based on these findings (Refer to the project Purpose and Need). As appropriate, information from this watershed analysis has been incorporated by reference into this environmental assessment.

Forest-wide Roads Analysis, Mt. Baker-Snoqualmie National Forest (USDA FS 2003): Roads analysis, a requirement of 36 CFR 212.5 has been completed at the Forest level. The Forest-wide analysis was an interdisciplinary, science-based process that provides the Responsible Official critical information needed to identify and manage a minimum road system that 1) is safe and responsive to public needs and desires; 2) is affordable and efficient: 3) is in balance with available funding for needed management actins; and 4) has minimal adverse effects on ecological processes and ecosystem health, diversity, and productivity.

Public Involvement

The proposal was initially listed in the Quarterly Schedule of Proposed Actions (SOPA) for the Mt. Baker-Snoqualmie National Forest dated January 2007—March 2007. On February 20, 2007 public scoping and government to government letters (see Project Record for mailing lists) were sent to federal, state, and local agencies; interested individuals; groups; and Indian Tribes (Muckleshoot, Puyallup, Yakama, Duwamish).

The Forest Service received a total of 58 written responses to the government-to-government and public scoping effort. In addition, in response to public requests, the agency held a Public Meeting on June 28, 2007, which included group discussions/comments and an additional comment period to which the Forest Service received two written responses. Appendix A of the EA summarizes comments received and references where they are addressed within this document.

Using the comments received, the interdisciplinary team developed a list of issues to address.

Issues

The Forest Service separated the issues into two groups: significant and nonsignificant issues. Nonsignificant issues were identified as those: 1) outside the scope of the proposed action; 2) already decided by law, regulation, Forest Plan, or other higher level decision; 3) irrelevant to the decision to be made; or 4) conjectural and not supported by scientific or factual evidence. The Council on Environmental Quality (CEQ) NEPA regulations require this delineation in Sec. 1501.7, "…identify and eliminate from detailed study the issues which are not significant or which have been covered by prior environmental review (Sec. 1506.3)…". A list of non-significant issues and reasons regarding their categorization as non-significant may be found in the Project Record, located at the Snoqualmie Ranger District office in North Bend, WA.

Significant issues were defined as those directly or indirectly caused by implementing the proposed action and used to develop alternatives, develop mitigation measures, or track environmental effects. As for significant issues, the Forest Service identified three topics raised during scoping. These issues include:

Issue 1–Facilities Design:

The existing facilities (campground, day-use and entrance areas) were originally designed in the early 1980s and use has expanded beyond the original design standards creating an unsafe situation for users. Size and types of vehicles used for camping and riding have changed dramatically. Demand for space to camp and park (loading/unloading) currently outweighs availability.

Issue Measure: Redesign facilities with increase in camping and parking accommodations, number of additional campsites and parking slots.

Issue 2–Soil Health and Quality:

Existing and proposed roads and trails—including both user built and National Forest System (NFS) roads and trail—are or may adversely affect soil health and quality by accelerating erosion, modifying soil moisture regimes, and reducing infiltration capability of soils due to compaction of the travel way.

Issue Measure: Length of roads and trails restored or decommissioned to maintain soil health and quality.

Issue 3–Sedimentation:

Sediment currently entering Evans Creek from the campground and its access road and Evans Creek and Poch Creek from various trails could continue without the implementation of the proposed action. This sediment contributes to the degradation of fish habitat and water quality.

Issue Measure: Reduction of amount of sediment entering creeks.

Project Record

This EA hereby incorporates by reference the Project Record (40 CFR 1502.21). The Project Record contains Specialist Reports and other technical documentation used to support the analysis and conclusions in this EA. These Specialist Reports are for Fisheries, Botanical, Roads and Transportation, Fire, Heritage, Recreation, Soils, and Wildlife for the Evans Creek ORV Area Management Plan Project. The Reports also contain the Affected Environment section of the environmental analysis, which helps establish the basis for the environmental effects section in Chapter 3 of this EA. An affected environment chapter is not a requirement of an EA (40 CFR 1508.9).

Relying on Specialist Reports and the Project Record helps implement the CEQ Regulations' provision that agencies should reduce NEPA paperwork (40 CFR 1500.4). The objective is to furnish enough site-specific information to demonstrate a reasoned consideration of the environmental impacts of the alternatives and how these impacts can be mitigated, without repeating detailed analysis and background information available elsewhere. The Project Record is available for review at the Snoqualmie Ranger District in North Bend, WA.

Chapter 2 - Alternatives, including the Proposed Action

This chapter describes and compares the alternatives considered for the Evans Creek ORV Management Plan project. It includes a description and map of each alternative considered. This section also presents the alternatives in comparative form, sharply defining the differences between each Alternative and providing a clear basis for choice among options by the decision maker and the public. Some of the information used to compare the alternatives is based upon the design of the alternative (such as current campground capacity verses redesigned campground capacity) and some of the information is based upon the environmental, social and economic effects of implementing each alternative (such as the amount of sediment produced or continued user conflicts).

Alternatives Considered, but not Further Analyzed

Closure of the ORV Area

The Interdisciplinary Team looked at an alternative that would close the area to all ORV use. This alternative was eliminated from further consideration for the following reasons:

- The Forest Plan, as amended, recognizes and approves current ORV activities in the area.
- A combination of grants, federal funds, and volunteer time have financed much of the development of this area.
- Closure of the area would force ORV use to other areas that may be less desirable from a resource standpoint.
- Closure may increase impacts of use to other private and park lands adjacent to the existing area.

Leave Everything Open

This alternative differs from Alternative 1–No Action in that Alternative 1 would be continued operation based on the findings and direction of the Proposed Off-Road Vehicle Use-Evans Creek Area EA 1980. The EA contains measures for managing the ORV area trails and facilities. The “Leave Everything Open” alternative would include user built trails, roads, and dispersed activities open for use. This alternative was eliminated from further consideration for the following reasons:

- User built trails lack elements of design and lead to increased resource damage.
- Federal Off Highway Vehicle (OHV) policy does not allow for ORV use on roads open to vehicular traffic.

- Continued unacceptable levels of resource damage.

All of which, do not meet the Standards and Guidelines as outlined in the Forest Plan, as amended (USDA FS 1990).

Alternatives Analyzed

Alternative 1–No Action

Under the No Action alternative, current management plans would continue to guide management of the project area.

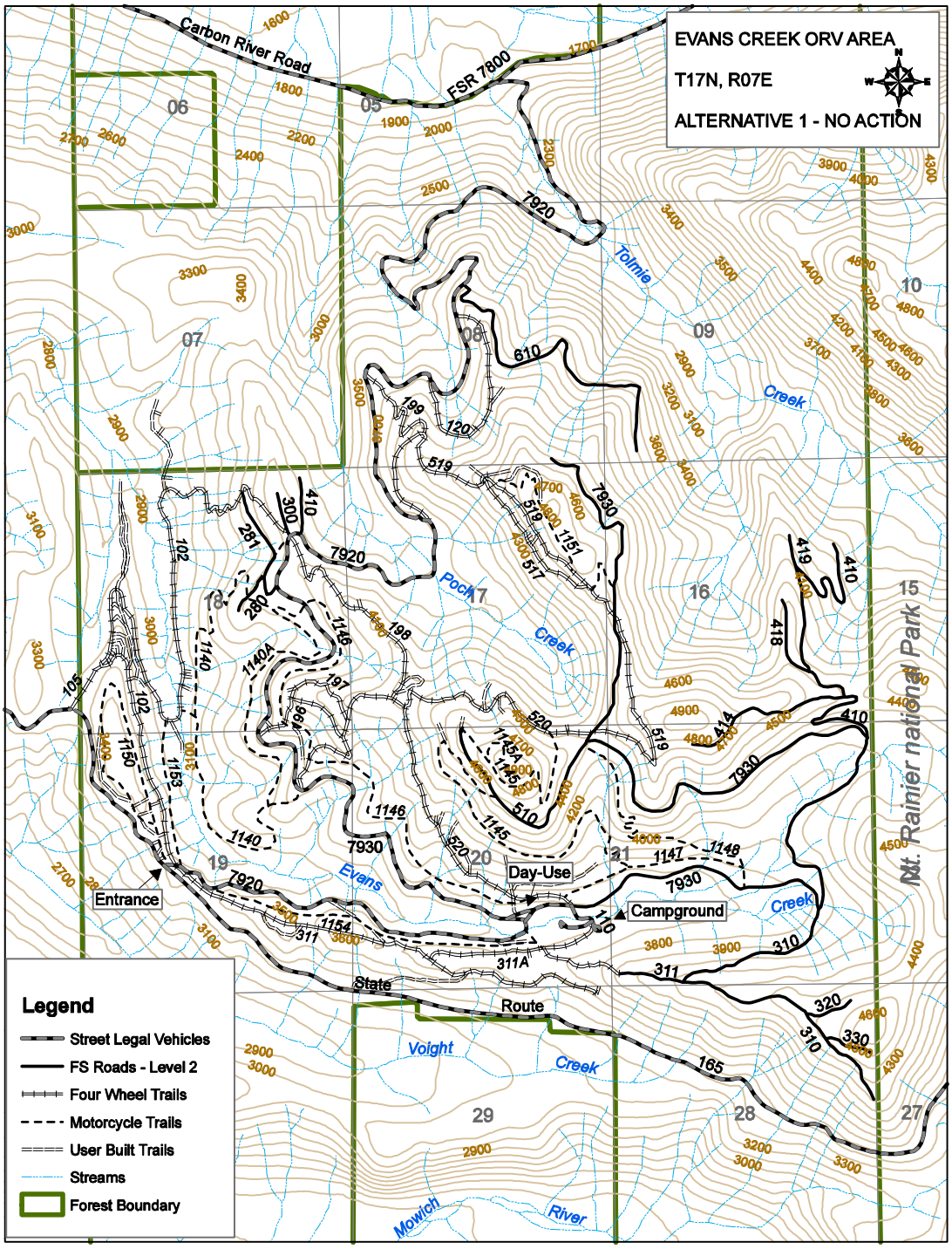
Under this alternative, area facilities, roads, and trails (both dual and single track) would be continued management based on the Proposed Off Road Vehicle (ORV) Use—Evans Creek Area EA (1980) at the same or similar level as in the past.

Facilities would remain in the current or similar condition and design configuration. The campground design and size is inadequate for the numbers of users and types of vehicles (both used for camping and hauling) used today. This has lead to camping in the Day-Use and Entrance area, as well as dispersed camping throughout the ORV area, as a means to accommodate numbers of users and oversized vehicles. Evans Creek crossing on FSR 7930–110 would remain the main access to the campground and a continued problem for fish passage. Parking in the Day-Use and Entrance area would continue to be impacted by overflow camping. Sanitation in the Entrance area and dispersed camping/use areas would continue to be a problem.

Forest Service Roads in the ORV area are being impacted by users as many of the ORV trails intersect roads and are enticing to users to use roads as short cuts or loop connectors, leading to unsafe practices of mixed traffic on roadways. Given the new OHV rule, these roads would be closed to all ORV traffic, regardless of traditional use.

Designated ORV trails that connect using Forest Service roads would be dead-ending at the roads once the OHV rule takes effect. This would increase two-way traffic on trails that are primarily used in a one-way pattern, resulting in continued/increased trail widening or more frequent turnouts to accommodate overtaking/passing traffic.

Figure 4. Alternative 1–No Action Map



Alternative 2–The Proposed Action

The Snoqualmie Ranger District proposes to develop and implement a Management Plan for the Evans Creek ORV Area that is consistent with the Forest Plan, as amended. This management plan would include the approval of the following activities:

Facilities located within the Evans Creek ORV Area (campground, day–use area, and entrance area) have expanded use beyond the original design standards, as identified in the 1980 Environmental Assessment and Decision Notice, creating unsafe situation for users.

There is a need to redesign these areas to allow for the safety of users. This includes designated controls for ingress/egress to allow for access by users and emergency vehicles, designated parking controls, and redesign to accommodate current demands and use (USDA FS 1990, p. 4–85).

The Campground consists of 23 single vehicle back-in sites, 5 toilets, water hand pump, information kiosk and two shelters. This alternative proposes the following improvements or changes (see Appendix L—Campground and Day–Use Concept Plan).

- Reconstruct and reconfigure the existing campground to meet the needs of current users. This includes designating the two loop areas as group sites and redesigning all of the existing campsites to include space to locate a tent pad, table, fire pit and pathway as well as reconfiguring the parking pads. Campsites in the existing sites would have a cleared area of approximately 20 feet by 15 feet to accommodate amenities in varied configurations dependant on terrain. Tent pads would be defined with treated wood and gravel. Fire pit would be metal and picnic tables would be combination wood and concrete. Pathways would be graveled surface. Parking pads would be oriented to facilitate one-way traffic flow (approximately half pull-in and half back-in) and would vary in length to accommodate maximum 25 foot vehicle on group loops and maximum 45 length on other existing sites.
- Overflow parking at east shelter-reconstruct to include concrete parking barriers and wheel stops to accommodate 6-7 vehicles (9-10 ft wide slots) with a maximum length of 25 feet. Gravel with crossroad drainage provided.
- East loop (Group Site #1)–reconstruct parking to include 13 parking lanes (single lane, 8–10 ft wide, max. 25 ft in length) with concrete parking barriers and wheel stops and gravel surface. Install entrance gate (double arm steel, standard design) for traffic control and access.
- West loop (Group Site #2)–reconstruct parking to include 8 parking lanes (single lane, 8 to 10 feet wide, max. 25 feet in length) with concrete parking barriers and wheel stops and gravel surface. Install entrance gate (double arm steel, standard design) for traffic control and access.
- Shelters foot print and overall construction and use of materials would not change however, boulders and/or concrete barriers would be used around the

facility perimeter to eliminate unauthorized motorized access. Day-use would be discouraged to utilize as a trailhead since this does not meet the overall function for the camping area.

- Existing vault toilets would not change in design or materials but would include installation of minimal barrier posting to prevent vehicle encroachment.
- Existing hand pump would not change in design or materials but would include installation of minimal barrier posting to prevent vehicle encroachment.
- Improve drainage collection systems to eliminate deposition into Evans Creek (primarily from Group Site #1) and drain campground runoff away from Evans Creek.
- Existing campground roadway would be reconstructed to a 12 foot running surface with 2 foot gravel shoulder with 2 foot clearing limits from edge of road shoulder. Surface would be graveled with insloped drainage structures. Guard rails would be used to separate vehicle travel way from ATV and motorcycle path. Additional guard rails or barrier posts would be used to eliminate off-road access to areas around camp areas.
- Construct new entrance and road to existing campground off of FSR 7920, at MP 1.3 (approximate), to create a traditional loop campground. First approximate 410 feet of road will be two-way, double lane inter-divisional roadway with a 20 foot running surface, 2 foot gravel shoulders and 2 foot clearing limit from shoulder edge. Gravel with insloped drainage structures. A guardrail would be constructed to separate the vehicle travel way from ATV and motorcycle path. The intersection at FSR 7920 would be constructed with a minimum 60 foot turning radius. The remainder of new road construction (approximately 470 feet to connect to Jeep Trail 311A and 625 feet to connect existing campground road to close loop) would be one-way, single lane travel way with 12 foot running surface, 2 foot graveled shoulder, and 2 foot clearing limit from edge of shoulder with guard rail separating the vehicle travel way from ATV and motorcycle path. The surface would be gravel with insloped drainage structures. A double arm steel entrance gate with reinforced support base and stone veneer would be installed to provide traffic control and access to the campground.
- Construct ATV/motorcycle path along campground roads and along FSR 7920 between campground entrance and the Day-Use area to provide a safe travel way to and from the campground and trail system. The ATV/motorcycle path would be a single function path (5 feet-wide approximately 300 feet in length) with gravel surface and insloped drainage structures, separated from the vehicle travel ways by guardrail installation as stated elsewhere.
- Construct pull-through camping sites (4-6) along new campground road on southside of campground before Group Site #1. Sites would include a 25 foot by 20 foot clearing to locate a tent pad, table, fire pit and pathway. The tent pad would be defined by treated wood or concrete filled with gravel. The fire pit would be metal. The table would be combination wood and concrete. The pathway would be gravel. Pull through vehicle parking would be gravel surface, single lane (10 foot wide by 70 long), with additional one foot graveled shoulder

and 2 foot clearing limit from shoulder edge (maximum vehicle length 50 feet), with drainage structures and concrete parking barriers.

- Construct traditional pull-in/back-in camping sites (12) along the northwest (new construction) campground one-way road. Sites would include a 20 foot by 15 foot clearing to locate a tent pad, table, fire pit and pathway. The tent pad would be defined by treated wood or concrete filled with gravel. The fire pit would be metal. The table would be combination wood and concrete. The pathway would be gravel. Vehicle parking would be single lane, 8–10 feet wide, maximum 45 ft in length with concrete parking barriers and wheel stops and gravel surface.
- Construct additional (overflow) parking at the intersection of the new campground loop construction and Jeep trail 311A to accommodate 7 vehicles. Slots would be a minimum of 9 to 10 feet wide with maximum vehicle length of 25 feet and oriented to ease parking into and out of slots. Concrete parking barriers and wheel stops would be used to define area. Surface would be gravel with cross-road drainage provided. Day-use would be discouraged since this would interfere with the overall function for the camping area.
- Drill well and install hand pump to provide additional potable water source in campground on northwest (new construction) campground one-way road. Minimal barrier posting around entrance would be installed to control vehicle encroachment. Hand pump to be the same or similar to existing hand pump.
- Existing campground entrance (FSR 7930–110) gate would be removed and road (approximately 580 feet) would be obliterated. This includes re-contouring the slope to a form that mimics the surrounding natural terrain and replanting using plant material collected from the construction of the new campground entrance and loop road. Removal of the culverts from the stream channel, restoring stream channel alignment and grade to a state that would restore resident fish passage.
- Existing kiosk would be removed from current location and relocated to a suitable location in or near the Campground Host Site. An iron-ranger (self-pay station) will be installed to allow for on-site payment of user fees.
- Relocate the designated handicap camping site to a site outside of the proposed Group Site #1. The site across from the proposed designated Host Site is near the hand pump and would be upgraded to meet ADA standards for accessibility.
- Erect “campground entry” sign, ATV crossing signs and other regulatory signs as needed.

The Day-Use Area consists of a constructed open flat area with one toilet and informational kiosk bounded by Roads 7920, Road 7930 and the parking access connector. This alternative proposes the following improvements or changes (see Appendix L–Campground and Day-Use Concept Plan).

- Enforce day-use parking designation with no overnight camping.
- Upgrade kiosk to provide information on ORV area rules and regulations, trail maps, and area conditions as well as special announcements or activities. Remove existing kiosk and relocate to a more suitable location within the Day-

Use Area. An iron-ranger (self-pay station) will be installed to allow for on-site payment of user fee.

- Reconstruct existing parking area to provide parking controls (concrete parking barriers and wheel stops) and gravel with cross-road drainage.
- Construct three additional parking areas to increase available parking in Day-Use Area (two areas along FSR 7920 approximately 150 feet by 25 feet and one along FSR 7930 approximately 100 feet by 25 feet) gravel surfaced with concrete parking barriers and wheel stops, including crossroad drainage.
- Reconstruct existing parking area approach to provide safe access, including ditching and boulder placement, as well as graveling with crossroad drainage and adequate turning radius.
- Drill a well and install a hand pump along the north edge of the Day-Use Area to provide potable water. Install minimal barrier posting around entrance to pump area to control vehicle encroachment and prevent damage to pump.
- Construct a picnic shelter with fire ring and picnic tables, installing minimal barrier posting to control vehicle encroachment.
- Construct ATV/Motorcycle gravel surface, single lane travelway along FSR 7920 and 7930 to provide access from parking locations to ORV trails. Separate ATV/motorcycle traffic from vehicles on roads using guardrails to define ATV travelway. The travelway would be an estimated 5 feet wide by a combined 650 feet in length, insloped with drainage structures.

The Entrance Area consists of an open flat (that is expanding due to use), information kiosk, and has several Jeep and Motorcycle Trails that converge and cross in this area. This alternative calls for the following improvements or changes (see Appendix M–Entrance Facility Concept Plan).

- Designate as a day-use parking area with no overnight camping.
- Relocate the existing kiosk to the outer edge of the designated Entrance area. Upgrade kiosk to provide information on ORV area rules and regulations, trail maps, and area conditions as well as special announcements or activities.
- Reconstruct existing parking area to provide parking controls (concrete parking barriers and wheel stops) and gravel with drainage structure.
- Designate travel ways for vehicles passing through this area to destinations such as the campground, day-use or trails beyond the entrance area.
- Designate travel ways through the entrance area for ORVs using trails. Redesign Motorcycle Trails #1153 and #1150 termini from the Entrance parking area to a logical location along Jeep Trail #102 just north of the parking area to reduce number of trails with direct access along FSR 7920.
- Install regulatory and informational signage as needed.
- Install a vault toilet to provide sanitation facility for users on the north side of the entrance area along Jeep trail #102.

- Remove hardwoods that are encroaching into previously cleared area to define area boundary and add to usable space.

Roads and Trails (see Appendix E–Potential Activities for a list of activities for accomplishing proposed road and trail actions).

The following roads are proposed for decommissioning or reducing to Maintenance Level 1 (closed):

Table 1. Roads Proposed for Decommissioning

Road #	Mileposting	Comments
7920–610	MP0.0 to end	
7930	MP3.2 to end	
7930–110	MP0.0 to MP0.1	Restore fish passage at MP 0.06
7930–320	MP0.0 to end	
7930–330	MP0.0 to end	
7930–510	MP0.0 to MP0.7	
7920–280	MP0.0 to end	Forest–wide Roads Analysis to Level–1 (Closed)
7920–281	MP0.0 to end	Forest–wide Roads Analysis to Level–1 (Closed)
7920–300	MP0.0 to end	Forest-wide Roads Analysis to Level–1 (Closed)
7920–410	MP0.0 to end	Forest-wide Roads Analysis to Level–1 (Closed)
7930–310	MP0.5 to end	Forest-wide Roads Analysis to Level–1 (Closed)
7930–410	MP0.0 to end	Forest-wide Roads Analysis to Level–1 (Closed)
7930–414	MP0.0 to end	Forest-wide Roads Analysis to Level–1 (Closed)
7930–418	MP0.0 to end	Forest-wide Roads Analysis to Level–1 (Closed)
7930–419	MP0.0 to end	Forest-wide Roads Analysis to Level–1 (Closed)

Table 2. Road Proposed for Reduction to Maintenance Level–1 (Closed)

Road #	Mileposting	Comments
7920	MP7.1 to end	Eliminate alternate access to ORV Area.

To increase loop/trail connectivity, remove trail user/road user conflicts, the following roads are proposed for conversion to motorized trails:

Table 3. Roads Proposed for Conversion to Dual Track Trails

Road #	Mileposting	Comments
7920	MP1.8 to MP7.1	Create trail loop opportunity while removing mixed use.
7930	MP0.0 to MP3.2	Create trail loop opportunity while removing mixed use.
7930–310	MP0.0 to MP0.5	Create trail loop opportunity while removing mixed use.

Table 4. Road Proposed for Conversion to Single Track Trail

Road #	Mileposting	Comments
7930–510	MP0.7 to 0.9	Motorcycle trail overlays road segment that dead ends.

Table 5. Roads Proposed to be Maintained for Passenger Cars

Road #	Mileposting	Comments
7920	MP0.0 to 1.8	Replace culvert at Evans Creek crossing (MP 1.54) with appropriately designed and sized crossing to restore resident fish passage.

Jeep trails (dual track) do not meet current FSH/FSM Trail Management Standards for depth, width, drainage, tread, etc. except Trails 120 and 199. There is a need to bring all trails in to compliance with FS Handbook/FS Manual standards (USDA FS 1990, p. 4–86; FSH 2309.18/FSM 2300 Trail Management; and FSM 2500–R6 Supplement 45), including but not limited to drainage construction, tread rehabilitation, run-off management, and revegetation on a moderate level to correct area deficiencies.

Table 6. Dual Track Trails Proposed for Maintenance Work

Trail #	Mileposting	Comments
196	MP0.0 to MP0.25	
197	MP0.0 to end	
199	MP0.0 to end	
311A	MP0.25 to end	
517 (519A)	MP0.0 to end	
519	MP0.0 to MP0.6, MP1.0 to end	

Due to severe rutting, downcutting, surface erosion, and devegetation in localized segments, activities may include but are not limited to segment redesign, reroutes, access controls, drainage construction, tread rehabilitation, runoff management, and revegetation.

Table 7. Dual Track Trails Proposed for Heavy Maintenance

Trail #	Mileposting	Comments
102	MP0.0 to end	
198	MP0.0 to end	
311	MP0.0 to end	
520	MP0.0 to end	

Table 8. Dual Track Trails Proposed for Decommissioning

Trail #	Mileposting	Comments
105	MP0.0 to end	Remove secondary access to ORV area.
120	MP0.0 to end	Little use in area, isolated from rest of area.
196	MP0.25 to MP0.5	High trail density within same destination area.
519	MP0.6 to MP1.0	Eliminate parallel jeep trail.

Table 9. Dual Track Trail Proposed for Conversion to Road

Trail #	Mileposting	Comments
311A	MP0.0 to MP0.25	From campground west to motorcycle trail 1154 junction.

Motorcycle trails (single track) do not meet current FSH/FSM Trail Management Standards for depth, width, drainage, and tread. These trails do not display the same level of impacts as the Jeep Trails given the overall difference in weight, horsepower, size, etc. There are however localized areas with rutting, puddling, trail widening, etc.

There is a need to bring all motorcycle trails in to compliance with FS Handbook/FS Manual standards (USDA FS 1990, p. 4–86 and FSH 2309.18/FSM 2300 Trail Management). This includes the following trails:

1140	**1140A**	**1145**	**1145A**	**1146**	**1147**	**1148**	**1150**	**1151**	**1153**	**1154**

User Built Trails would be obliterated or decommissioned in this alternative due to the nature of the creation, lack of design, and contributions to resource damage. Signage and other avenues for educating the users about resource damage/destruction are needed to insure that closed trails are not reopened.

Operation Seasons–Currently there exists a Forest Closure Order #06–05–FO–06–01, titled “National Forest System Trails”, signed July 3, 2006 by Forest Supervisor Y. Robert Iwamoto, that lists the Jeep Trails in the Evans Creek ORV Area as being open to Motorized (Under 60” wide) and Motorcycles annually from July 16 through November

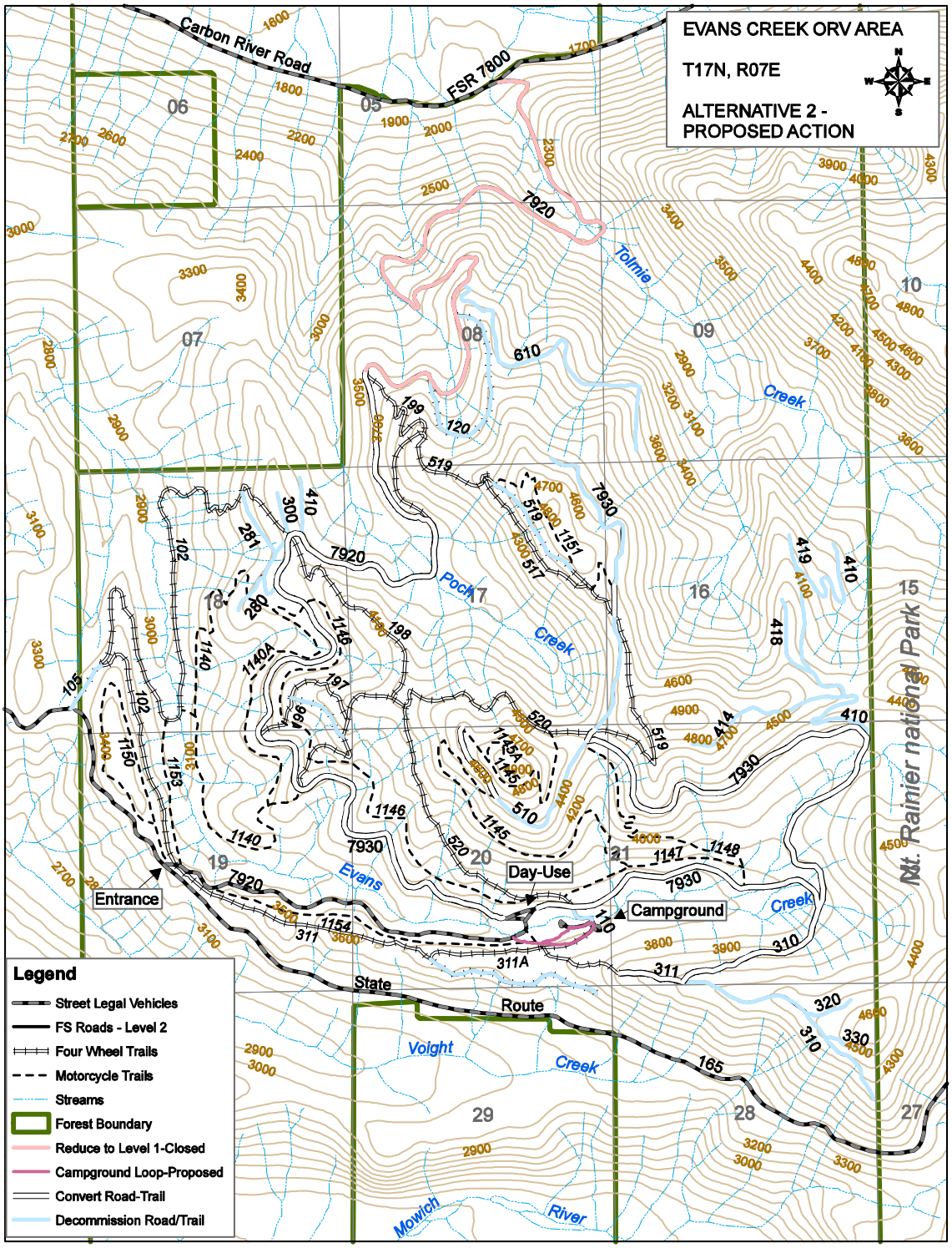
12. Establishment of the following operating season for the ORV area would allow more flexibility in determining when there is a resource need to temporarily close individual trails to minimize potential resource damage during the fall and spring wet seasons and to close the ORV area entirely for wildlife concerns during the winter season.

Table 10. Proposed Operating Season

Dates	Extent/Concern	Duration
January 1–March 31	Area Closed–Wildlife Concern	3.0 months
April 1–June 30	Individual Trail Closures as Needed*	3.0 months
July 1–September 30	Area Open*	3.0 months
October 1–December 14	Individual Trail Closures as Needed*	2.5 months
December 15–31	Area Closed–Wildlife Concern	0.5 months

*Potential for individual trail closures based on trail conditions during severe weather events for duration based on resource concerns.

Figure 5. Alternative 2–Proposed Action Map



Mitigation Measures and Management Requirements

Mitigation measures and management requirements are designed to avoid, reduce, eliminate, rectify, or compensate for undesirable effects from proposed activities. Unless noted otherwise in the decision document, these measures and requirements are mandatory if the Responsible Official selects an action alternative for implementation. The mitigation measures and management requirements listed in Table 11 are practices the ID Team developed during this project analysis to address site-specific environmental concerns and to meet Standards and Guidelines from the Forest Plan, as amended. Each measure includes a description, the objective, applicable Standard and Guideline, an effectiveness rating along with the basis for that rating, and the enforcement mechanism and person(s) responsible for enforcement. The National Environmental Policy Act regulations (40 CFR 1508.20 Mitigation) state the following:

"Mitigation" includes:

- Avoiding the impact altogether by not taking a certain action or parts of an action,
- Minimizing impacts by limiting the degree or magnitude of the action and its implementation,
- Rectifying the impact by repairing, rehabilitating, or restoring the affected environment,
- Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action, and
- Compensating for the impact by replacing or providing substitute resources or environments.

Mitigation effectiveness is rated as follows for this project:

High. The mitigation is highly effective (estimated at greater than 90%) at meeting the objective, and one or more of the following types of documentation is available:

- Research or literature;
- Administrative studies;
- Experience: professional judgment of an expert; or
- Fact: evident by logic or reason.

Moderate. The mitigation is moderately effective (estimated at 60 to 90 percent), and its effectiveness is supported either by evidence or logic. Implementation of this mitigation needs to be monitored, and the mitigation may be modified if needed to achieve its objective.

Low. The mitigation is somewhat effective (estimated at less than 60%), but its effectiveness is not supported by substantial evidence; or professional judgment indicates limited success in implementation or meeting objectives. Implementation of this mitigation needs to be monitored, and the mitigation may be modified if necessary to achieve its objective. Table 11 lists the standard management requirements (from the Forest Plan, as amended) and the mitigation measures (developed by the ID Team for this project). They apply to each action alternative.

Table 11. Management Requirements and Mitigation Measures

Mitigation Measure or Project Design Feature	Objective	Effectiveness and Basis	Forest Plan Standard & Guideline	Enforcement
Fisheries				
During proposed resource closure season, when the likelihood of sedimentation is high, evaluate trails and close as warranted, per monitoring plan described in soils report.	Prevent silt-laden water from entering streams.	Mitigation Measure HIGH (Logic, other ORV areas)	Forest Plan Standards and Guidelines (S&Gs): RM–2, RF–7 BMPs (USDA FS 1988) : R–9, R–20, Rec–6, W–8	Seasonal closure order, LEO or other FS patrols
During the potential spring resource closure period, which coincides with the spawning period for resident trout, monitor whether use in and around Evans Creek is disturbing fish or damaging redds.	Prevent harassment and damage to fish and spawning areas during spawning season.	Mitigation Measure HIGH (Logic)	Forest Plan S&G: RM–2 BMPs: REC–6, W–8	Seasonal closure order, Education, LEO or other FS patrols
If work is in the active channel, divert water around the project site. All water intakes used for a project, including pumps used to isolate an inwater work area, will have a fish screen installed, operated, and maintained according to WDFW criteria.	Minimize effects to fisheries resources.	Management Practice HIGH (Logic)	BMP: R–13 MOU between the FS and WDFW for hydraulic projects (2005) provision	Contract Specifications and Administrator
Excess materials (spoils) will be disposed of and stabilized so they do not enter stream channels.	Minimize sedimentation to fisheries resources.	Management Practice HIGH (Logic)	BMPs: R–5, R–14, W–9 Forest Plan S&G: RF–2	Contract Specifications and Administrator
Erosion control methods will be used to prevent silt-laden water from entering the stream. These may include, but are not limited to, straw bales, silt fencing, filter fabric, check dams of pea gravel-filled burlap bags or other material, and/or immediate mulching of exposed areas. During construction, all erosion controls must be inspected daily during the rainy season and weekly during the dry season to ensure they are working adequately. Excess sediments will be disposed of so they do not enter the stream channel.	Minimize sedimentation to fisheries resources.	Management Practice MODERATE (Past contract experience)	BMPs: R–14, W–9 Forest Plan S&G: RF–5 MOU Provision	Contract Specifications and Administrator

Mitigation Measure or Project Design Feature	Objective	Effectiveness and Basis	Forest Plan Standard & Guideline	Enforcement
If weather conditions during project operations generate and transport sediment to the stream channel, operations will be ceased until weather conditions improve.	Minimize sedimentation to fisheries resources.	Management Practice MODERATE (Avoidance, past contracts)	BMP: R–3 Forest Plan S&G: RF–2	Contract Specifications and Administrator
All disturbed ground where runoff has the potential to drain into stream channels shall be re-vegetated or protected from surface erosion by seeding, mulching, or other methods prior to the fall rainy season. Retain measures to prevent sediment from reaching streams until the soil is secure. If appropriate, native species should be used in revegetation. Any seed used for revegetation shall be consistent with MBS guidelines.	Minimize effects to fisheries resources.	Management Practice MODERATE (Past contract experience)	Forest Plan S&G: RF–5 BMPs: R–9, VM–3 MOU Provision	Contract Specifications and Administrator
Wastewater from project activities and water removed from within the work area will be routed to an area landward of the bankfull elevation to allow removal of fine sediment and other contaminants prior to being discharged to the stream.	Minimize effects to fisheries resources.	Management Practice MODERATE–HIGH	BMP: R–9 MOU Provision	Contract Specifications and Administrator
When removing culverts, streambanks should be properly sloped to an angle of stability (natural repose), and be suitable for establishment of permanent woody vegetation. The streambed shall be restored to the original gradient.	Minimize effects to fisheries resources.	Management Practice MODERATE (MBS Forest roads, experience)	BMP: R–23 MOU Provision	Contract Specifications and Administrator
No supports, abutments, riprap, fill, armoring, or other foreign material shall be placed in bankfull channels.	Minimize effects to channel and fisheries resources.	Management Practice HIGH (Avoidance)	BMP: R–14 Forest Plan S&G: RF–2 MOU Provision	Contract Specifications and Administrator
Trees to be felled within 300 feet of Evans Creek shall be cabled into bundles of 3-5 logs and left in the riparian area away from campground to simulate larger down wood.	Minimize effects to riparian reserves.	Mitigation MODERATE (Past restoration work)	Forest Plan S&G: RA–2	Contract Specifications and Administrator
Leave all non-treated wood within the stream/wetland, including within the Riparian Reserve. Avoid use of treated wood for structures that may contact flowing water or that will be placed over water. Use of treated wood shall follow best management practices for treated wood in western aquatic environments (WWPI 2000).	Prevent and minimize effects to fisheries resources.	Management Practice HIGH (Logic, avoidance) WWPI 2000	MOU Provision	Contract Specifications and Administrator

Mitigation Measure or Project Design Feature	Objective	Effectiveness and Basis	Forest Plan Standard & Guideline	Enforcement
Have hazardous spill clean-up materials on site. Have spill containment and control plan with notification procedures, specific clean up and disposal instructions for different products, and quick response containment and clean-up measures on site.	Prevent and minimize effects to water quality.	Management Practice MODERATE (Implement-ation of spill plans are an industry standard)	BMP: W–4 MOU Provision	Contract Specifications and Administrator
Any machinery maintenance involving potential contaminants (fuel, oil, hydraulic fluid, etc) will occur at an approved site 150 feet away from a stream channel, or outside the Riparian Reserve. Prior to starting work each day, check all machinery for leaks (fuel, oil, hydraulic fluid, etc.) and make all necessary repairs. All equipment operated instream must be cleaned before beginning operations below the bankfull elevation and remove all external grease, dirt, and mud. Stationary power equipment (generators and cranes) operated within 150 feet of any stream, water body or wetland must be diapered to prevent leaks.	Prevent and minimize effects to water quality.	Management Practice MODERATE (Implement-ation of spill plans are an industry standard)	BMPs: T–21, W–4 MOU Provision	Contract Specifications and Administrator
Fish passage structures will use streambed simulation or no-slope hydraulic design.	Minimize effects to fisheries resources.	Management Practice HIGH (FS R6 protocol)	Related to Forest Plan S&G: RF–6 MOU Provision	Engineering Design, Contract Specifications and Administrator
Large woody material removed from a culvert inlet will be put back in the stream channel downstream of the culvert unless doing so will cause degradation of habitat or put a drainage structure at risk.	Minimize disruption of woody debris transport to fisheries resources.	Management Practice MODERATE (Logic)	MOU Provision	Contract Specifications and Adminstrator
All projects potentially affecting the beds or banks of streams, lakes, or other water bodies shall meet all conditions specified in the WDFW HPA for the project. In-channel activities will be limited to non-spawning and incubation time periods, and will be completed during the WDFW in–water work period. Temporary stream crossings will be minimized, and avoided, where possible.	Minimize sedimentation to fisheries resources.	Management Practice HIGH (Avoidance)	BMPs: R–3, R–14 MOU Provision	Contract Specifications and Administrator; WDFW area habitat biologist
Bridges shall fully span the bankfull elevation of the stream channel, and allow 100-year flows and associated debris to pass.	Minimize effects to channels and fisheries resources.	Management Requirement HIGH (Logic)	Forest Plan S&G: RF–4 MOU Provision	Engineering Design, Contract Specifications and Administrator

Mitigation Measure or Project Design Feature	Objective	Effectiveness and Basis	Forest Plan Standard & Guideline	Enforcement
Boulders, rock, woody materials and other natural construction materials used for the project must be obtained outside the riparian area.	Minimize effects to riparian areas.	Management Practice HIGH (Avoidance)	MOU Provision	Contract Specifications and Administrator
If blasting is needed, MBS Blasting Guidelines shall be followed to avoid potentially lethal distances and charge weights. When blasting using multiple holes per shot, a delay targeted at 50 milliseconds will be used between holes so effects to fish are similar to discrete blasts. Measures will be employed to prevent blasted materials from entering stream channels.	Minimize effects to fisheries resources.	Mitigation Measure MBS 2007; Wright and Hopsky 1998		Contract Specifications and Administrator; MBS Certified Blaster
Vegetation and Plants				
If any previously undiscovered threatened, endangered, or sensitive (TES) or other rare and uncommon vascular plants, bryophytes, lichens, or fungi are discovered, before or during project implementation, halt work until a USFS Botanist is consulted and necessary mitigation measures are enacted.	Prevent impact to TES or other rare and uncommon plants.	LRMP S&G HIGH (Logic)	Forest Plan S&Gs p. 4–127 (USDA FS 1990)	Contract Administrator
Treat known infestations *before* ground disturbance begins.	Eradicate known infestations.	BMP, LRMP S&G HIGH (USDA FS 2005a)	BMP (USDA FS 1999) Forest Plan S&Gs #16 (USDA FS 2005a)	USFS Botanist
For actions conducted or authorized by written permit by the Forest Service that will operate outside the limits of the road prism, require cleaning of all heavy equipment pri*or to entering* NFS lands.	Prevent introduction of weeds into the MBSNF.	LRMP S&G MODERATE (USDA FS 2005a)	Forest Plan S&G #2 (USDA FS 2005a)	Contract Administrator
Suppliers must provide annual documentation to the sale administrator indicating that the following products have been examined by a qualified inspector and deemed free of State listed noxious weeds: • Straw or other Mulch • Gravel, rock or other fill • Seeds (according to AOSA standards)	Prevent introduction of weeds.	BMP, LRMP S&G MODERATE (USDA FS 2005a)	Forest Plan S&G #3 & #7 (USDA FS 2005a), BMP (USDA FS 1999)	Contract Administrator
If weeds are present in the project area, all equipment and gear must be cleaned *before leaving the project area* to avoid spreading the infestation further.	Prevent weed spread.	BMP HIGH (USDA FS 1999)	BMP (USDA FS 1999)	Contract Administrator

Mitigation Measure or Project Design Feature	Objective	Effectiveness and Basis	Forest Plan Standard & Guideline	Enforcement
If weeds are present in the project area, work from relatively weed-free areas into the infested area rather than vise-versa.	Prevent weed spread.	BMP MODERATE (Logic)	BMP (USDA FS 1999)	Contract Administrator
Revegetate all areas of bare soil exposed by project activities if there is a risk of noxious weed invasion. Native plant materials are the first choice in revegetation where timely natural regeneration of the native plant community is not likely to occur. Follow revegetation criteria and specifications for this project (See Appendix F–Revegetation Criteria and Specifications).	Prevent erosion, prevent introduction and spread of weeds, maintain and restore habitat.	BMP, LRMP S&G HIGH (USDA FS 2005a)	Forest Plan S&G #13 (USDA FS 2005a), BMP (USDA FS 1999), ACS S&G #8 & #9 (USDA FS & USDI BLM 1994), Federal Register February 2, 2008 (USDA FS National Native Plant Policy)	Contract Administrator
Roads and Transportation				
Forest road new construction, reconstruction, and maintenance follows the design and construction methods for Forest Service roads.	Construction and maintenance criteria would follow the set guidelines.	Management Requirement HIGH (Logic)	FS Manuals & Handbooks	Contract Specifications and Administrator
Heritage				
Do not construct additional parking areas along the south side of Road 7920, directly across from the western entrance to the existing day-use area. If parking areas are to be constructed, avoid the entrance to the remaining segment of railroad grade by installing parking areas either to the west or to the east of this location. At the time of construction, block vehicular access to this piece of grade.	Protect historic railroad logging feature by avoidance measure.	Mitigation Measure HIGH (Experience)		FS Archaeologist or designate
While constructing the new campground access road, avoid earth disturbing activities along the north side of FSR 7920, directly across from the proposed road construction site.	Protect historic railroad logging feature by avoidance measure.	Mitigation Measure HIGH (Experience)		FS Archaeologist or designate
Continue regular scheduled road maintenance however, when operating around the entrances to the identified railroad grade and trestle, stay on the original disturbed road surfacing and do not inadvertently widen the road surface by either adding rock or blading the vegetated soils adjacent to the outer boundary of the current road surfacing.	Protect historic railroad logging feature by avoidance measure.	Mitigation Measure HIGH (Experience)		FS Archaeologist or designate

Mitigation Measure or Project Design Feature	Objective	Effectiveness and Basis	Forest Plan Standard & Guideline	Enforcement
Prior to obliterating, decommissioning, or closing roads; converting roads to trails; converting trail to roads; or upgrading trails, complete on-the-ground cultural resource surveys.	Survey for and protect any previously unidentified historic or prehistoric properties.	LRMP S&G HIGH (Experience)	Forest Plan S&G #2 & #4 (p. 4–98)	FS Personnel prior to implement-ation
While constructing the new campground access road, performing regular road maintenance, reconstructing the existing day-use area, or building additional parking areas along FSR 7920; no excess rock and/or fill material is to be dumped or stored in the approaches to the existing railroad trestle.	Protect historic railroad logging feature by avoidance measure.	Mitigation Measure HIGH (Experience)		FS Archaeologist or designate
Inform a cultural resource technician when construction is to begin adjacent to the trestle location along FSR 7920. This is so activities can be periodically monitored for the duration of construction to ensure there is not encroachment on the trestle site.	Protect historic railroad logging feature by avoidance measure.	Mitigation Measure HIGH (Experience)		FS Archaeologist or designate
If any previous unknown cultural resources are located during implementation of the project, work will be immediately halted in the area. The Forest Archaeologist will be notified and the Forest will fulfill its responsibilities in accordance with the PA and other applicable regulations.	Identify and protect resources located as a result of project implementation that were previously unknown.	Mitigation Measure HIGH (Experience)		FS Archaeologist or designate
Recreation				
Campground, entrance and day-use area closure during reconstruction, to ensure public health and safety, will be scheduled during low use times such as shoulder seasons (April through May or October through November) and midweek. Signs along SR 165 and FSR 7800 will be posted to notify the public of the pending closure periods.	Health and safety of users.	Mitigation Measure MODERATE (Experience and professional judgment)		Contractor or Forest Staff
Temporary trail closures for public safety during reconstruction and/or repair will occur during mid-week.	Health and safety of users.	Mitigation Measure MODERATE (Experience and professional judgment)		Contractor or Forest Staff
Only one trail at a time will be closed for reconstruction to accommodate user demands and minimize impacts to other trails. Signs will be posted at trailheads to notify users prior to and during closure.	Health and safety of users.	Mitigation Measure MODERATE (Experience and Professional judgment)		Contractor or Forest Staff

Mitigation Measure or Project Design Feature	Objective	Effectiveness and Basis	Forest Plan Standard & Guideline	Enforcement
Access to the Evans Creek ORV area from either FSR 7920 or Trail #105 will be permanently closed to provide for only one point of entry.	As directed in the 1980 Environmental Assessment approved by the Forest Supervisor	Management Requirement MODERATE (Experience and professional judgment)	USDA 1980 EA–Evans Creek ORV Area	Forest Staff
Soils				
Plan and conduct land management activities so that reductions of soil productivity potentially caused by detrimental compaction, displacement, puddling, and severe burning are minimized. Nutrient capital on forest and rangelands is to be maintained at acceptable levels as determined by state of the art technology.	Maintain soil productivity and minimize soil displacement and sedimentation.	Management Requirement HIGH (Logic)	Forest Plan S&G (p. 4–117)	FS Staff
Plan and conduct land management activities so that soil loss from surface erosion and mass wasting, caused by these activities, will not result in an unacceptable reduction in soil productivity and water quality.	Maintain soil productivity and minimize soil displacement and sedimentation.	Management Requirement HIGH (Logic)	Forest Plan S&G (p. 4–117), FSM 2500, R6 Supplement No. 2500.98–1	FS Staff
No more than 20% of an activity area may be severely burned, compacted, puddle, or displaced as a result of the activity. Only permanent features of the transportation system will remain in a detrimentally compacted, puddle, and/or displaced condition.	Maintain soil productivity and minimize soil displacement and sedimentation.	Management Requirement HIGH (Logic)	Forest Plan S&G (p. 4–117)	FS Staff
Surface erosion will be minimized by maintaining effective ground cover after cessation of any soil disturbing activity.	Minimize surface erosion.	Management Requirement HIGH (Logic and experience)	Forest Plan S&G (p. 4–117)	Contract Administrator and FS Staff
Plan and accomplish rehabilitation projects as necessary to meet soil and water objectives and standards.	Maintain soil productivity and water quality	Management Requirement HIGH (Logic)	Forest Plan S&G (p. 4–117)	Contract Administrator and FS Staff
Ground–based vehicles will not operate where soil water content is high enough to cause rutting that exceeds 6 inches in depth for a length of ten feet or more.	Limit the degree of soil compaction, rutting, and puddling as well as reduce the potential for offsite stream sedimentation.	Mitigation Measure MODERATE (Experience)	Forest Plan S&G p. 4–117 (USDA FS 1990)	Contract Administrator

Mitigation Measure or Project Design Feature	Objective	Effectiveness and Basis	Forest Plan Standard & Guideline	Enforcement
As currently written, the seasonal closure order (36 CFR 261.55b, c) meets the intent of protecting the soils resource from the potential erosion influenced by precipitation in particularly rainy months. Unless the proposed action would replace this order with a similar one, this order would remain, still limiting ground disturbance during rainy periods.	Limit the degree of soil compaction, rutting, and puddling as well as reduce the potential for offsite stream sedimentation.	Mitigation Measure HIGH (Experience or personal judgment)	Forest Plan S&G p. 4–117 (USDA FS 1990)	Contract Administrator
Subsoiled trails and roads would be seeded with local native grasses, if available, and covered with mulch. Acceptable grass seed mix and type of mulch would be specified by the district botanist in collaboration with the district aquatic specialist. Subsequent vehicular access to these areas would be prevented. Closure to vehicles is required to prevent these areas from being re–compacted and to allow vegetation to develop.	To rehabilitate compacted soils, accelerate recovery of compacted soils, facilitate water infiltration and aid establishing vege-tation on those disturbed areas.	Mitigation Measure HIGH (Logic and past experience)	Forest Plan S&G p. 4–117 (USDA FS 1990)	Contract Administrator and FS Staff
Repair or restoration of trails in existing flood plains would be designed to allow water to pass over or through the trail during flood events.	Allow the timing, variability and duration of flood plain inundation and water table elevation to be maintained or restored.	Mitigation Measure HIGH (Logic and past experience)	Forest Plan S&G p. 4–117 (USDA FS 1990)	Contract Administrator and FS Staff
Wildlife				
Implement road and trail improvements and decommissioning prior to implementing facility (campground and parking areas) expansion and improvements in conjunction with meeting the resource objective of other resources such as fish, soils, hydrology.	Prioritizing restoration activities to promote a beneficial or neutral effect within an LSR or LS/OG allocation area. (example: Facility expansion that includes restoration of riparian reserve, would be deemed to be neutral or beneficial).	Management Requirement HIGH (Logic and past experience)	Successional Reserve S&G: App. B7 p. 1 (NWFP)	FS Staff and Monitoring

Mitigation Measure or Project Design Feature	Objective	Effectiveness and Basis	Forest Plan Standard & Guideline	Enforcement
Establish a winter-through-spring seasonal closure to help protect and enhance biological needs of winter-stressed wildlife and to improve parturition success. Prey species for spotted owls, for example, are non hibernators, may be arboreal or ground-dwelling species that form underground snow tunnel trails. Motorized vehicle use in old-growth habitat may disturb the owls as well as causing direct or indirect disturbance to prey species. Proposed closure dates Dec. 15 through March 31.	Minimize or avoid incidental take of federally protected threatened and endangered species.	Management Requirement HIGH (Logic and past experience)	Forest Plan S&G p. 4–127 (USDA FS 1990)	Recreation Manager, Terrestrial (wildlife, botany), Aquatics (fish, hydro, soils), or delegate to LEO and Monitoring

Comparison of Alternatives

This section provides a summary of the effects of implementing each alternative. Information in the table is focused on activities and effects where different levels of effects or outputs can be distinguished quantitatively or qualitatively between the alternatives.

Table 12. Alternative Comparison with Purpose and Need and Issue Indicators

Note: * Planning for 20–22 defined parking slots in the Entrance area and 45–54 defined parking slots in and around the Day-Use Area.** Planning for 32 individual campsites and two group campsites with 8 and 13 campsites respectively.

Purpose and Need Element and Indicator	Unit of Measure	Alt. 1	Alt. 2
1. Reduce erosion and sedimentation due to ongoing road and trail activities.	Miles of road closed or decommissioned	0	11.2
	Miles of trail decommissioned	0	1.35
	Miles of road brought to compliance	0	2.49
	Miles of trail brought to compliance	30.3	30.3
	Miles of user-built trails obliterated	<3.0	<3.0
2. Provide safe access to area trails and facilities, reduce potential conflicts between users on area roads and trails, and meet Forest-wide Roads Analysis Objectives.	Miles of road converted to trail (both dual and single track)	0	9.63
	Miles of road closed or decommissioned	0	11.2
3. Redesign existing facilities (campground, day-use, and entrance) to provide for sanitation needs and safety of users.	Defined egress and ingress routes through facilities	Not defined	3 facilities
	Defined facilities parking controls	Not defined	3 facilities
	Number of day-use parking slots	Not defined	65–76*
	Number of campsites in campground	23	53**
	Number of toilets in ORV area	6	7

#3–Sedimentation Narrative Comparison

In Alternative 1, fine and coarse sediments from lack of design or maintenance and fill failures and from unregulated use would continue to enter the stream network at its current rate, or in some cases increase. Normal road maintenance would continue to be scheduled on rotation for roads, but they would not be upgraded, stormproofed, closed, or decommissioned. Trails would have only basic drainage improvements and user-built trails would be limitedly obliterated as restricted by available funds. Facilities would not be improved or reconfigured to address safety and drainage. Soil loss from surface erosion, caused by ongoing activities, could potentially result in a reduction of water quality due to the introduction of more sediment into watercourses.

In Alternative 2, the proposed activities, including facilities upgrades, road and trail activities (repair, decommission, close, and convert), would potentially have short-term inputs of sediments while work occurs that could last until areas are revegetated (usually within a year). Sedimentation would be minimized by use of conservation measures and the fact that the work will be spaced out over several years. This alternative would have a direct beneficial effect to the reduction of sediments and associated contaminates reaching water bodies and will reduce the amount of erosion within the project area. Redesign of the area facilities, especially the relocation of the campground entrance, will significantly reduce sedimentation to Evans Creek. Decommissioning or closing select roads, trails, and user built trails will correct soil erosion and compaction problems, which will in turn reduce sedimentation and transport. This alternative has the potential to reduce the amount of sedimentation produced by Alternative 1, related to trails, by an average of 57 percent overall.

Chapter 3 - Environmental Consequences

This section summarizes the physical, biological, social, and economic environments of the affected project area and the potential changes to those environments due to implementation of the alternatives. It also presents the scientific and analytical basis for comparison of alternatives presented in the chart above.

Fisheries

The project area is within the Puyallup sub–basin, mostly within the Carbon River Watershed, and dipping just into the Upper Puyallup Watershed. These areas provide habitat for several fish species of interest. Table 13 displays the fish species of interest and any special designations. The Evans Creek ORV Management Area drains primarily to the Carbon River through Evans, Poch, and Tolmie Creeks, which confluence with the Carbon, between river miles (RMs) 18 and 22. While the ORV area is nearly five miles upstream from anadromous fish in Evans Creek, it is under a mile from habitat suspected to be used by bull trout in lower Poch and Tolmie Creeks. Emanating from the Carbon Glacier, the Carbon River transports extensive glacial sediments that deposit in low gradient reaches and lead to channel braiding (USDA FS 1998); the Carbon River carries a naturally high background sediment load.

The southern portion of the ORV Area drains to headwaters of Voight Creek (a tributary to lower Carbon River) through unnamed channels from Voight RM 17, up to its headwaters. There is a waterfall that is an anadromous barrier on Voight Creek at about RM 4.1; Voight Creek may provide habitat for resident fish, but their presence is not documented from readily available sources. A state hatchery operates on lower Voight Creek near the city of Orting, WA with Chinook, coho and steelhead supplementation programs. Closest proposed activities would be 0.3 miles north of Voight Creek, near its headwaters.

The southeastern tip of the ORV area in Section 28 drains through unnamed tributaries of Meadow Creek to the Mowich River (a major tributary to the Upper Puyallup River). Meadow Creek (up to a barrier falls at RM 0.9) and the Mowich River provide anadromous habitat. Meadow Creek has a resident cutthroat population, as likely does the Mowich River. Puget Sound Energy maintains a diversion dam (named Electron Dam) on the upper Puyallup River at RM 41.7, 0.6 mile downstream of its confluence with Mowich River. The dam has been a complete fish barrier since its construction in 1904. The Puyallup Tribe constructed a fish ladder in 2000 and rearing ponds in 1997 to supplement coho and Chinook production that had been affected. Emanating from the North and South Mowich Glaciers, the Mowich River transports extensive glacial

sediments that deposit in low gradient reaches and leads to channel braiding; the Mowich River carries a naturally high background sediment load.

Table 13. Fish Species of Interest and Special Designations

Species (Stock)	Status[1]	Utilization Associated with Project Area[2]
Chinook (Puyallup)	NMFS—Listed threatened (3/99); Designated critical habitat (9/05); Essential fish habitat (EFH) FS—MIS SaSI 2002—Unknown	Mainstem Carbon River past project area to RM 23; same for critical habitat and EFH. Voight Creek below barrier, 14 miles away. Mowich River to RM 4, 2 miles downstream from closest activity.
Bull trout (Carbon)	USFWS—Listed threatened (11/99); Designated critical habitat (9/05) FS—MIS SaSI 1998—Unknown	Mainstem Carbon River (and some tributaries) past project area suspected to RM 31. Presumed to use lower Poch (0.4 mile) and Tolmie (0.6 mile) Creeks. Critical habitat in mainstem Carbon River off-Forest, 2 miles from closest activity. Voight Creek below barrier, 14 miles away. Mainstem Mowich River past project area into Park to RM 7.5. Critical habitat in mainstem Mowich River 1.1 mile from closest activity.
Steelhead (Carbon Winter)	NMFS—Listed Threatened (5/07; anadromous only); critical habitat not yet designated FS—MIS (anadromous and resident rainbow) SaSI 2002—Depressed	Mainstem Carbon River past project area to RM 22.5; residents in Evans Creek adjacent to project area. Voight Creek below barrier, 14 miles away; resident habitat above barrier, presence unconfirmed. Mainstem Mowich River to RM 1, 5 miles downstream from closest activity.
Coho (Puyallup)	NMFS—Candidate; Species of Concern (7/95); Essential fish habitat (EFH) FS—Sensitive; MIS SaSI 2002—Healthy	Mainstem Carbon River up to (at RM 18.4) and in lower 750 feet of Evans Creek; same for EFH. Voight Creek below barrier, 14 miles away. Mainstem Mowich River and lower Meadow Creek 1 mile from activity.
Pink (Puyallup)	NMFS—Not Warranted (10/95); Essential fish habitat (EFH) FS—MIS SaSI 2002—Depressed	Lower mainstem Carbon River below confluence with South Prairie Creek at RM 6 (17 miles downstream of site), though presumed up to RM 13 (10 miles downstream); same for EFH. Voight Creek below barrier, 14 miles away. Pink not in Mowich River.
Chum (Puyallup/ Carbon Fall)	NMFS—Not Warranted (3/98) FS—MIS SaSI 2002—Healthy	Lower mainstem Carbon River below confluence with South Prairie Creek at RM 6, 16 miles downstream of the site. Not in Voight Creek or Mowich River.
Coastal cutthroat (Puyallup)	NMFS—Not Warranted (4/99) FS—Sensitive, MIS (anadromous and resident)	Anadromous in mainstem Carbon River and tributaries up to about RM 23; residents in mainstem and tributaries up

Species (Stock)	Status[1]	Utilization Associated with Project Area[2]
	SaSI 2000—Unknown	to RM 30. Residents in Evans Creek to about RM 6, Poch Creek to about RM 2, and Tolmie Creek to RM 0.6. Voight Creek below barrier, 14 miles away; resident habitat in upper Voight Creek with presence unconfirmed. Residents in Meadow Creek (0.6 mile away) and Mowich River.
Sockeye (Baker River stock)	NMFS—Not Warranted (Baker River stock in Skagit; 3/99) FS—Sensitive (Baker River)	Baker River stock not present.

[1] NMFS—National Marine Fisheries Service; FS—Forest Service (USDA FS 1990 and USDA FS 2008); USFWS—United States Fish and Wildlife Service; SASSI—Washington State Salmon and Steelhead Stock Inventory (WDF et al. 1993; WDFW and WWTT 1994); SaSI—Washington Salmonid Stock Inventory (WDFW 1998, 2000, 2002); MIS—Management Indicator Species (from USDA FS 1990).

[2] Sources: SASSI and SaSI reports linked to WDFW website http://wdfw.wa.gov/fish/sassi/intro.htm; Williams et al. 1975; MBS Aquatics GIS Project v2.0 in ArcMap v9.2; Marks et al. 2007; and USDA Forest Service 1998.

Two road-related fish passage barriers for resident fish (rainbow trout) were documented in an Evans Creek Stream Survey final report (USDA FS 2000). These barriers were due to undersized culverts associated with Road 7930–110 (entrance to the Evans Creek ORV Area campground) and Road 7920 downstream of the campground. The Road 7930–110 campground entrance also directs surface runoff directly into Evans Creek, and users have also left the road to cross Evans Creek (B. Pacific, personal communication).

Fisheries Environmental Effects

The analysis area for direct and indirect effects to fisheries is upper Evans, Poch, and Tolmie Creek drainages in the Upper Carbon subwatershed. These streams flow into the Carbon River between RM 18 and 22. Additionally, proposed activities include treating trails in upper Voight Creek, and those that follow the ridge and over into Meadow Creek in the Mowich River subwatershed. Proposed activities in Voight and Meadow Creeks are along the ridgetops in the headwaters of intermittent channels, and would have negligible if any effect.

Alternative 1–No Action

With Alternative 1, existing campground facilities, day-use and entrance areas would not be improved or reconfigured to address safety or drainage, and no new toilets or potable water sources would be provided. New road construction and reconstruction to access the campground would not happen, and existing fish passage barriers would remain.

Normal road maintenance (brushing, blading) would continue to be scheduled on rotation for Roads 7920 and 7930, but these roads would not be upgraded, stormproofed, closed, or decommissioned. Existing designated trails and trail segments would have only basic drainage improvements and user-built trails would be limitedly obliterated/decommissioned as restricted by available funds.

Without the reconfiguration and drainage improvements of use areas, and without road and trail treatments, fine and coarse sediments from fill failures and from unregulated use would continue to enter the stream network. If multiple failures occurred at the same time, enough sediment could enter the streams to reach fishbearing waters. Depending on the timing and magnitude of such failures, these sediments could exceed the transport capacity of the receiving streams. The stream channels would first start to accumulate sediments, then respond by either widening or downcutting, which could reduce the survival of fish eggs to emergence, decrease the food-base and growth of rearing fish, and damage spawning/rearing habitats both immediately and in the long-term until the channels restabilize.

Alternative 2-The Proposed Action

With Alternative 2, existing campground facilities, day-use and entrance areas would be improved and reconfigured to address safety and drainage. Two new toilets and two new potable water sources would be added. Roads and trails would have various treatments. Refer to Alternative 2–Proposed Action and Appendix E–Potential Activities for a complete description of proposed activities.

Roads and Trails

Effects from roads and recreational use of roads and ORV trails to fisheries can be direct as well as indirect. Direct effects to fish can occur if people are driving across redds, which is likely to kill eggs within them, smashing or suffocation of eggs, or displacement of gravels and exposure of the eggs to predators or damaging flows. Indirect effects occur later in time or away from the site, such as failure or poor drainage of a road or trail that leads to sedimentation of spawning and rearing habitats downstream. Sedimentation is a natural process, but excessive sedimentation that overwhelms a stream’s capacity to transport it away can bury redds and suffocate the eggs, fill rearing pools, and irritate/damage a fish’s gills, which can kill or reduce the survival or health of a fish.

Intersections of roads with fishbearing streams can pose passage barriers to spawning adults or rearing juveniles from utilizing available habitats (such as a culvert that is undersized can present a flow barrier to juvenile fish because water must move faster to pass through the smaller structure).

There would be a net decrease in system road (treated, decommissioned and removed from the road system database) in the ORV area of nearly nine miles, with another nine miles of road converted to trail (width reduced), plus perhaps five miles of trail

decommissioned (includes obliteration of user-built trails). An estimated two miles of system roads would be decommissioned and put into storage in Riparian Reserves, with up to 0.3 mile constructed along the outer edge of the Riparian Reserves, for a net decrease of 1.7 miles.

Erosion control treatment in conjunction with closing or decommissioning roads and trails, would potentially have short-term inputs of sediments while work occurred. The same roads could experience additional sediment inputs until revegetatation occurs in approximately one year. Because of the conservation measures, and most of the work being performed away from fishbearing or perennial waters.

The work would be spaced over several years, so the amount of these sediments would be minimized to the extent that they would not have detectable effects to spawning and rearing habitats or fish survival. Effects to fish in the Carbon River are further diluted by the high background sediments and greater flows here.

The net long-term effects of proposed project activities would benefit the aquatic system primarily by improving drainage and reducing road and trail-related sediments, improve fish passage in Evans Creek, and localized transport of wood in the ORV area.

Removal of the 7930–110 crossing of Evans Creek would allow wood to pass that site. In the Tolmie Creek drainage, nearly all the roads and trails are proposed to be decommissioned or put into storage, but the 7920 crossing is already a bridge and passes wood, and the decommissioned trails are in the headwaters of tributaries upslope from Tolmie mainstem. While locally restoring the process of wood transport, these incremental benefits would not likely be meaningful in terms of improvements to fish habitat quality or quantity, nor to fish populations.

Most of the disturbance would be in areas already or previously disturbed by existing road and trail construction or use. Road and trail treatments in Riparian Reserves would address erosion concerns and improve drainage, and the decommissioned and closed segments would allow woody vegetation to re-establish. Tree removal would consist primarily of small-diameter, dense, understory second growth in the outer Riparian Reserves of Evans Creek, which are not providing shade or inputs to the channel, and would not otherwise have recruited to Evans Creek. At the watershed and sub-basin scales, managing for use of this ORV site allows the Forest to close and treat other areas where ORV use is damaging sensitive riparian areas.

Proposed activities in Voight and Meadow Creeks are along the ridgetops in the headwaters of intermittent channels, and would have negligible if any effect to fish or their habitats in those drainages. Any sediment leaving these sites would not be measurable by the time they reached fishbearing waters.

Campground, Day-use Parking Area, and Entrance

Expansion of the campground and parking areas addresses public safety and management issues for use that is already occurring. Most of the disturbance would be in areas already, or previously, disturbed and proposed activities would improve drainage. Redesign of the campground would result in fewer campsites adjacent to Evans Creek. Tree removal would consist primarily of small-diameter, dense, understory second growth in the outer Riparian Reserves of Evans Creek, which are not providing shade or inputs to the channel, and would not otherwise have recruited to Evans Creek.

Water removed from the additional hand pumps would not be sufficient to reduce the quantity or timing of flows to affect spawning or rearing in Evans Creek.

Blasting

Attempts would first be made to mechanically rip and remove the rock or wood, and avoid the need for explosives, however, with this alternative, using explosives to blast rock or wood is a possibility. Detonation of explosives next to fish habitat is documented as causing injury and death to rearing and adult fish by rupturing the swim bladder and other organs, and to eggs and pre-emergent fry from vibrations and collapse of redds. Effects from vibrations associated with blasting would be minimized by imposing timing restrictions to avoid the spawning period, and by use of smaller individual charges and incorporating time delays to reduce the effect of an overall detonation and create discrete explosions.

Effects to fish from blasting through root wads on the surface of the ground would likely be much less than effects associated with blasting through rock, as the interface between air and water acts as an effective reflector and very little sound energy generated in the air would pass into the water (from USDI FWS 2003). Forest blasting guidelines would be followed to avoid mortalities (Refer to Appendix G–Blasting Guidelines). Should site conditions require greater charges at closer distances to fishbearing waters, additional fisheries review would be needed.

Effect Determinations

For federally listed fish and special habitats, the effect determinations are: *May Affect, Not Likely to Adversely Affect* for federally listed bull trout; *No Effect* for federally listed Chinook and steelhead and for designated Chinook and bull trout critical habitats; *Would Not Adversely Affect* for Chinook, coho, or pink salmon essential habitat.

For the FS Sensitive and MBS management indictor species coho, sockeye, coastal cutthroat (anadromous), pink and chum, project activities would have *No Impact*; for resident cutthroat and rainbow, the effect determination from proposed activities is *Impact Individuals, Not Likely to Trend Toward Listing,* with a net beneficial effect.

Fisheries Cumulative Effects

A cumulative effect is the effect on the environment that results from the incremental effect of the action, when added to the effects of other past, present, and reasonably foreseeable future actions, regardless of what agency or person undertakes the other actions and regardless of land ownership on which the other actions occur. An individual action when considered alone may not have a significant effect, but when its effects are considered in sum with the effects of other past, present, and reasonably foreseeable future actions, the effects may be significant. They can occur when small, incremental amounts of habitat are lost (or gained) over time through a variety of management activities across a landscape (40 CFR 1508.7).

The areas considered for fisheries cumulative effects are Evans, Poch, and Tolmie Creek drainages down to their confluences with the Carbon River. Additional areas considered are Voight Creek from RM 17 to its headwaters, and Meadow Creek from its confluence with the Mowich River up to the boundary of Mt. Rainier National Park. The past, present, and reasonably foreseeable actions with potential effects overlapping with those of activities in the proposed action, and considered in this cumulative effects analysis for fisheries, are listed and described in Appendix C.

The analysis is summarized in the specialist report. Proposed project activities could create sedimentation that could overlap in both space and time with ongoing FS road, trail and facilities maintenance, and with Washington State Department of Transportation (WSDOT) maintenance of SR 165. This potential overlap would be short term, primarily during proposed project construction, and with conservation measures, would not result in measurable effects to fish or fish habitat. Long-term benefits of proposed activities in reducing future sediments may also overlap, but would not likely be measurable (or be inordinately difficult to quantify in terms of increasing fish population numbers or habitat quantity/quality).

Proposed activities could also affect routing of wood that could overlap with lingering effects from past clearcut timber harvests, ongoing road maintenance, and WSDOT maintenance of SR 165. However, the incremental benefits from improved routing of wood would not likely be measurable in terms of improvements to fish habitat quality or quantity, or to fish populations.

Effects from activities proposed by the Evans Creek ORV Management Plan would be immeasurable and therefore negligible to any lingering effects to fish and fish habitats, even if they were to overlap in both space and time. There would be no contribution to cumulative effects when added to other past, present or foreseeable actions (see Fisheries Specialist Report).

Forest Plan Consistency

Common to Both Alternatives

Conservation measures in Appendix H include what can be considered best management practices, and will maintain water quality.

Streamside trees are not being removed; temperatures would be maintained. Measures in Appendix H would minimize turbidity and sediment (USDA FS 1990, p. 4–126).

The Environmental Effects section of this report assessed the effects of proposed activities on threatened and sensitive fish species (there are none considered "endangered"). Proposed activities would not contribute to these species becoming federally listed or lead to a change in their listing status (USDA FS 1990, p. 4–127).

The campground, day-use, and entrance areas would have improvements that directly (adding gravel and improving drainage collection to drain campground runoff away from Evans Creek) and indirectly (delineating parking areas and installing guardrails) address drainage concerns while improving public safety and directing use (USDA, USDI 1994, p. C–34).

Alternative 2–The Proposed Action

Evans Creek contains resident fish at the crossings of Road 7920 and 7930–110. The proposed action would provide fish passage at these crossings (USDA FS, USDI BLM 1994, p. C–33).

Much of the existing facilities are located within Riparian Reserves. Proposed decommissioning of the campground access road would restore fish passage, help prevent inchannel crossings, and reduce sedimentation associated with that road segment. Facility expansion addresses public safety and management issues for use that is already occurring. Improvements to the campground would address drainage concerns, and redesign of the campground would result in fewer campsites adjacent to Evans Creek. Addition of toilets can only incrementally improve water quality. Trees removed would consist primarily of small diameter, dense, understory second growth in the outer Riparian Reserves of Evans Creek (USDA FS, USDI BLM 1994, p. C–34).

Proposed activities include eliminating user-built trails (considered one of the most damaging activities to soils), as well as decommissioning many spur roads used by dispersed recreationists. Decommissioning the campground Road 7930–110 would reduce sedimentation and impacts associated with use of that segment. At the watershed and sub-basin scales, managing for use at this ORV site allows the Forest to close and treat other areas where ORV use is damaging sensitive riparian areas (USDA FS, USDI BLM 1994, p. C–34).

Botany

Plant Communities and Structural Diversity

Habitats documented within the project area include road edges and other disturbed areas, red alder patches, and young coniferous forests in the silver fir/Alaska huckleberry-sidebells pyrola (*Abies amabalis /Vaccinium alaskense-Pyrola secunda*) plant association (Henderson et al. 1992). Forested areas south of the campground are composed of western hemlock, Douglas-fir, western red cedar, and Pacific silver fir. These stands are of uniform age and are in the "stem exclusion phase" (Oliver 1981, Oliver and Larson. 1990), resulting in dense canopy and deep shade with hardly any understory vegetation.

Plants of interest growing in more open areas include two native grasses that could be propagated for revegetation projects in the watershed: bluejoint reedgrass (*Calamagrostis canadensis*) and blue wildrye (*Elymus glaucus*).

Invasive Plants

An array of nonnative invasive species occur in the project area but most of these are so common on the Mt. Baker-Snoqualmie National Forest that they are not tracked. However, tansy ragwort and Canada thistle are two state listed noxious weeds of concern that occur sporadically within the project area.

Specifically, there are two infestations of tansy ragwort on Road 7920 that were relatively large in size when they were first reported in 1998, and presumably have increased since that time. The first one[3] is in the southwestern quarter of Section 8 and it was about three-quarters acre in size, and the second infestation[4] is in the northeast quarter of section 19 and was 1.5 acres in size (see the Botanical Resources Specialist Report, Figure 1).

There are two stockpiles adjacent to or near project area that have not yet been surveyed for weeds as they are not a part of the ORV area and are not currently proposed for use. However, if at some future point these stockpiles are to be used in association with the ORV area, it would be important to ensure that these stockpiles are weed-free (see Table 11. Management Requirements and Mitigation Measures, Botany p. 55–56) (for stockpile locations, refer to the Botanical Resources Specialist Report, Figure 2).

At the current time, ORV operators have built and use approximately 3.0 miles of user-made trails and are creating new user-made trails. This not only denudes desirable native

[3] NRIS identification # 05-LP-037
[4] NRIS identification # 05-LP-038

vegetation, it is the primary way that noxious weeds get spread throughout the project area (Lonsdale and Lane 1994).

Regional Forester's Sensitive Species and Other Rare or Uncommon Species

A pre-field review of the project area was completed in autumn 2007 and reassessed in 2008 in light of updated information (MBS Botany Program GIS layers, district files, Washington Natural Heritage Program–2007 and the most recent update of the national USDA Forest Service NRIS TESP database–2007). The only documented rare plants in the vicinity of the project area (Township 17 North, Range 7 East) are three uncommon fungi, documented at a single site in section 16. There is potentially some road decommissioning activity occurring in section 16, but the known site is several hundred feet from the nearest road.

The project area was surveyed by a professional USFS Botanist on August 8, 2007. No vascular plant, bryophyte, lichen, or fungi on the Regional Forester's Sensitive Species List (USDA FS 2008)—or any other rare or uncommon species—were found within the project area.

Botany Environmental Effects

Alternative 1–No Action

Effects of the No Action alternative on plant communities and structural diversity

Native plants would continue to be destroyed by ORV use on user made trails and in building additional user made trails.

Effects of the No Action Alternative on invasive plants

Invasive plants would continue to spread because existing weeds would not be controlled, and bare ground would remain exposed, which is an optimal site for colonization by invasive plants.

Effects of the No Action alternative on plant Regional Forester's Sensitive Species and other rare or uncommon species

No effects are expected under the No Action Alternative because the project area was surveyed by a professional Botanist and no species on the Regional Forester's Sensitive Species List, or any other rare or uncommon species, were found within the area proposed for project activities.

Alternative 2–The Proposed Action

Effects of the Proposed Action alternative on plant communities and structural diversity

Since part of the intent of the proposed action is to restore native vegetation and prevent erosion, the proposed action would have a beneficial effect on plant communities and structural diversity. This also meets the intent of the Aquatic Conservation Strategy Objectives # 8 and 9. In addition, the proposed action involves implementation of the national native plant policy, which in turn would have a positive influence on native plant communities.

Effects of the Proposed Action alternative on invasive plants

Assuming all mitigation listed in Table 11 is implemented, existing infestations would be controlled, and opportunities for spread or introduction of new infestations would be prevented.

Effects of the Proposed Action alternative on plant Regional Forester's Sensitive Species and other rare or uncommon species

No effects are expected under the Action Alternative because the project area was surveyed by a professional Botanist and no species on the Regional Forester's Sensitive Species List, or any other rare or uncommon species, were found within the project area.

Botany Cumulative Effects

The affected area for cumulative effects to sensitive plants is limited to within the project boundaries. The affected area for cumulative effects to invasive plants is within 1 mile of the project boundary. The time period for the possibility of cumulative effects to both sensitive plants and invasive plants occurs during the construction phase as described in the proposed action.

Since no impacts are expected from the Proposed Action alternative (assuming all mitigation measures and standard operating procedures are implemented), this project would not contribute cumulatively when added to other projects.

Forest Plan Consistency

Common to Both Alternatives

A pre-field review and field survey was conducted by a professional botanist. The environmental effects described in this document serve the purpose of a biological evaluation (Forest Service Manual 2672.4).

The pre-field review and field survey was conducted by a professional botanist taking other rare and uncommon species into account. Management of known sites are not

applicable since none were found in the surveys (ROD and Standards and Guideline for Amendments to the Survey and Manage, 2001).

Sensitive species were searched for to ensure that project actions would not impact if they were to occur within the project area (USDA FS 1990, p. 4–3).

Habitats were searched for during field surveys to ensure that project actions would not impact them if they were to occur within the project area. Protection of native plant communities would occur through mitigation but there are no areas within the Evans Creek ORV Area that would be considered particularly “special and unique” (USDA FS 1990, p. 4–3).

The pre-field review and field survey took threatened, endangered, and sensitive species and their habitats into account. Management of known sites are not applicable since none were found in the surveys (USDA FS 1990, p. 4–127).

The pre-field review and field survey took sensitive species and their habitats into account. Management of known sites are not applicable since none were found in the surveys (USDA FS 1990, p. 4–127).

Alternative 2–The Proposed Action

The purpose and need for the project is primarily to restore disturbed habitats–all of the actions that meet the purpose and need would benefit ecosystem diversity and function (USDA FS 1990, p. 4–122).

All measures listed in Table 11. Management Requirements and Mitigation Measures, items 2–6, would meet the intent (USDA FS 1999a, Forest Plan Amendment #14–BMP).

The revegetation guidelines (See Appendix F) meet the intent of the National Native Plant Policy (Federal Register February 2, 2008, USDA FS).

Roads and Transportation

The roads built in the analysis area primarily provided access for timber harvest and haul. Initial logging operations used railroad access around 1913 on into the early 1940s. Road construction and reconstruction proceeded from about the late 1940s and into early 1950s replacing many of the main railroad grades and extending access to timberland along the main drainages and further upslope than reached by the railroads. Forest Service Roads (FSR) 7800, 7920, and 7930 provided the main haul routes for this area out to State Route 165.

FSR 7800, also known as Carbon River Road, is a two-lane paved road (ML 5) that parallels the Carbon River on the north side of the Evans Creek ORV Area and is suitable for passenger vehicles. This road provides primary access to National Forest lands

located on the north and south side of the Carbon River. Destinations also include Mount Rainer National Park–Carbon River Entrance, the trailhead for FS trails #1177 Summit Lake and #1179 Carbon and Bearhead Mountain (via FSR 7810), access to Evans Creek ORV area (via FSR 7920 north terminus), and numerous day-use dispersed recreation spots located adjacent to the Carbon River, within the Puyallup River drainage.

FSR 7920 (south terminus) is a single lane gravel road (ML 3) that provides passenger car access from State Route 165. Primary destination is Evans Creek ORV Area and a secondary destination is FSR 7800.

FSR 7930 is a single lane gravel road (ML 3) providing passenger car access from its junction with FSR 7920 to MP 3.2, then changing to (ML 2) providing high clearance vehicle access to the remainder of the road, which ends at MP 4.1.

Roads and Transportation Environmental Effects

Alternative 1–No Action

Implementing Alternative 1 would result in the roads in the project area remaining in their current condition. Forest Service Road systems 7920 and 7930 would continue to need typical road maintenance based on current annual budgets. Road access would continue to be maintained at assigned maintenance levels (FSR 7920 has two access points and being an open road system). Reduced budgets in road maintenance funding for annual and deferred maintenance has significantly impacted the Forest Service's ability to maintain its current road system. If basic annual road maintenance (such as drainage maintenance) is not performed, roads would have an increased potential for loss of investment and environmental damage. The same is true for deferred maintenance (such as replacing major culverts in perennial streams at the end of their service life). A catastrophic drainage failure would have a direct negative impact on the associated watershed and aquatic health. Factors such as geology, soils, slope, and past development activities affect the costs and difficulties of maintaining or improving a road. These factors become concerns when they lead to excessive erosion of the road surface and prism, tendency for rutting, recurring maintenance, or slope failure that could damage or remove portions of a road.

Alternative 2–The Proposed Action

Under Alternative 2, portions of FSR 7920 and 7930 would be converted to jeep trail, put into storage, or decommissioned (see Figure 5).

The Deferred Maintenance Backlog on the Mt. Baker-Snoqualmie clearly demonstrates that annual maintenance funding is inadequate to maintain the road system on the Forest. Of the current 22.51 miles of road within the project area, 2.18 miles would remain open

to passenger vehicles and reduce annual and deferred maintenance costs (see Table 15. Evans Creek ORV Proposed Road Activity Cost Details by Alternative).

Under this alternative, 1.5 miles of FSR 7920 would benefit from road reconstruction, bringing the road up to standards meeting the requirements of the Highway Safety Act (1966). The increase of rock to the existing road surface, and reconstruction of poor road conditions would lengthen the life of the existing road, while improving safety for users. Culverts that have reached their life span and are deteriorating would be replaced, lessening the risk of a drainage failure that would lead to road washouts. Additionally, the undersized culvert at Evans Creek stream crossing would be upgraded to a proper sized road feature providing a larger opening to improve stream flow and fish passage. Brushing would be accomplished allowing for safer road visibility for travelers.

Reduced road maintenance costs would be experienced with this alternative, by: 1) Reduced miles of system roads through decommissioning and road-to-trail conversions, 2) Completing deferred maintenance through reconstruction of the remaining system road, and 3) The decommissioning of roads would reduce impacts to resources (such as aquatics, wildlife, etc.). For example, about 2 miles of road crossing Riparian Reserves would be removed from vehicle use by means of decommissioning and storage.

Alternative 2 would follow, and in some incidences, exceed the findings of the Forest-wide Roads Analysis Report (refer to the Roads and Transportation Specialist Report, Table 1. Roads Proposed for Decommissioning). Road decommissioning would increase roughly by 6 miles considering the difference between the proposed action and the Maintenance Level (ML) objective in the roads analysis. Thirteen of the sixteen segments of roads identified to be decommissioned in the table have their need rating listed as “Little need for access. Close or decommission”. However, the Resource Rating shows only four segments of roads having a rating of “Concern for resource damage. Needs work to stabilize and/or decommission”. From a more general overview, the proposed action would predominantly follow or exceed the findings of the roads analysis.

Table 14. Evans Creek ORV Proposed Road Activity Data Details by Alternative

Evans Creek ORV Road Activities	Road #	Alternative 1	Alternative 2
Annual Maintenance Miles by Road	7920	9.1	1.62
	7920–XCG[1]	0	0.42
	7920–XDU[2]	0	0.082
	7920–280	0.3	0
	7920–281	0.4	0
	7920–300	0.4	0
	7920–410	0.4	0
	7920–610	1.3	0
	7930	4.15	0.054
	7930–110	0.5	0

	7930–310	1.6	0
	7930–320	0.3	0
	7930–330	0.3	0
	7930–410	1.2	0
	7930–414	0.8	0
	7930–418	0.4	0
	7930–419	0.4	0
	7930–510	0.96	0
	Maint. Total	**22.51**	**2.18**
Reconstruction Miles by Road	7920	0	1.62
	7920–XCG	0	0.42
	7920–XDU	0	0.082
	7930(DU)	0	0.054
	RC Total	**0**	**2.18**
Road Closure Miles by Road	7920	0	2.4
	CR Total	0	2.4
New Construction Miles By Road	7920–XCG	0	0.33
	NC Total	**0**	**0.33**

[1] New Evans Creek Campground Road that does not yet have a system number.

[2] New Evans Creek Day–Use Road that does not yet have a system number.

Note: This tallying of cost is not taking into account the road–to–jeep and road-to-motorcycle trail conversions that have been fractionally listed as jeep and motorcycle trails and have not received proper road conditions surveys and treatments to meet jeep and motorcycle trail specifications, and will increase the cost of the completed project. See recreation section.

Table 15. Evans Creek ORV Proposed Road Activity Cost Details by Alternative

Total Reconstructed, New Construction, Closed Road, and Maintenance	**Total Miles**	**22.51**	**2.5**
Estimated System Road Costs (Total cost with cost per mile)	**Activity Type**	**Alternative 1**	**Alternative 2**
	Annual Maintenance	$77,703 ($3,397/mi)	$ 10,010 ($4,004/mi)
	Deferred Maintenance	577,287	0
	Reconstruction	0	$605,603 ($197,588/mi)
	Road Closure	0	$85,200 ($35,500/mi)
	New Construction	0	$66,000 ($200,000/mi)
Estimated Upgrades to Undersized Culverts (capacity sized to handle 100–year floodwaters)	7920	0	Up to–14
Total Estimates All Road Costs (by Alternative and type of construction activity)[5]	Activity	Alternative 1	Alternative 2
	Annual Maintenance	$77,703	$10,010
	Deferred Maintenance	$577,287	0
	Road Closure	0	$85,200
	Decommission	0	390,600
	Convert Road to Trail	0	440,100
	Reconstruction	0	$605,603
	New Construction	0	$66,000
	Total Cost	$654,990	$1,597,513

Note: This tallying of cost is not taking into account the road–to–jeep and road–to–motorcycle trail conversions that have been fractionally listed as jeep and motorcycle trails and have not received proper road conditions surveys and treatments to meet jeep and motorcycle trail specifications, and will increase the cost of the completed project. See recreation section.

[5] Construction activity includes the reconstruction and maintenance work of forest roads.

Table 16. Estimated Cost of Road Work

Activity	Alternative	
	1	2
Road Reconstruction Miles	0	2.14
Road Maintenance Miles	22.51	2.5
Road Closed	0	2.4
Road Decommissioning Miles	0	8.8
Road to Trail Conversion Miles	0	9.63
New Road Construction Miles	0	0.35*
Number of culverts to upgrade to meet 100 year event	0	Up to 14
Estimated Road Reconstruction Cost	0	$605,603
Estimated Road Maintenance Cost (Annual and Deferred)	$654,990	$10,010
Estimated Road Closure Cost	0	$85,200
Estimated Road Decommissioning Cost	0	$390,600
Estimated Road to Trail Conversion Cost	0	$440,100
Estimated New Road Construction Cost	0	$66,000

*Represents 0.1 new construction and 0.25 trail-to-road conversion.

Note: This tallying of cost is not taking into account the road–to–jeep and road–to–motorcycle trail conversions that have been fractionally listed as jeep and motorcycle trails and have not received proper road conditions surveys and treatments to meet jeep and motorcycle trail specifications, and will increase the cost of the completed project. See recreation section.

Table 17. Proposed Road Work Descriptions used in Calculating Costs

Road #	Proposed Work Activity
7920, MP 0.0–1.65	Road reconstruction, brushing, rocking, ditching, blading, and culvert replacement.
7920, MP 1.65–7.10	Convert to jeep trail. Remove from road system. Pull side cast, pull culverts and/or remove excess fill over culverts, outslope road where needed, construct waterbars and cross drains, Install road closed and trail signs.
7920, MP 7.10–9.5	Closed road, put road into storage, Maintenance Level 1. Pull sidecast, pull culverts and/or remove excess fill over culverts, outslope road where needed, construct waterbars and cross drains, trench and or install access barriers.
7920–XCG	New road construction, add new road to system, surveying, grubbing, cutting, excavating, culvert installation, moving material, rocking, grading.
7920–XDU	Road reconstruction, brushing, rocking, ditching, blading, and culvert replacement.
7920–280	Decommission road, pull sidecast, remove culverts and/or remove fill materials, scarify, outslope, install cross drains, block access, and re–vegetate.
7920–281	Decommission road , pull sidecast, remove culverts and/or remove fill materials, scarify, outslope, install cross drains, block access, and revegetate.
7920–300	Decommission road, pull sidecast, remove culverts and/or remove fill materials, scarify, outslope, install crossdrains,

Road #	Proposed Work Activity
	block access, and revegetate.
7920–410	Decommission, pull sidecast, remove culverts, remove fill materials, install crossdrains, and block access.
7920–610	Decommission road, pull sidecast, remove culverts and/or remove fill materials, scarify, outslope, install crossdrains, block access, and revegetate.
7930 MP 0.0–0.054	Road reconstruction, brushing, rocking, ditching, blading, and culvert replacement.
7930–XDU	Road reconstruction, brushing, rocking, ditching, blading, and culvert replacement.
7930 MP 0.054–3.2	Convert to jeep trail. Remove from road system. Pull sidecast, pull culverts and/or remove excess fill over culverts, outslope road where needed, construct waterbars and crossdrains, Install closed road and trail signs.
7930 MP 3.2–3.7	Decommission road, pull sidecast, remove culverts and/or remove fill materials, scarify, outslope, install crossdrains, block access, and revegetate.
7930 MP 3.7–3.8	Convert to jeep trail. Remove from road system. Pull sidecast, pull culverts and/or remove excess fill over culverts, outslope road where needed, construct waterbars and crossdrains, Install closed road and trail signs.
7930 MP 3.8–4.1	Decommission road, pull sidecast, remove culverts and/or remove fill materials, scarify, outslope, install crossdrains, block access, and revegetate.
7930–110 MP 0.0–0.12	Decommission road, pull sidecast, remove culverts and/or remove fill materials, scarify, outslope, install crossdrains, block access, and revegetate.
7930–110 MP 0.12–0.5	Road reconstruction, brushing, rocking, ditching, blading, and culvert replacement. Change road number to 7920–XCG
7930–310 MP 0.0–0.5	Convert to jeep trail. Remove from road system. Pull sidecast, pull culverts and/or remove excess fill over culverts, outslope road where needed, construct waterbars and cross drains, Install closed road and trail signs.
7930–310 MP 0.5–1.6	Decommission road, pull sidecast, remove culverts and/or remove fill materials, scarify, outslope, install crossdrains, block access, and revegetate.
7930–320	Decommission road, pull sidecast, remove culverts and/or remove fill materials, scarify, outslope, install crossdrains, block access, and revegetate.
7930–330	Decommission road, pull sidecast, remove culverts and/or remove fill materials, scarify, outslope, install crossdrains, block access, and revegetate.
7930–410	Decommission road, pull sidecast, remove culverts and/or remove fill materials, scarify, outslope, install crossdrains, block access, and revegetate.
7930–414	Decommission road, pull sidecast, remove culverts and/or remove fill materials, scarify, outslope, install crossdrains, block access, and revegetate.
7930–418	Decommission road, pull sidecast, remove culverts and/or remove fill materials, scarify, outslope, install crossdrains, block access, and revegetate.

Road #	Proposed Work Activity
7930–419	Decommission road, pull sidecast, remove culverts and/or remove fill materials, scarify, outslope, install crossdrains, block access, and revegetate.
7930–510 MP 0.0–0.58	Decommission road, pull sidecast, remove culverts and/or remove fill materials, scarify, outslope, install crossdrains, block access, and revegetate.
7930–510 MP 0.58–0.96	Convert to motorcycle trail. Remove from road system. Pull sidecast and narrow road bed to less than 50 inches, pull culverts and/or remove excess fill over culverts, outslope road where needed, construct waterbars and cross drains, Install road closed and trail signs.

Roads and Transportation Cumulative Effects

The spatial area for the roads and transportation cumulative effects analysis are FSR 7920, 7930 and associated spur roads. This area encompasses about 8.5 square miles.

Converting portions of FSR 7920 and 7930 road systems to jeep trail would remove road maintenance responsibilities and costs. The road-to-trail conversion would remove potential resource damaging characteristics such as sidecast materials that can cause accelerated sediment production. The road-to-trail treatment would narrow the roadbed width and improve road drainage by removal of culverts and install crossdrains in the road bed to better distribute ground and over land water flows (see Appendix E-Potential Activities, Road-to-Trail).

The road decommissioning would reduce sediment sources from road failures and surface erosion and restore hillslope hydrology. It would also provide for improvements to wildlife habitat.

Proposed road reconstruction in this high use recreational area would enhance road conditions in turn providing for safer travel, and reducing road maintenance costs as well as eliminating deferred maintenance cost up to the point in time accomplished. The maintenance and reconstruction of roads would contribute toward the cumulative management of the MBS system roads, which, in turn, would contribute towards a better alignment of road maintenance levels with projected budgets and user activities for road maintenance.

Proposed new road construction to relocate the campground entrance would provide improved ingress and egress travel of Evans Creek Campground. Additionally, by incorporating new road construction into the project plan, the original campground approach road (7930-110) and stream culvert can be removed to benefit the riparian and aquatic resources associated with Evans Creek.

There are several other projects in the analysis area that have contributed to cumulative effects on access and road management.

Past Actions. Road construction and reconstruction proceeded from about early 1940s replacing many of the main railroad grades and extended access to timberland along the main drainages and further upslope. Annual road maintenance in accordance with the annual road maintenance plan was reduced as timber production slowed and eventually resulted in minimal road work done in the area on system roads.

The area primarily changed to a recreational ORV based use. This ORV user groups traveled the FSR 7920 and 7930 road systems looking for opportunities for ORV recreation. Many of the spur roads that may have otherwise grown in, were being used for jeep trails. In 1980, an EA was generated to analyze the area for use as an ORV area. Once approved, moneys from grants and Forest Service funds were used to do some road-to-jeep trail converting in the attempt to improve hydrologic and sediment generating conditions.

In 1996, road repairs occurred on FSR 7920 at MP 0.7 and 2.27 amounting to; rerouting (new construction) about 350 feet of road, culvert replacement (18”x 70’), surfacing, cleaning culvert catch basin, and resurfacing. Additionally, FSR 7930 at MP 0.33 had catch basin cleaned out and road surfacing done in 1996.

Present Actions. Forest Road Maintenance of project area roads. It is widely know that adequate funds are not available to do road maintenance at an optimum standard. As a result of reduced funding to carry out road maintenance on the lower level roads (ML 2 and some ML 3s), maintenance on roads in the Evans Creek area has fallen behind, generating a sizable deferred maintenance back log (see Table 15).

Table 18. Evans Creek ORV Area Road and Trail Density

Present Evans Creek ORV Area Road and Trail Density March 28, 2008			
Section	**Road and Trail Miles**	**Total Acres**	**Total Miles/Miles^2**
05 (half)	1.95	320	3.9
08	5.8	640	5.8
09	0.4	640	0.4
16	3.85	640	3.85
17	6.85	640	6.85
18	11.04	640	11.04
19	10.11	640	10.11
20	11.07	640	11.07
21	6.81	640	6.81
28	3.68	640	3.68
Totals	61.56	6080	
	Total mile^2	**9.5**	
	Total mile/mile^2	**6.48**	

Future Actions. General forest road maintenance will continue on the project area road systems in accordance the Snoqualmie Ranger District's proposed road maintenance plans. Cumulatively, this project would support road repairs and maintenance that would lead to re-establishing and lessening the main road systems, including upgrades to existing road system to meet road standards and guidelines according to the Forest Plan, as amended.

Road construction, reconstruction, conversion (road-to-trail), and decommissioning, in the course of road treatment, would continue to minimize sediment delivery to fish bearing waters.

The cumulative effects of this project, together with Annual District Road Maintenance, have or would result in upgrading and maintaining the project area road systems to current standards that would reset deferred maintenance to zero though reconstruction. Road construction/reconstruction has and would result in road systems better situated to meet the needs of recreationists, emergency responders, fire management staff, permittees, and general administration of the Forest.

Forest Plan Consistency

Common to Both Alternatives

The Carbon River Watershed Analysis was completed in September 1998 and identified road upgrading (road reconstruction that involves improving drainage features) as one of the recommendations, this would occur with this project (USDA FS, USDI BLM 1994, p. C–32: RF–2b, RF–3a).

The Forest currently has a Flood Emergency Road Maintenance Plan (2008), performs annual maintenance planning, and performs road management objective revisions as needed (USDA FS, USDI BLM 1994, p. C–33: RF–7a, b, c, e).

Alternative 2–The Proposed Action

This project will be consistent with the ROD Standards and Guidelines for Road Construction and Maintenance (USDA FS, USDI BLM 1994, p. C–16) in that road construction would be kept to a minimum in the LS/OG and implemented to provide a higher level of road safety and to remove a road crossing from Evans Creek channel. Road maintenance would remove only enough woody debris to ensure safe driving conditions for road traffic and retain adequate road drainage.

The project would be consistent with the ROD Standards and Guideline RF–2 through RF–7 (USDA FS, USDI BLM 1994, p. C–32, –33) by:

Decommission and close to vehicle traffic, approximately 1.7 miles of road that now exists in Riparian Reserves (RF–2a, RF–3c).

The road decommissioning, closure, conversion and rerouting of FSR 7920 and 7930 systems would improve safety and access conditions (RF–2c and d, RF–3c).

The decommissioning, storage, and upgrading of roads would have a significant effect on the surface and subsurface flow distribution of the landscape involved (RF–2e, RF–3a and b).

The conversions, upgrades, and decommissioning of roads would improve road conditions associated with sidecast delivery of sediments to streams by utilizing previously sidecast materials in the conversion and decommissioning process as well as minimizing sidecast material in road upgrades (RF–2f).

Proposed new road construction would avoid all wetland areas (RF–2g).

This project would improve and reduce road drainage features, such as culverts, ditch lines, and stream crossings that have the potential to effect Riparian Reserves in a negative fashion during storm events of 100-year magnitude or greater (RF-3a, RF-4).

The project would outslope road surfaces to minimize sediment delivery to streams would primarily occur on converted (road-to-trail) segments of FSR 7920 and 7930 where possible (RF-5).

To reestablish resident fish passage and 100-year storm event requirements, stream crossings over Evans Creek would be improved on FSR 7920 and removed on FSR 7930-110. Reconstruction of FSR 7920 segment would improve conditions where it passes through Riparian Reserves. (RF-2e, RF-6).

This project meets the ROD Standards and Guideline in that the plan will establish a resource closure period of April 1-June 30 and October 1-December 14 to enable area managers to close individual trails or the entire area when severe weather events pose a risk to trails or resources (RF-7d).

Reducing the overall road system in this project would mean less road maintenance (MBS Forest-wide Roads Analysis, USDA FS 2003).

Fire and Fuels

Fire and Fuels Environmental Effects

The analysis area for direct and indirect effects to Fire Management is the Evans Creek ORV Area and FSR 7920 corridor.

Alternative 1–No Action

There are no measurable direct or indirect effects on fire occurrence or fire management strategy in Alternative 1.

Alternative 2–The Proposed Action

There would be no measurable direct or indirect effects on fire occurrence or fire management strategy in Alternative 2.

Fire and Fuels Cumulative Effects

The affected area for cumulative effects to Fire Management is the Evans Creek ORV Area and the 7920 road corridor. Since there would be no measurable direct or indirect effects with implementation of either Alternative 1 or 2 there would be no contribution to cumulative effects.

Forest Plan Consistency

Common to Both Alternatives

The Mt. Baker-Snoqualmie National Forest Fire Management Plan (FMP) contains direction to minimize fire size in the Evans Creek Area, with control and containment strategies. This is consistent with the Standards and Guidelines set forth for development of a fire management plan for LSRs (USDA FS, USDI BLM 1994, p. B–4 and C–17).

Heritage and Cultural Resources

The area of potential effect (APE) for the proposed project was identified as roads, four-wheel drive trails, motorcycle trails, user-built trails, and facilities locations (day-use, entrance, and campground) both existing and proposed expansion. Surveys were conducted (day-use, entrance, and campground proposed activities, and FSR 7930-110 and 7900-105 proposed for decommissioning) in accordance with the Mt. Baker-Snoqualmie National Forest Cultural Resource Inventory Strategy (Hearne and Hollenbeck, 1996). One heritage resource was identified (historic railroad trestle) that has the potential to be effected by proposed changes to the day-use and campground facilities. This resource will be protected through avoidance and facilities design for improvements will incorporate avoidance measures.

Heritage Environmental Effects

All lands that would be affected by reconfiguring the campground, the day-use area, and the entrance were surveyed for the presence of cultural resources because these activities have the highest priority. Obliteration, decommissioning, closing, or conversions and upgrades on roads and trails would occur at a different time. When these roads and trail activities are scheduled, further field surveys for these projects would be required.

The project area and surrounding lands were logged during different eras. The first logging occurred by railroad in the 1910s and 1920s with the majority of the lands being logged in the 1940s. Subsequent management activities in the 1950s and 1960s have

obliterated almost all remnants of the railroad logging that occurred in this area. Thus, any intact remnants of the railroad era have become somewhat unique.

Treaty Resources and Reserved Indian Rights

Treaties, statutes, and executive orders obligate federal agencies to fulfill certain trust responsibilities. The extent to which federally-recognized tribes depend on the Evans Creek, Carbon River, and Voight Creek drainages for treaty resources (related to hunting, gathering, and fishing on National Forest System lands) is not fully known. For this project, the Forest Service fulfills its general trust responsibilities through the proper management of natural resources, as determined in the Forest Plan (as amended), and through continued consultation with Indian tribal governments.

Alternative 1–No Action

With this alternative, management of the Evans Creek ORV Area would continue as in the past. Facilities would remain in the current or similar conditions and design configuration.

During on-the-ground surveys for this project, the remains of a railroad trestle and approximately 150 feet of undisturbed railroad grade were located near the 7920/7930 road junction. Currently, this piece of railroad grade is accessible to ORVs as well as standard vehicles and though it is undisturbed, there is a strong possibility that if once accessed, any remaining unique features associated with the grade could be lost.

Treaty Resources and Reserved Indian Rights

Under Alternative 1, the rights of tribal members to exercise treaty rights on National Forest System lands would be unchanged. The accessibility of lands around Evans Creek and Voight Creek would be unchanged from current conditions.

For anticipated effects to tribal hunting, gatherings, and fishing practices related to impacts to fish, wildlife, and plant habitat refer to the various resource sections for discussions of effects of implementation.

Alternative 2–The Proposed Action

With this alternative, the campground would be expanded and reconfigured, the entrance road to the campground would be removed and obliterated, and a new entrance road would be constructed. Further, an existing day-use parking area at the 7920/7930 junction would be redesigned by: reconfiguring and upgrading the main parking area, constructing three new additional parking areas, reconstructing the approaches to the day-use area, and constructing a ATV/motorcycle one-way single lane travel-way along Forest Roads 7920 and 7930 to provide access from the parking area to ORV trails.

The west entrance to the day-use area (along Road 7920) is directly across from the beginning of the remains of an undisturbed railroad grade. Additional parking is proposed

along road 7920 outside of the current day-use area. The disturbance associated with constructing these parking areas could obliterate a segment of the undisturbed railroad grade. If this were to occur, any remaining unique features associated with the grade would be lost. Further, a new entrance road for the campground is proposed along Forest Road 7920, approximately 100 yards south of the Evans Creek crossing. The proposed campground entrance road location is directly across from the remnants of the railroad grade, approach, and trestle on the south side of Evans Creek. Though the integrity of the railroad grade and approach (on the south side) have already been compromised by the construction of Road 7920, any future road building and/or maintenance activities could further affect the integrity of what remains of the trestle. Regarding both approaches to the trestle: Avoidance of these specific areas during road maintenance and road construction activities (where the trestle and trestle approaches are located) would ensure that there would be no further loss of this railroad era artifact.

Treaty Resources and Reserved Indian Rights

Under Alternative 2, all of the lands within the project area would still be available for tribal hunting, gathering, fishing and other practices however, methods of access may change. Changes may include: roads currently open to vehicular traffic may be closed and only foot traffic would be allowed; roads may be converted to trails requiring the use of an alternate vehicle (use of an ATV may be required rather than a jeep); and others. There would be no identified effects to tribal hunting, gathering, and fishing practices related to impacts to habitat of fish, wildlife, and plants other than possibly improving habitat along Evans Creek with the closure and rehabilitation of the existing campground access road. Refer to the various sections for discussions of effects of implementation by alternative.

Heritage Cumulative Effects

An appropriate inventory has been conducted for this undertaking and no properties eligible for the National Register of Historic Places (NRHP) have been located thus, there would be no would be no contribution to cumulative effects to these properties.

The “Spatial Area of Effect” for cumulative effects is as follows: The trestle site located in Section 20 and wherever segments of road would be obliterated, closed, repaired, converted to trail, or wherever earth disturbing activities would occur. All of these lands are within T17N, R07E, Sections 16–18, 20, 21 and portions of Sections 5, 8, 9, 19, 28, and 29, WM.

The following projects in the vicinity of the proposed project have the potential to contribute cumulatively: a) Past clearcut timber harvests; b) Ongoing road maintenance; and c) Future road work (refer to the Heritage Resources Specialist Report, Table 4 Determination of Cumulative Effects for additional information).

Past Clearcut Timber Harvests

Past logging activities have obliterated the majority of the infrastructure used for railroad logging including: railroad grades, drainage features (log culverts), trestles, and others. With the proposed new projects under Alternative 2, new parking areas would be built near the northern approach to the identified trestle as well as build a new access road to the campground across from the trestle approach on the south side. In accomplishing these tasks, there is always the possibility that construction activities could infringe on the remnant railroad grade and the trestle itself thus, further obliterating artifacts from the railroad logging era. Avoidance of the trestle approaches and blocking access to the grade would be the most effective methods for preventing further obliteration of this site.

On Going Road and Trail Maintenance

The northwestern part of the Evans Creek project area was initially logged around 1910 to 1920 by the Manley-Moore Lumber Company. The remainder of the Evans Creek was railroad logged by the St. Paul & Tacoma Lumber Company in approximately 1943. Between 1943 and 1962, the main railroad grades were converted to truck roads and in doing so, obliterated the majority of amenities related to railroad operations. From on the ground surveys, the remnants of a trestle and associated grade approaches were located along the 7920 road. This trestle is one of the only ones that are left within the “Area of Potential Effect” (APE) for Evans Creek.

Regardless of the alternative that is selected, road maintenance would still occur on the roads in Evans Creek that are open for vehicular use. In accomplishing this task, there is always the possibility that maintenance activities could infringe on the remnant railroad grade and the trestle itself thus, further obliterating artifacts from the railroad logging era. Avoidance and blocking access to the site would be the most effective methods for preventing further obliteration of this site.

Treaty Resources and Reserved Indian Rights–Cumulative Effects:

The rights of tribal members to access National Forest System lands and exercise treaty rights would be as reserved in the Point Elliott Treaty. Any limited and minor cumulative effects to the Treaty resources of fish, wildlife, and plant species would be as disclosed in those sections of the EA.

Forest Plan Consistency

Common to Both Alternatives

Records searches have been completed. No evidence of Indian use has been found. Review of records and databases have been completed with negative results in regards to locating areas of Indian use. Though there are resources in the Evans Creek area that Indians typically use, there is no evidence that they ranged this far south of the Carbon River. Proposed activities are not anticipated to restrict tribal treaty rights. Scoping was completed, including holding a public meeting for all to attend. Individual letters were

sent to several different tribes asking for comment and none of the Tribal Councils responded to these inquiries (USDA FS 1990, p. 4–97, –167, –243; USDA FS, USDI BLM 1994, p. C–16).

Alternative 2–The Proposed Action

Field surveys were conducted to determine if eligible historic resources are present. Further, a search of historic records and appropriate databases were conducted to determine where, if any, already documented resources are in the area and if they could be affected. No resources currently eligible for the NRHP were located in the project area. The Forest Archaeologist at the Supervisor's Office level oversees these programs. Cultural Resource Inventories were conducted for the reconstruction/redesign of the campground, day-use, and entrance areas; and closing and obliterating portion of FSR 7930–110 and 7900–105. All necessary reports and documentation have been completed. Future activities are proposed (road closures, road-to-trail conversions, etc) and those activities will have to be surveyed and the appropriately documented prior to implementation (USDA FS 1990, p. 4–98).

Features associated with railroad logging were discovered during inventories and are to be protected through project design and mitigation measures. A determination of eligibility would be done separately and is beyond the scope of this document given the avoid and protect mitigation (USDA FS 1990, p. 4–99).

Recreation

Evans Creek is in within 2 hours from the Seattle/Tacoma metropolitan area with a population base of more than 3 million residents. Evans Creek ORV Area is currently open year-round, with a jeep trail closure order November 15 through May 1 (not currently enforced), with visitation averaging between 3,000 and 4,000 per month from May to November with substantially less (less than 1,000 per month) for the remainder of the year (refer to the Recreation Resources Specialist Report for calculations).

In March 1977, the Forest Supervisor approved the first off-road vehicle (ORV) plan on the Mt. Baker-Snoqualmie National Forest (MBS) following the directions in Executive Order 11644, Use of Off-Road Vehicles on Public Land, dated February 8, 1972. As a result, Evans Creek became the first area to be studied for ORV use on the MBS. In September 1980, an Environmental Assessment was approved by the Forest Supervisor, for development of Evans Creek as an ORV area.

In 1980, a Capital Improvement Grant of $500,000 was awarded to the Forest Service by the Washington Recreation Conservation Organization (RCO), formerly the Interagency Committee for Outdoor Recreation (IAC), for construction of Evans Creek ORV Area. In a cooperative effort between Forest Service staff, U.S Army Corp of Engineers, contactors and volunteers from Pacific Northwest Four Wheel Drive Association

(PNW4WDA) and Northwest Motorcycle Association (NMA), construction began. Evans Creek ORV Area opened in 1983 as the first and only designated ORV area on the MBS.

Evans Creek ORV area is primarily operated to provide ORV recreation opportunities for jeeps, motorcycles, ATVs and to some extent mountain bikes. Other opportunities include hunting and sightseeing as secondary opportunities to this primary function. Due to its close proximity to an expanding Seattle/Tacoma metropolitan area and elimination of other opportunities on State of Washington lands, Evans Creek has become a favorite place for year round ORV enthusiasts.

Recreation Environmental Effects

The area for direct and indirect effects on recreation is the project area as it relates to trail and recreation activities.

Effects Common to All Alternatives

Visual Quality

There would be no short or long-term direct or indirect effects to Visual Quality under either alternative. The Visual Quality Objective (VQO) for the area is Maximum Modification where management activities are dominant, but appear natural when seen as background.

Wilderness

There would be no short or long-term direct or indirect effects to Wilderness under either alternative. There are no designated wilderness areas within or directly adjacent to the project analysis area. The closest designated wilderness area is approximately 3.0 miles air distance from the north terminus of FSR 7920.

Alternative 1–No Action

Under this alternative, Evans Creek ORV Area would continue to be managed under the 1980 environmental analysis commensurate with the area being consistent with current laws, regulations, policy, and guidelines.

Late-Successional Reserve and Old Growth (LSROG)

There would be short and long-term direct and indirect effects in the no action alternative. Under Alternative 1, developed and/or dispersed facility, roads, and trails (both dual and single track) would continue to be managed at the same or similar level as in the past. Based on the Standards and Guidelines for this land allocation, Evans Creek ORV area is conditionally achieving these objectives in that the existing infrastructure, developments, and recreational uses are neutral to meeting desired future conditions for Old Growth development. The indirect effects from the recreation facilities/sites (such as campground, trails and roads) is occurring in the form of site generated surface erosion

affecting water quality in Evans Creek (refer to the Fisheries Resource Report for specific aquatic resource effects).

Riparian Reserves

There would also be short and long-term direct and indirect effects in the no action alternative. Under this alternative, developed and dispersed recreation facility, roads, and trails (both dual and single track) would continue to be managed at the same or similar level as in the past. Standards and Guidelines for this land allocation are not being met fully since the physical conditions of existing developments and recreational uses allowed are hindering the area from meeting desired future conditions for riparian reserve development and attainment of ACS objectives. The source for these impacts comes directly from facility related surface erosion that is entering the stream courses and affecting aquatic resources and habitat in the Riparian Reserves. Because of this inconsistency, at minimum intermediate remediation control measures (waterbars, ditching, sediment traps, and silt fences) at the campground, day-use area, trailheads, and trail courses would be necessary in order to stop activity related erosion from reaching adjacent channel flows.

Developed Recreation

Campground: The current facilities design, configuration, and level of development would remain the same. Two (Visitor Safety and Facility/Site Protection) of the eight Standards and Guidelines for the Mt Baker-Snoqualmie Land and Resource Management Plan, as Amended are not being met fully as the original design standards and criteria required in 1980 environmental assessment are not consistent with the types and number of users. Based on the original design, the following restrictions would be implemented or re-introduced to reduce recreation-oriented congestion and provide for adequate public safety at the campground:

- Types of vehicles accessing the campground would be limited to cars, pickups with motorcycles and individual jeeps since the road and parking design criteria (clearing, surfacing, width and turning radius) only allowed for these types of vehicles and not the new types of trailer/vehicles/RVs combinations currently forced into the campsite parking slots. Vehicle combinations with trailers would be limited to the available extra vehicle parking opportunities in the campground and day-use area. Overnight parking of extra vehicles at the campsites would not be allowed since this puts the other site users at risk or at minimum in an unsafe position when leaving or entering the campground.
- Size/length of vehicles would be limited to a combine length of no more than 30 feet (no motor homes or extended toy-haul trailers) since parking longer vehicle/trailer combinations would force these units to be in the roadway and therefore will impede traffic flow and reduce public safety. Given the limited number of dispersed camping sites that can handle these larger vehicles, some would be forced to leave the area since there would not be an adequate site where they would be allowed to park at by the Forest Service.

- Because the number of campsites in the campground would remain at 23 and no expansion or redesign would occur, some users (estimate that more than 50–60 People At One Time (PAOT) would be forced to find other dispersed campsites in the area (when the campsites are occupied) or make their weekend visit day related versus overnight. Overflow camping in the day-use area would be discontinued since this site doe not meet the standards for providing adequate camping amenities and necessary infrastructure facilities.
- The picnic shelters would continue to be utilized as the group camping sites. Demand for group camping opportunities continue to increase but would not be available at the campground beyond what is there now so these campers would be forced to informally connect their activities between sites likely interrupting others who are not part of the group.
- Two-way traffic patterns, unregulated parking, traffic congestion, user conflicts, and safety issues would likely continue in the short term but some control measures would be necessary in order to minimally restore public safety and original facility design features. Because of these inconsistencies, long-term remediation control measures/devices (parking barriers/posts, fencing, directional signing and traffic control devices) at the campground will be necessary in order to re-establish the original facility design parking capacity, campsite features, stop unsafe traffic congestion/mixing, and eliminate unauthorized off site parking of extra trailers and vehicles when capacity is exceeded.
- Historical use in the area has created problems for law enforcement. Under this alternative, more effort and time would be committed and it is expected the number of citations would increase in the short term until users begin to comply with re–establishment of campground rules and regulations related to parking and occupancy.

Day-Use: The current facility design, configuration, and level of development would remain the same. Visitor Safety and Facility/Site Protection are also key objectives from Standards and Guidelines for the Mt Baker-Snoqualmie Land and Resource Management Plan, as Amended that are not being met fully. The original site plan identified parking configurations and established traffic flow design criteria. Given direction identified in 1980 environmental assessment, the conclusion is that that the day-use area is also probably conditionally consistent with the types and number of users using the day-use area. Based on the original design, the following restrictions would be implemented or re-introduced to reduce overcrowding, recreation oriented congestion and provide for adequate public safety:

- Overflow camping from the campground would be discontinued since the site was never designed or intended for this use resulting in visitor displacement during high use weekends. This condition would cause some campers (estimated +50–60 PAOTs would be affected on a summer weekend day) to abandon their overnight plans and only stay for the day light hours.
- No new parking would be added and unregulated parking in the day-use area would be discontinued. This would limit the actual number of vehicles parked in the area to no more than 15 Vehicles At One Time (VAOT) based on the original

site plan configuration. Estimates range from 10 to 20 vehicles on a busy summer weekend day would likely be displaced to other parking options or ultimately forced to leave due to lack of adequate parking capacity.

- Enforcement citations for unlicensed ORVs accessing trails from the day-use lot via Roads 7920 and 7930 would increase since informal allowances for this mixed use would be discontinued. Estimates from law enforcement believe this would result initially in 10–20 citations daily being issued since compliance would likely take some before users would take notice to warning signs and notices

Entrance: Because the entrance area would remain unchanged in the short term, traffic flows and unregulated parking would likely continue somewhat the same as previously experienced but some changes would be necessary if the area is to be consistent for the long term.

- Congestion (jeeps, ATVs, pickups and haul trailers) caused by users unloading ORVs and while others attempting to access either the campground or other trailheads at the entrance would increase. This effect would intensify given the trend for more folks trying to offload their machines early with visitor satisfaction decreasing over the situation. Field observations estimate that on a busy weekends or during sponsored events, the total number VAOT found at this site might exceed +30 with most parked in a manner that prevents others from leaving.
- The absence of sanitation facilities would not change and users would continue to seek out other forested areas to use. Because of the concentration of users at this site, health and safety issues associated with this waste would continue. Resource impacts from uncontrolled sanitation would be mitigated by a combination of requiring more administration efforts to deter visitors from using the area until they reach either the day-use or the campground sites or bringing in and servicing portable sanitation units during the open periods to provide an alternative for users until a permanent solution can be found.
- Some temporary traffic control measures (parking barriers/posts, fencing, directional signing and traffic control devices) would be necessary in order to separate unsafe traffic congestion/mixing of vehicle types, and reduce the tendency for off site parking of trailers and vehicles when area capacity exceeds 10–12 VAOTs (estimated safe level based on experience at other similar trailhead areas). These measures to control traffic flow and parking capacity would force some (estimated at 10–15 VAOTs) to seek other options in the day-use area or ultimately leaving the area since legal options to unload in undesignated sites would not exist in the area.

With implementation of the National OHV policy (designates areas open rather than closed) and projected area population growth in the region, long-term demand for motorized recreation opportunities like what is offered at Evans Creek will increase over the coming years. This demand will only intensify current impacts associated with inadequate/outdated facilities, traffic flows, safety, and sanitation. Under this alternative, current use levels in all of the developed sites would have to be reduced in order for

management to be consistent with the previous direction identified in the 1980 management plan commensurate with current laws, regulations and policies/objectives identified in the Forest Plan, as amended.

Dispersed Recreation

With the increase in growth and interest in ORV use, dispersed recreation throughout Evans Creek would likely increase under the no action alternative. Since overflow camping from the campground to the day-use area would be discontinued but camping along dispersed sites along Roads 7920, 7930 and adjacent spurs would be allowed (commensurate with resource protection requirements), no change in the total number (roughly 10–15) of identified dispersed sites is anticipated under this alternative. Dispersed camping on several trails such as Trail 311 would continue in the short term with monitoring being done to determine if sites should remain open for the long term. Lack of proper sanitation facilities in the areas where these sites are concentrated would continue and health and safety concerns would be monitored in the short term. To address this inconsistency of sanitation and potential health/resource concerns, administrative controls and temporary closures may be needed where the problems are more acute in order to alleviate the resource impact or reduce inputs by providing temporary sanitation facilities or closing sites to day-use only. Other dispersed recreation activities such as hunting, fishing, picnicking and driving for pleasure in and around Evans Creek would not change, but because of limited road maintenance capacity, vehicular access along Road 7920 (Tolmie Creek drainage) to the junction with Road 78 would become more difficult especially for more passenger type vehicles.

Trails

The current trail system would remain the same in the short term and long term. Roads 7920 and 7930 would not be converted to trails and would require emergency closure until the road surface could be improved to meet the desired maintenance level. As a result, no loop trail connectors would be established. Two way traffic and congestion on 4x4 trails would not be reduced. Mixed traffic and non-street legal vehicle use would be reduced by increasing law enforcement presence on Roads 7920 and 7930 during peak seasons and use periods. Unauthorized user built trails throughout the trail system would be removed through the regular maintenance program but could likely increase over time. Ongoing maintenance, restoration, and unauthorized trail closure would continue at present levels (see Appendix for trail restoration information).

The funding levels committed to by the Forest Service and/or requested from the State of Washington for annual trail maintenance and operations would need to be increased in order to address the current maintenance needs necessary to bring all the designated 4x4 trails up to standard. Reconstruction of trail segments is necessary on several of the trails (Trail #520 and 311) and at a minimum heavy maintenance is required on all designated 4x4 trails. User built trails (approximately 3 miles) will require immediate closure and

revegetation based on current policy direction (see Section 2). The current situation is resulting in unauthorized trail segments being created that are unsafe, poorly located, generally have no end destination, or loop connectivity with other existing trails. Eliminating these trails will reduce the overall trail mileage in the area to just over 30 miles (13.3 miles dual track and 17 miles single track) and should not significantly (less than 5%) affect the area's overall user capacity .

There would be little to no change to the design or condition of motorcycle trails. Some motorcycle trails currently do not meet FSH/FSM Trail Management Standards for depth, width, drainage, and tread. These trails would be temporarily closed until deficiencies can be improved to meet minimum manual and handbook standards. Because these trails do not incur the same level of impacts as the jeep trails given the overall difference in weight, horsepower, size, etc., bringing them up to standard will be less of an effort and cost. The annual maintenance program has the capacity to accomplish much of this work but additional funding will be necessary to cover most of the heavy maintenance portions. This area use would managed according to the directions and guidelines established in the 1980 Evans Creek ORV decision notice commensurate with current and relevant resource objectives, policy and guidelines.

Management Area 17 (MA 17)

There would be no long-term direct or indirect effects to recreation use in Tolmie Creek drainage. Access to this area via Road 7920 from Road 78 would remain open and available for future harvest if proposed. Recreation Opportunity Spectrum (ROS) is within the Roaded Natural and Roaded Modified Classes, with site modification. The current level of dispersed recreation use occurring along Road 7920 in this management area would continue and likely increase proportionally with increases in population in the area. Hunting and driving for pleasure would continue as in the past but with one exception. Because under this alternative the area would need to be managed based on the approved 1980 plan, a single access point to the area would be implemented (refer to the mitigation section for closure location descriptions) forcing the public to access the ORV area only by State Route 165. ORV use along Road 7920 would need to be suspended so to comply with current laws and safety policies regulating operation of "non-street" legal vehicles on public roads.

Alternative 2–The Proposed Action

Alternative 2 proposes mitigation measures to address required standards and guidelines in the ROD and Forest Plan not currently being met. The long-term direct and indirect effects from these measures would bring the current conditions in compliance with these standards and guidelines through improvements, redesign, reconstruction, rehabilitation and revegetation, user education and participation. In the short term, some of these activities may cause temporary access restrictions until the specific project is completed.

Developed Recreation

Campground

Short-term direct and indirect effects: Portions of the campground would be temporarily closed during construction and improvement activities. This would likely redirect some of the traditional users (20–30 PAOTs) to dispersed sites in the area, which could cause some displacement of campers, since the additional demand for overnight campsites may not be met by the areas overall dispersed site capacity. The following will mitigate this displacement effect:

- Scheduling closures and construction activities during midweek and/or in the shoulder seasons when camping is minimal and would have the least impact on users seeking camping opportunities.
- Educate and direct visitors of other camping option in the National Park or at private operated campgrounds in the general area.
- Providing camping opportunities by allowing for short periods of time overnight camping in nontraditional dispersed sites until the affected portion of the campground is reopened.

Long-term direct and indirect effects: Alternative 2 proposes to improve the developed recreation experience in the Evans Creek campground by:

- Expanding the develop recreation opportunities in the area by increasing the number of developed campsites by more than 25 sites and improve the design of the current 23 sites to address current and future demands for a more modern develop recreation experience.
- Accommodate more diverse recreation vehicles and types/sizes of recreational groups.
- Reduce off site impacts to vegetation and soil resources from campers.
- Improved facility amenities, visitor safety, reduced overcrowding, congestion, and minimize user conflicts.

The effects to the developed recreation experience from this action would be:

- Camper capacity for developed campsites in a develop campground setting will increase by 50 percent (overall capacity increased to over 150 PAOTs versus 80 PAOTs previously designed for) which would address future demands for a more develop site camping opportunity.
- Diversity of camping groups (large groups and multiple groups) would increase since the ability to handle these types of campers would be increased from one to three group sites. Improved camper satisfaction should result from this accommodation.
- Campsite parking slots would be redesigned (lengthened and oriented) to easily accommodate 5–10 Motor home/RVs and vehicle/trailers up to 50 feet without interfering with normal traffic flow through the campground. This change would

reduce current congestion within the campground, increase site accommodations for larger RV vehicles, and improve driving safety in the campsite area since these longer length vehicles would be able to park and navigate within the campground without interfering with other parked camping vehicles or campground pedestrians who are walking along the campground road.

- Additional campsites would eliminate overflow camping migrating to the day-use area and resulting user conflicts (day-users being forced out of the designated parking area when slots are taken up by campers) and congestion previously experienced during peak use weekends.
- The current entrance, Road 7930–110, would be decommissioned and relocated to an access location on Road 7920, to eliminate (current road width and turning radius into the facility is inadequate to provide safe parallel and cross traffic of ATV/Motorcycles and the larger and longer RVs or vehicle/trailer combinations together) mixed traffic congestion. This change would result in a more effective and safer facility transportation system, which is typical in a developed recreation site such as a campground.
- Camper movement and travel (ingress and egress) within the campground would be improved by reconfiguring campsite area road system to one-way loop flow so to minimize cross traffic congestion in the campsite area and improve camper safety.
- Facility landscape and natural vegetation would be better protected and sustained in the future by the installation of traffic barriers along entrance road and parking areas (eliminates uncontrolled diversions by ATV/motorcycles within the campground area).
- An ATV/Motorcycle path would be constructed along the new entrance road to eliminate mixed traffic concerns and improve traffic safety when leaving the campground.
- An additional well and hand pump would be installed for potable water to meet increased camper needs.
- Improved and more effective information distribution would result by upgrading the Kiosk and installing appropriate signage at pertinent locations in and around campground to educated users of the rules and assist law enforcement in obtaining compliance with campground and area regulations.

The Day–Use Area

Short-term direct and indirect effects: Portions of the day-use area would have to be temporarily closed during construction and improvement activities. This would likely redirect some of the traditional users (10–15 VAOTs) to the remaining dispersed parking or roadside sites in the area, which could cause some displacement of day-oriented users since the additional demand for parking may not be met by the areas overall dispersed site capacity. The following would mitigate this displacement effect:

- Scheduling closures and construction activities during midweek and/or in the shoulder seasons when day-use visitation is minimal and would have the least impact on users seeking temporary parking opportunities.
- Providing alternate parking opportunities by allowing for short periods of parking in non-traditional dispersed sites until the affected portion of the day-use area is reopened.

Long–term direct and indirect effects: Alternative 2 proposes to improve the developed recreation experience in the Evans Creek day-use area by:

- Expanding the develop recreation opportunities in the area by increasing the number of designated parking opportunities +30 slots and improve the logistical design of the current 10–15 slots to meet future demands for a more modern develop recreation experience.
- Accommodate more single type haul vehicles.
- Improved facility parking amenities, ATV, motorcycle and vehicle safety, reduce tendency for overcrowding when campground capacity is reached, minimize congestion along Road 7920 and 7930 junction and ATV–vehicle conflicts.

The effects to the developed recreation experience from this action will be:

- Mixing traffic types in developed campgrounds, should (street legal versus non-street legal) be avoided when either entering or driving on public roads and managed to comply with highway rules proper licensing and operator safety. Providing separate access to the ATV and jeep trail system without crossing or paralleling vehicle traffic on public roads would reduce potential collisions, improve ATV/motorcycle rider safety, and allow riders to comply with traffic safety regulations.
- Parking capacity for single vehicles in the designated parking area would increase by 50 percent (overall capacity increased to over 40–50 VAOTs versus 10–15 VAOTs previously designed for) which would address future demands for a more develop site parking opportunity.
- Larger RVs, and haul vehicles with trailers would now be accommodated in the day-use.
- Parking would be designated and physical control barriers installed to minimize parking congestion, which would improve vehicle safety and the user's recreational experience or reduce their frustration.
- A picnic shelter, well and hand pump would be installed to provide more developed recreation amenities in the day-use area which would reduce conflicts with campers and result in better overall user satisfaction and met expectations.
- The information kiosk would be upgraded and relocated for user convenience to educate and ensure compliance with area regulations.
- Upon completion of campground improvements, overnight camping in the day use area would be prohibited to maximize opportunities for day use parking and unloading.

The Entrance Area

Short-term direct and indirect effects: Portions of the entrance area would have to be temporarily closed during construction and improvement activities. This would likely redirect some of the traditional users (10–25 VAOTs) to the remaining dispersed parking or roadside sites in the area, which could cause some displacement of day-oriented users since the additional demand for parking may not be met by the areas overall dispersed site capacity. The following would mitigate this displacement effect:

- Scheduling closures and construction activities during midweek and/or in the shoulder seasons when day-use visitation is minimal and would have the least impact on users seeking temporary parking opportunities.
- Providing alternate parking opportunities by allowing for short periods of parking in nontraditional dispersed sites until the affected portion of the day-use area is reopened.
- Closures would be coordinated with Washington Department of Transportation and Mt. Rainier National Park, since it may cause traffic backup congestion on State Route 165 for short time intervals during peak summer season weekends.
- Signs would be posted on SR 165 to notify public of closures.

The action alternative proposes to improve the develop recreation experience at the Evans Creek entrance by:

- Expanding the develop recreation opportunities at the entrance by increasing the number of designated parking opportunities more than 30 slots and establish a logistical design of the current 10–15 slots to meet future demands for a more modern develop recreation experience.
- Improving facility parking amenities, ATV, motorcycle and vehicle safety, reduce the tendency for overcrowding when campground/day-use area capacities are reached, minimize congestion at the entrance along road 7920 and State Route 165 and ATV–vehicle conflicts during off-loading and on-loading activities.

Long-term direct and indirect effects: The effects to the developed recreation experience from this action will be:

- Parking capacity for single vehicles in the designated parking area will increase by 50 percent (overall capacity increased to more than 30 VAOTs versus 10–15 VAOTs previously designed for) which will address future demands for a more develop site parking opportunity.
- Larger RVs, and haul vehicles with trailers will be better accommodated.
- Parking will be designated and physical control barriers installed. The effect will be to minimize parking congestion (single vehicles blocking others from moving on to the day-use area after off-loading the ATVs), improve vehicle safety (visitors will not be trapped in by others or forced to risk damaging their vehicles

when left only a narrow route out) and enhance the user's recreational experience.

- Contamination in the entrance area from human waste will be reduced by the installation of a new toilet adjacent to the parking area.

Dispersed Recreation

Short-term direct and indirect: Portions of Road 7920 (2.4 miles) would be closed to public motorized access and placed into a storage maintenance level, which would eliminate this segment from motorized oriented disperse recreation activities. Given the current condition of this road segment, recent vehicle access and use has been limited to high-clearance vehicles with 4-wheel drive capability. All of Road 7930 and part of 7920 (9.5 miles) beginning at the day-use area would be converted to system trail from a system road category, which would initially not substantially restrict public vehicle traffic since it would still be open to all 4x4-type vehicles (commonly used by the public visiting the area for a dispersed recreation experience). These changes would only affect (negatively) those people who drive for pleasure if they utilize a low clearance passenger type vehicle or truck without 4-wheel drive capability. Hunting, hiking, viewing scenery, berry picking and disperse picnicking would still be allowed (contingent on FS closures and State hunting and wildlife regulations) in the area. This change could redirect some of the traditional dispersed users (without 4-wheel drive capability) to the remaining dispersed sites in the area or nearby on other National Forest or open private lands in the Carbon River drainage.

Long-term direct and indirect effects: The effects to the dispersed recreation experience from this action would be:

- Approximately 9.5 miles of system road converted to trail would only be accessible by narrow-track vehicles, ATVs, and/or foot. Those visitors who have used these public roads for dispersed recreational activities would be limited if they lack the proper vehicle type. It is estimated that this effect (road prism would eventually close in from ingrown vegetation along the shoulders) would likely be evident within 10–20 years from implementation of the roads being converted trails.
- Hunting, hiking, viewing scenery, berry picking and disperse picnicking would still be allowed (contingent on FS closures and State hunting and wildlife regulations) in the area but access by low clearance passenger vehicles would be limited to the remaining public road system open (2.5 miles) maintained for all street-legal vehicles.

Trails

Short-term direct and indirect effects: Trails under reconstruction and repair would be temporarily closed during activities. There may be impacts to the affected trails from additional use but these would be temporary. Trail reconstruction would likely occur during the summer months when soil conditions are dry. Closure impacts to trail users

would be minimized by scheduling repairs during the mid-week when demand is less and have the least impact to the users. Some displacement of trail users can be anticipated especially during the peak summer months when use rises but the direct effect would not be significant since the remaining trail system capacity should be able to handle the temporary use load coming from these closures. Signs would be posted at trailhead to aid in notify users prior to and during closures.

Long-term direct and indirect effects: The effects to the trails experience from this action would be:

- Trail 105 west terminus from SR 165 is located on private land owned by Hancock Timber Company and the remaining portion is located on National Forest System land. This trail provides an alternate entry point to the area (contradiction to the 1980 direction). The FS portion would be decommissioned with the intent to permanently eliminate this alternate point of entry. Trail 120 (a low use trail) and a portion of Trails 196 and 519 will be closed and rehabilitated (approximately 1.35 miles). These trail closures may cause short-term dissatisfaction among some users but given the low use and adjacent trail opportunities, this effect should be very limited. This loss of riding opportunities would be somewhat mitigated by the adding of 9.63 miles of new trail (Roads 7920 and 7930 conversion to trail). Past and ongoing discussion with user groups would help educate and provide the rationale for the need and the overall resource benefit of the closures.
- Alternative 2 proposes to decommission or redesign and repair existing jeep and motorcycle trails in order to meet the current design standards and trail objectives, and comply with resource standards and guidelines.
- Roads 7930 and 7930–310 and a portion of 7920 would be converted to trails to establish loop trail connectors from the day-use area. This would minimize unauthorized use of system roads, reduce two-way traffic on trails, enhance user experience, and improve vehicle safety.
- All jeep trails and motorcycle trails exceed design width standards and are the result of poor design and improper drainage. Reducing trail widths, trail realignment, drainage improvement, structure installation, and trail hardening would be accomplished through reconstruction and/or heavy maintenance. This would help establish a system of trails that is better designed for current and future needs. This would better provide for safety, enhance user experience, and reduce long-term maintenance.
- Unauthorized user built trails and go-a-rounds would be decommissioned and revegetated. Natural barriers would be installed to minimize any further use. There would be little to no short-term effects other than some dissatisfaction from renegade users. Loop trail connectors would increase one way traffic flows and reduce the need for go-a-rounds. This would help reduce trail widths to meet design width standards.

- With closure of Trails 105, 120, and portions of 519 and 196, long-term effects to users would be the establishment of other loop trail connectors to enhance user experience to meet current and future needs.

Recreation Cumulative Effects

The spatial area for cumulative effects on recreation is the project area as it relates to trail and recreation activities. Temporal effects are for the life of the ORV area, which is indefinite at present. A list of projects that have been known to occur in and around the project area with the potential to contribute to recreation cumulative effects are documented in the Recreation Specialist Report, Table 2. This project or those listed in the cumulative effects table in the Recreation Specialist Report would not contribute to cumulative effects on recreation.

Forest Plan Consistency

Common to Both Alternatives

Would utilize traffic control devices, establish user agreement for better education and ownership, and provide for better long-term maintenance (USDA FS, USDI BLM 1994, p. C–18).

Coordination between staff and volunteers in accomplishing cost effective maintenance would ensure facilities area kept to standard (USDA FS 1990, p. 4–85 Developed 3, Developed 4).

Would repair trails to meet current design standards for difficulty and health and safety while meeting other resource requirements (USDA FS 1990, p. 4–86 Trails 1).

Would repair all trails to standard. Trails would be prioritized and scheduled for work starting with the most damaged. These would be closed until conditions are brought up to standards (USDA FS 1990, p. 4–86 Trails 4).

Would eliminate user built trails. Natural barriers and signage would be installed to minimize future occurrence (USDA FS 1990, p. 4–87 Specific Policies 12).

Alternative 2–The Proposed Action

Would redesign and improve existing facilities and trails, and establish a consistent maintenance system that would have less impact on all resources (USDA FS, USDI BLM 1994, p. C–17; USDA 1990, p. 4–85).

Would redesign facilities with traffic control devices, establish user agreement for better education and ownership, and provide for better long term maintenance (USDA FS, USDI BLM 1994, p. C–18).

Would redesign and reconstruct existing facilities and trails via seasonal closures, traffic control devices, increased maintenance, and periodic monitoring to ensure ACS is being met (USDA FS, USDI BLM 1994, p. C–34).

Would eliminate dispersed camping after reconstruction and expansion of campground is complete to ensure health and safety through proper sanitation (USDA FS 1990, p. 4–84 Dispersed 2).

Would establish seasonal trail closures to protect resources, improve and expand facilities, and establish loop trails to enhance user experience (USDA FS 1990, p. 4–84 Dispersed 3).

Would construct additional facilities to meet increased demands and ensure standards for health and safety are being met. Coordination between volunteers and seasonal staff in accomplishing cost effective maintenance would ensure facilities are kept to standards (USDA FS 1990, p. 4–85 Developed 5).

Would reconstruct and repair trails to meet current design standards for difficulty and health and safety while meeting other resource requirements (USDA FS 1990, p. 4–86 Trails 1).

Would reconstruct and redesign trails so that current and future demands will be met. User built trails and go-a-rounds would be eliminated and rehabilitated. The establishment of loop trails would reduce two-way traffic and minimize the occurrence of user built trails and go-a-rounds in the future. (USDA FS 1990, p. 4–86 Trails 3).

Trail reconstruction practices would meet trail design standards for the various difficulty levels to ensure user challenge expectations are met while meeting other resource requirements (USDA FS 1990, p. 4–86 Trails 5).

Would reconstruct and repair all trails to standard. Trails would be prioritized and scheduled for work starting with the most damaged. These would be closed until conditions are brought up to standards (USDA FS 1990, p. 4–86 Trails 4).

Would convert portions of Roads 7920 and 7930 into trails, which would establish loop trail connectors for most of the trail system in the area (USDA FS 1990, p. 4–87 Specific Policies 8).

Current jeep trail closures would be removed from the Forest Order and redefined to better meet user expectations while meeting other resource protection requirements (USDA FS 1990, p. 4–87 Specific Policies 10).

Would construct, reconstruct, and redesign facilities and trails to better provide for user expectations and health and safety while minimizing impacts to other resources. Use of

operating season restrictions to benefit resource protection (USDA FS 1990, p. 4–92 Motorized Vehicle Use 1).

Would establish loop trail connectors to enhance user experience while reducing user conflicts between licensed and unlicensed vehicles, which would improve management and administration needs (USDA FS 1990, p. 4–92 Motorized Vehicle Use 2).

Current trail closures would be redefined to better meet user needs while minimizing impacts to other resources (refer to the Wildlife Resource Report for details on closure schedule) (USDA FS 1990, p. 4–92 Motorized Vehicle Use 3).

Would convert the lower segment (2.4 miles) of Road 7920, which provides one of three points of entry to this management area, into Maintenance Level 1 (closed/storage). Future timber management opportunities would be maintained, if future harvest were desired. Access to the north terminal of Trail #199 would be eliminated from Road 7800 along this route, as is consistent with the 1980 EA, but would still be available via Road 7920 from the south (USDA FS 1990, p. 4–243).

Soil and Water Quality

Soil

Soils of the project area were mapped as part of the Snoqualmie National Forests Soil Resource Inventory (USDA FS 1970). The General Soil Map published by USDA Natural Resources Conservation Service (NRCS) in 1991 characterized the activity area in three broad groups. The majority of the activity area is on “soils on high mountains” and a minor part is on “soils on low mountains.” The latter characterizes the Carbon and Mowich River valleys. Most of the area has moderately deep to very deep soils on nearly level to very steep ridgetops, mountainsides, and mountain back slopes.

Significant concerns for the soil resource relative to the proposed actions include soil erosion potential. Unstable soils occur in the project area and were mapped by photo interpretation as J8 (unsuitable for timber harvest because there is no reasonable assurance that these lands can be adequately restocked within5 years after harvest) and S8 (unstable forest land not managed for timber harvest) Soils on the Soils GIS layer for the Forest, however, no activities are proposed in those areas.

USDA Natural Resources Conservation Service provides data on specific land uses for soil mapped by their Soil Surveys. The Natural Resources Conservation Service Soil Survey of that area (USDA NRCS 1992) provided data on soil limitations with respect to recreational development. In general, the limitations to trails are moderate to severe.

Water Quality

Section 303(d) of the Clean Water Act requires Washington State to prepare a list of all surface waters in the state impaired by pollutants. The Department of Ecology 2000, 303(d) List of Water Quality Impairments was reviewed and there were no 303(d) waters listed within the project area. The nearest listed water is Summit Lake, which is located approximately 6.5 air miles northeast of the project area in the headwaters of Cayada Creek on the north side of the Carbon River. Its basis for listing is a documented pH sensitivity to acid rain loading. Due to the location of the Evans Creek ORV Area in relation to Summit Lake, the project would have no effect on the water quality of the lake or on the parameters for which it was listed.

Soil and Water Quality Environmental Effects

The analysis area for direct and indirect effects on Soil Productivity is the Forest ownership within the project area, as shown in the project maps (refer to Soil Resource Report). The losses in soil productivity and effects to water quality from these areas would occur on a relatively small part (less than 2 percent) of the project area, and the analysis between alternatives is mostly the comparison of the duration, magnitude, and intensity of this impact.

Background

Changes in soil productivity and water quality are a function of the type, timing, location, and soil properties in the disturbed areas. Direct effects, due to soil disturbing activity, occur on site. These are localized and affect only the area where they occur. Indirect effects, such as sedimentation and associated contaminants reaching streams, can occur over an extended period of time and away from the initial disturbance site.

ORV use related to roads, trails, and facilities can affect the soil and water quality in the following ways:

- Soil compaction
- Pooling or puddling
- Soil erosion
- Sedimentation transportation

Soil compaction occurs as a result of the application of forces (vehicle weight and vibration) repeatedly operate on surfaces (roads, trails, facilities) resulting in an increase in soil bulk density and strength. Compaction inhibits root elongation in vegetation, which in turn reduces infiltration and storage of water. Displacement of topsoil removes soil nutrients from the root zone of desired vegetation. It also decreases the gaseous exchange between roots and the atmosphere. These factors can inhibit seedling

establishment and reduce the growth of trees. Reductions in future vegetation growth are proportional to the degree and extent of compacted soil.

Pooling or puddling is often associated with soil compaction and affects soil productivity in much the same way. Pooled or puddled water saturates soil forming muddy sections or muck holes and exposes the soil to the forces of erosion.

Soil erosion can result in soil, sediment, and associated contaminants moving down slope, away from its origin. Eroded soil can damage existing plants and impair productivity, as it is deposited downslope. If eroded soil travels far enough to reach a stream, it can impair water quality through sedimentation or contaminate introduction.

Soil compaction, loss of soil organic matter, and changes in vegetation can affect the numbers of species and abundance of soil organisms. Some of these organisms, called Mycorrhizae, have been shown to significantly affect forest growth and productivity. Mycorrhizal fungi assist trees in absorbing water, nutrients and provide protection from pathogen attack. Exposed mineral soil may also promote the introduction of non native, invasive plant species.

Effects Common to All Alternatives

Irretrievable losses in soil productivity due to soil disturbing activities are limited to permanent features of the ORV area. This includes permanent and temporary roads, trails, parking areas, as well as landings and logging skid trails from past harvest activities.

The numbers of species and abundance of soil organisms have not likely been affected greatly by current activities within the ORV area. These conditions would not likely change in either of the alternatives.

Slope stability is not a concern. Activities would not occur on unstable or potentially unstable soils. The risk of increasing landslide frequency or magnitude in the project area is not significant.

Alternative 1–No Action

Soil Productivity

This alternative would not provide a permanent remedy for erosion and detrimental soil conditions due to the combination of sensitive soils and design of the trails system.

Potential effects of Alternative 1 on soil productivity are due to continued compaction, puddling, displacement, erosion, and loss of soil organic matter from the current uses on roads, trails, and at area facilities.

Soil loss from surface erosion, caused by ongoing activities, would result in a reduction in soil productivity and could potentially result in reductions in water quality. There is a potential for severe surface erosion with activities that remove duff and vegetation layers (such as log skidding, slash disposal and road construction) on slopes greater than 35 percent, which have the potential to create deep erosion ruts. Slopes more than 60 percent experience impacts from roads as a result of the effect of excavation waste when sidecast. The potential for reductions in water quality would be due to surface erosion, introduction of more sediment into watercourses and the potential for accompanied contaminants in that sediment. This alternative does not include any activities that would further remove duff or vegetation layers on slopes greater than 35 percent, limiting surface erosion to the existing area facilities, roads, and trails. The relative duration of detrimental effects to soil quality is low. The magnitude and intensity of effects to soil productivity is low. Efforts to minimize soil disturbance, maintain organic matter, and encourage rapid growth of native vegetation would help to conserve soil organisms, facilitate recolonization, and maintain forest productivity.

User Created Trails

User built trails are one of the most damaging of the ongoing types of recreation to sensitive soils. These trails tend to encourage indiscretion regarding resource values. Their extent grows as damage continues, trails widen, and new routes are pioneered on adjacent soils. Vegetation and roots are stripped by traffic along these routes, and surface erosion or puddling results. Currently, less than 3.0 miles of user-built trails exist in the Evans Creek ORV area that would need to be obliterated as provided for in the 1980 Environmental Assessment titled “Proposed Off Road Vehicle Use, Evans Creek Area”.

Facilities

Erosion and sedimentation at the Evans Creek stream crossing in the campground would continue. Petroleum contamination at parking areas and the campground, which can be toxic to riparian plants and detrimental to water quality would continue. While Alternative 1 does not change the configuration of the campground or day-use and entrance facilities, intermediate steps would be taken to minimize sediment and petroleum based pollution from reaching Evans Creek.

4 x 4 Roads and Trails

For comparison between alternatives, the Water Erosion Protection Project (WEPP) Model was used to gauge the amount of sediment that would potentially be eroded. The calculated amounts of sediment eroded should not be confused with empirical data, and are only used to compare the proposed action to the no action alternative. Effects to soil include compaction, puddling, erosion, and loss of organic matter. Effects to water quality include an increase in sedimentation and potential contaminates due to eroded materials reaching water bodies. Short-term effects (< 10 years) in this alternative would include addressing TCA Impact Class #8, 9, and 10 trails (approximately 14.5 miles) with

temporary closures and/or controls while correcting deficiencies as funding allows (refer to Table 8–Soil and Water Quality Specialist Report) long-term effects(> 10 years) reduce mileage to near those proposed in Alternative 2.

Water Quality

There are no 303d listed waters inside the project area. Effects to water quality would be related to the potential for run-off to introduce additional sediment and possible contaminates to the waters of the project area from both soil loss and vehicular use. Effects to water quantity would be related to the existing hand pump located in the campground and water drawn from it. Effects to water quality would improve over the short term (< 10 years) as steps are taken to correct resource related problems on the trails, roads and facilities that are part of the ORV area. Effects to water quantity would remain unchanged, as the project would not be drawing additional water from the area.

Alternative 2–The Proposed Action

The proposed action would decommission, close, or convert selected system roads to trails, and upgrade or restore selected existing trails. User built trails would be obliterated. Posting signage, as well as utilizing other avenues for educating users about resource damage, would be employed to reinforce closures and obliterations and to deter the potential reopening of unauthorized trails.

The proposed action would remove the dual track trails from the Forest-wide Closure Order and would create a new closure order specific to the Project Area. Resource Closure periods would address resource concerns due to periods of heavy rain, rain-on-snow, or snow melt. Closures would be applied to individual trails for periods of a minimum of a few days to a maximum of the total combined resource dates as conditions warrant.

The proposed action would redesign the campground, day-use area, and entrance area to allow for the safety of users. The alternative would designate controls for ingress/egress to allow for access by users and emergency vehicles, designated parking controls, and redesign to accommodate current demands and use.

Soil Productivity

Potential effects of the proposed activities on soil productivity are due to compaction, puddling, displacement, erosion, and loss of soil organic matter. These effects however, would be in the short term (less than 50 years, with respect to the soil resource) and relatively confined to the areas disturbed.

The relative duration of detrimental effects to soil quality is lower with Alternative 2. The magnitude and intensity of effects to soil productivity are both low, but are lower still in Alternative 2 (see Table 19). **Duration**, with respect to the soil resource, refers to long term (more than 50 years) versus short term, (less than 50 years). **Magnitude** refers to the

extent, in acres of land affected. **Intensity** refers to the approximate relative volumes of sediment eroded. Conditions in disturbed areas would have improved where restored by subsoiling, fertilization, and revegetation.

Table 19. Relative Duration, Magnitude (extent) and Intensity (volumes) of Effects to Soil Productivity

	Alternative 1, No Action	Alternative 2, Proposed Action
Direct Effects	Long-term duration, small to moderate Magnitude; small to moderate intensity	Short-term duration, small Magnitude, very small intensity
Indirect Effects	Long-term duration, small magnitude; Small intensity	Short-term duration, small magnitude, very small intensity

Efforts to minimize soil disturbance, maintain organic matter, and encourage rapid growth of native vegetation would help to conserve soil organisms, facilitate recolonization, and maintain forest productivity.

User Created Trails

Obliteration and restoring damage created by user created trails would improve soil quality conditions and would protect against further damage to soils in those areas. Long-term plans to educate users on benefits of protection of resources would tend to change the behavior of users and would equate to a long-term improvement in conditions as areas recover naturally.

Facilities

Design features and creation of improved facilities would address sedimentation and potential petroleum contamination that can be toxic to riparian plants and detrimental to water quality. Erosion and sedimentation at the Evans Creek stream crossing (FSR 7930–110) in the campground would be reduced once new entrance is constructed and FSR 7903–110 decommissioning and restoration work is accomplished.

4 x 4 Roads and Trails

The results of the WEPP model were overwhelmingly in favor of the proposed action as far as reducing the amount of erosion and sediment delivery to streams. The results ranged from a 95.5 percent reduction (down to 4.5 percent) of the existing sediment production to a 3.3 percent increase. In one section of Trail 102, the WEPP Model predicted that the existing trail delivers 15 times the volume of sediment compared to the same trail without ruts. Two trails experienced a slight increase in sediment production due to the proposed action, which cannot be readily explained (see Table 6. Dual Track Trails Proposed for Maintenance Work). Effects to soil include compaction, puddling, erosion, and loss of organic matter. Effects to water quality include an increase in sedimentation and potential contaminates due to eroded materials reaching water bodies. Short-term effects (< 5 years) in this alternative would include addressing TCA Impact Class #8, 9, and 10 trails (approximately 14.5 miles) with temporary closures and/or controls while correcting deficiencies as funding allows (see Table 8–Soil and Water

Quality Specialist Report). Long-term effects (> 5 years) reduce overall road mileage from 23.0 to 2.17 miles by decommissioning/closing 11.2 miles and converting to trail approximately 9.63 miles, obliterating 3.0 miles of user built trails, and bringing trail system into compliance with Standards and Guidelines.

Water Quality

There are no 303(d) listed waters inside the project area. The proposed activities are not expected to contribute to the additional listing of any waters within the project area.

The results of the proposed facilities design and improvements together with the road and trail upgrades, closures and decommissioning would have a direct beneficial effect to the reduction of sediments and associated contaminants reaching water bodies in the project area.

The addition of a new toilet at the entrance area would reduce the likelihood of unwanted organic contaminants reaching the drainage network. Conservation measures would minimize the potential for chemical contaminants from use of heavy equipment and reconfiguring use of the road/trail system would help keep potential contaminants away from the most sensitive areas. At the watershed and sub-basin scales, managing for use at this ORV site allows the Forest to close and treat other areas where ORV use is damaging sensitive areas. The net effects of proposed activities at the project-level and watershed scales would be beneficial.

Proposed activities would maintain water quality in the short term and improve water quality in the long term. Use of Best Management Practices, Conservation and Mitigation Measures, would minimize and mitigate potential impacts to soil and water. Some sediment could reach waters from disturbance during project activities, or from storm events, but the effects would be short term and are not expected to measurably add to other sources or be outside the natural range of erosion from that system.

Proposed road and trail treatments in Evans, Poch, and Tolmie Creeks would, in the long term, reduce sediment and contribute to improving water quality in and incrementally to the Carbon River. Proposed activities would mostly not affect floodplains, meadows, and wetlands in the project area. Work is not proposed in floodplains or meadows, and the possible wetland associated with the drainage feature crossing Jeep Trail 102 would have puncheon or a bridge installed to allow for elevated flows. Decommissioning of FSR 7930–110 (campground entrance) across Evans Creek would reduce associated road and slope sedimentation to Evans Creek. Activities would maintain the objective at the project scale.

Installation of additional hand pumps for potable water would not appreciably reduce the flows to Evans Creek. At the season low flows, the draw of ground water from the

proposed hand pumps would draw a miniscule portion of the amount of water flowing in Evans Creek.

Proposed activities in Voight and Meadow Creeks are along the ridge tops in the headwaters of intermittent channels, and would have a negligible, if any, effect and would not affect floodplains, meadows, or wetlands.

Proposed activities would not influence water quality at the watershed scale; water quality would be maintained. The sediment regime would be restored to a state closer to that before the aquatic systems were changed by the development of the activity area. Monitoring and trail maintenance would maintain the sediment regime at that state.

Soil and Water Quality Cumulative Effects

The affected area for cumulative effects to soil productivity is the National Forest System lands within the project area, as shown in the project maps. The proposed activities would create a relatively small amount of detrimental soil conditions due to the facilities proposals. The decommissioning and restoration of roads and trails would offset this increase and result in an overall improvement to soil quality conditions across the Project Area. In reviewing the list of projects that have the potential for contributing to cumulative effects, none were found to be contributing to the effects to soil productivity or water quality (refer to Table 11, Soil and Water Quality Specialist Report). Therefore, this project is not expected to negatively contribute to cumulative effects.

The affected area for cumulative effects to water quality is the Evans, Poch, Tolmie, Voight, and Meadow Creeks and their tributaries within and directly adjacent to the project area. The proposed activities would create a relatively small amount of detrimental impact to water quality in the short term but would in the long term have a beneficial effect by reducing sediment and potential contaminants from the area activities from reaching the active water bodies within and leaving the project area. This project is not expected to negatively contribute to cumulative effects.

Forest Plan Consistency

Common to Both Alternatives

No more than 20 percent of an activity area would be severely burned, compacted, puddles, or displaced as a result of the activity. There would be no new permanent features of the transportation system, and the current condition is that less than 20 percent of the activity area is in a detrimental soil condition. Only permanent features of the ORV area (roads, trails and facilities) would remain in a detrimentally compacted, puddled, and/or displaced condition, which is currently estimated to be less than 2 percent of the project area, well below the 20 percent point in the Standards and Guidelines (USDA FS 1990, p. 4–117).

Alternative 2–The Proposed Action

The proposed action would minimize reductions to soil productivity potentially caused by detrimental compaction, displacement, puddling, and severe burning by addressing soil compaction, rutting, and puddling, as well as reducing the potential for offsite stream sedimentation (USDA FS 1990, p. 4–117).

Soil loss from surface erosion and mass wasting, caused by the proposed activities, would not result in an unacceptable reduction in soil productivity and water quality because the restoration of existing damage and mitigation measures prevent it (USDA FS 1990, p. 4–117).

Surface erosion would be minimized by maintaining effective ground cover after cessation of any soil disturbing activity because of Mitigation Measure 3 “Sub-soiled trails and roads would be seeded with local native grasses…” (USDA FS 1990, p. 4–117).

The proposed action meets the intent of planning to accomplish rehabilitation projects as necessary to meet soil and water objectives and standards (USDA FS 1990, p. 4–117)

Wildlife

The ORV area is located on mountainous slopes, which include elevations ranging from 1,771 feet at the northern access point (FSR 7800/7920 junction) to 3,200 feet at the south entrance (SR 165/FSR 7920). Poch Peak, at 4,915 feet, is one of several prominent peaks that characterize the mountainous landscape of the project area. The elevation bands found here are representative of where the majority of habitat impacts, primarily from timber harvest, road building, and other associated human-induced activities occur throughout the Mt. Baker-Snoqualmie National Forest.

Terrestrial Habitat

Second-growth conifer forests comprise the dominant vegetation type throughout the project area. Timber harvest began in the 1910s employing railroad logging in the Carbon River basin. The logging progressed southward into the present ORV area. Logging continued into the 1940s when road building and truck hauling began to replace railroad transport as the means for conveyance of harvested logs. Logging also progressed from the south side of the management area just prior to the 1950s. Logging activities continued into the 1960–1980s before land management objectives established by recent National Forest planning shifted to less timber harvesting. During on-site reconnaissance in portions of the project area, it was noted that logging removed almost all old-growth trees (standing and downed logs) in the project area.

Several old-growth habitat patches (each patch estimated around 50 acres or less) are evident within the ORV area. The residual forests generally sit atop prominent ridged slopes at elevations around 3,000 feet and above. These remnant patches were likely spared from felling as timber harvest costs became prohibitive and the subsequent shift to conserve late-successional habitats gained prominence as a Forest Service issue.

Within the ORV planning area, much of the visible forest edge effect is due to roads, trails, parking lots, campgrounds, and dispersed recreations sites. Stream channels and areas where surface water has accumulated form wet meadows, and the presence of small ponds caused by beaver dams, are other sources of edge habitat features. An assumption has been made that edge effect are vectors where negative impacts (predation and wide ambient fluctuations of disturbance, for example) are less desirable attributes in timbered stands of reduced area (Thomas et al. 1979, Thomas et al. 1990).

Based on the landscape-scale timber harvest beginning in the turn of the 20th century, an assumption has been made that old-growth dependent species, such as the northern spotted owl, are scarce or no longer persist in the planning area due to habitat loss. (Sonny Paz, personal observation; Dale Herter, Wildlife Biologist, Raedeke & Associates, Seattle, WA, personal communication) Figure 6 illustrates the location of known spotted owl activity centers in the adjacent Mt. Rainier National Park. There are no known activity centers within the Evans ORV area. In the last 25 years, spotted owl

surveys and monitoring has identified three to four activity centers that generally remain within the park for nesting, roosting, and foraging. At best, the ORV area provides dispersal habitat and opportunistic foraging. Conversely, species that persist in early to mid-successional habitats, such as the barred owl, are invasive and are known to outcompete the spotted owl for habitats in late-successional forests. A roosting barred owl was observed in a field visit in November 2006 (Paz, personal observation).

Other wildlife species valued by forest users, such as deer and elk, are species that persist in habitats offering early- to mid-successional habitats. Biological success for these species includes accessibility to forage of high nutritive value to help ensure reproductive success and survival through winter months. Much of the planning area is beyond the stage of forage production because the canopy structure restricts ambient light to the forest floor needed for producing herbs, forbs, and browse.

Motorized Road and Trail Density

The development of Evans Creek ORV Area as a motorized recreational area officially began to evolve after Forest Service approval in 1980. Currently, the network of roads and trails total an estimated 55 miles; 22 miles of road designated for street-legal, licensed vehicles, 18 miles of designated for single track (motorcycles) trails, and 13 miles of dual track (jeep and ATV) trails. Road density is very high in the Evans ORV area (refer to Table 7.1, Wildlife Specialist Report) (Gaines et al. 2003).

Peak use of the Evans Creek ORV trails and roads are generally confined to the snow-free months especially during weekend summer months. The ORV paths may contain segments that require various levels of operator skill and resources to complete a destination. From a wildlife and habitat point of view, the amount of noise, smoke, vegetation damage and off-trail destruction will have a negative effect to large mammals while smaller animals may exhibit a wider range of tolerance. Unless wildlife associates roads with a free handout of food, most species may likely avoid habitat that is chronically disturbed (Gaines et al. 2003). Other effects to wildlife and habitat associated with ORV use may include denuding vegetation, crushing/collapsing burrows, indiscriminate shooting/poaching, littering, and garbage dumping, and tree cutting. During winter months, snowmobile use is known to occur.

Wildlife Species: Habitat Assumptions and Potential Occurrence in the Project Area

Two mammals and two birds, under federal listing, and one designated critical habitat unit (CHU) by the Fish and Wildlife Service under the Endangered Species Act are listed in Table 20. Table 21 includes four birds, two mammals, three amphibians, five mollusks, and one butterfly listed as Regional Forester's sensitive species, that are known or suspected to occur on the Snoqualmie Ranger District (Regional Forester’s Special Status Species List–Federally Threatened, Endangered, and Proposed 2008). As described in

the beginning of the wildlife section, the proposed project area coincides with a portion of the northwest boundary of Mt. Rainier National Park. The ORV area is within the area that forms the southwest terminus of the Snoqualmie Ranger District.

Two of the four listed species, the northern spotted owl and marbled murrelet, are documented on the ranger district. The grizzly bear and gray wolf, however, are very rare and generally perceived as exterminated in and around the project area including within the boundaries of Mt. Rainier National Park. As of this writing, there are no known or verified reproductive bears or wolf packs along the western slope of the Washington Cascades. The Forest Service designated sensitive species is a varied list of taxa where seven of 15 of the organisms are known to occur on the district. The mollusks and Lepidoptera species are considered rare and have yet to be verified on the Forest. The same is true for the Van Dyke's salamander and spotted frog. The Management Indicator Species (MIS) may be as uncommon or rare as the sensitive species, but are documented on the ranger district. There are no known or verified observations within the project area.

The explanation for the apparent scarcity of the species and species groups mentioned above may be due to the logging history of these watersheds. Extensive landscape-scale logging removed more than an estimated 70–80 percent of the old-growth forest including large diameter hard and soft standing snags and large, downed logs. Recruitment of future large standing snags and downed logs will exclude the natural old-growth character for several centuries, as old-growth trees are limited. Woodpecker cavities formed by the pileated woodpecker was observed in old-growth trees from Trail #520 (Paz, personal observation).

Figure 6. Known Spotted Owl Activity Centers

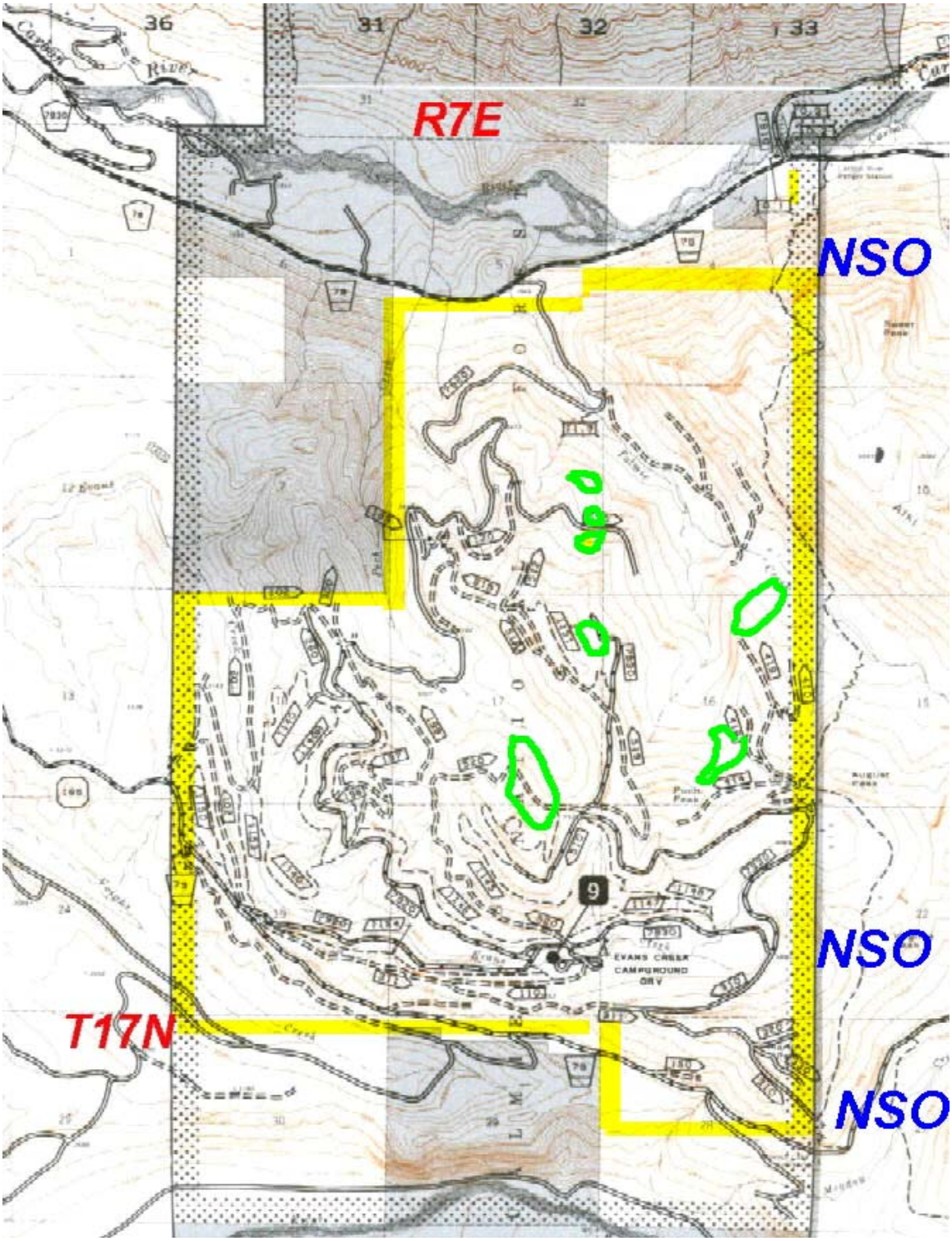


Table 20. Determination of Effects for Federally Listed Threatened and Endangered Species, and Critical Habitat Evaluated for the Proposed Action

Species (Federal Status)	Current or Potential use of habitat in Project Area*	Extent of Available Habitat in Project Area	Probable Impacts to Species from Project Action	Effects Determination
Northern Spotted Owl (Threatened)	Low	Lacks nesting habitat Use for foraging dispersal	Low	NLAA
Northern Spotted Owl Critical Habitat (Designated)	Not Applicable	Not Applicable	Not Applicable	NE
Marbled Murrelet (Threatened)	Moderate (surveys would be needed to verify)	Probable use of old-growth patches in project area	Low to moderate	NLAA
Marbled Murrelet critical habitat (Designated)	Moderate (surveys would be needed to verify)	Habitat conditions will improve over time as habitat recovers	Moderate	NLAA
Grizzly Bear (Threatened)	Unlikely	Unlikely	None	NE
Gray Wolf (Endangered)	Low	Not tied to vegetation condition-requires sufficient prey and isolation from roads	Low	NE

*Unlikely–within geographical range, but no known activity in the project area; habitat will likely be avoided except in remote or isolated areas away from human presence.
*Low–species is known to occur within or adjacent project area, but habitat is limited due to historic forest practices.
*Moderate–species may forage and or reproduce using habitat within or adjacent the project area. Species is within its know geographical range the geographical range of the species overlaps the project area.
NE–No Effect
NLAA–May effect, not likely to adversely effect

Table 21. Determination of Impacts for Region 6 Forest Service Sensitive Species and Forest Management Indicator Species Evaluated for the Proposed Action

Sensitive Species	Current or Potential Habitat Use in Project Area(*)	Extent of Available Habitat in Project Area	Probable Impacts to Species from Project Action
Bald Eagle	Low	Opportunistic Forager	No impact
Larch Mountain salamander	Moderate (surveys would be needed to verify)	Probably isolated in forest/talus habitats	Possible impact–documented on the MBSNF
Van Dyke's salamander	None to low	Probably isolated in stream headwaters	Possible impact–suspected on the MBSNF
Oregon spotted frog	None to Low–aquatic	None	No impact–suspected on the MBSNF
Common loon	None–aquatic (lentic habitats) species	None	No impact
American peregrine falcon	Low–nesting habitat likely absent	None	No impact
Townsend's big–eared bat	Low–no roost habitat; probable foraging	Foraging	No impact
Wolverine	Unlikely–scarce prey base, need for isolation	None to low	No impact
Harlequin Duck	Low–nests in lower stream reaches	Low	No impact
Puget Oregonian[1] *Cryptomastix devia*	None–only known to occur below 1,500 feet elevation	None to Low	No impact–suspected on the MBSNF
Evening Fieldslug [1] *Deroceras hesperium*	None to Low–associated with wet meadows in forested habitat	None to Low	No impact–suspected on the MBSNF
Oregon Megomphix[1] *Megomphix hemphilli*	None to Low	None to Low	No impact–suspected on the MBSNF
Warty Jumping–slug[1] *Hemphillia glandulosa*	None to Low–old–growth associated <3000 feet elevation	None to Low	No impact–suspected on the MBSNF
Shiny Tightcoil[1] *Pristiloma wascoense*	None to Low–association with hardwoods	None to Low	No impact–suspected on the MBSNF
Johnson's Hairstreak[2] *Callophrys johnsoni*	None to Low–associated with old–growth forests	None to Low	No impact–suspected on the MBSNF
Mountain Goat (MIS)	Low	Low	Low
Pine Marten and Pileated Woodpecker (mature and old–growth MIS)	Low to Moderate	Low	Low
Primary Cavity Excavators (snag and downed log MIS)	Low to Moderate	Low	Low
Migratory Birds / Landbird Conservation (EO 13186)	Low to Moderate	Low to Moderate	Low

*None–habitat elements absent; may or may not be documented on the Forest.
*Unlikely–within geographical range, but no known activity in the project area; habitat will likely be avoided except in remote or isolated areas away from human presence.
*None to low–species is suspected to occur on the Forest, but not documented.
*Low– species is known/verified to occur on the Forest; low probability to occur in the project area; poor habitat conditions, lack of food source.
*Moderate–species may be present; habitat present within project area; surveys would be needed for verification.
EO–Presidential Executive Order (and FS/FWS MOU) from January 2001

Wildlife Environmental Effects

Alternative 1–No Action

Northern Spotted Owl and Marbled Murrelet: The current density of motorized trails will continue to reduce habitat effectiveness as forest succession and stand structure (such as nesting, roosting, and forage habitats) continues to develop into suitable habitat.

Grizzly Bear: This species is considered absent in the south half of the Mt. Baker-Snoqualmie National Forest and is outside the North Cascade Recovery Area.

Gray Wolf: The wolf would likely avoid the project area because of chronic human disturbance associated with motorized recreation. Denning sites require isolation from human intrusion. The Washington wolf population is expected to increase but is not anticipated in the project area in the foreseeable future.

Sensitive Species: Species including the bald eagle, Oregon spotted frog, Common loon, American peregrine falcon, and Townsend's big-eared bat are not expected to be impacted. These species either are absent or would not be impacted by the project. The decommissioning of trails will lessen direct impacts to species and improve habitat quality for the low mobility species (salamanders and mollusks) and wolverine.

Harlequin Duck: This species will nest along banks of fast moving stream courses and forages on aquatic organisms. Habitat use probably occurs outside the project area and may remain unaffected by current ORV activities.

Mountain Goat: Leaving the project area during peak winter months may cause avoidance of potential winter habitat if ORVs are permitted to operate.

Pine Marten and Pileated Woodpecker (*mature and old-growth MIS)*: Habitat disturbance and loss of individual large diameter trees may occur where off-trail riding occurs (Trail #520) and damage to individual trees associated with off-trail riding. High road density may be a source of species and habitat disturbance as forest/trees become mature through succession, conditions that provide suitable habitat.

Primary Cavity Nesters (snag and downed log MIS): Similar affects as for Pine Marten and Pileated Woodpecker. Smaller woodpeckers may be impacted in mid-successional to mature hardwood habitats.

Migratory Birds/Landbird Conservation: Habitat disturbance and loss of individual large diameter trees occur where off-trail riding occurs (Trail #520) and damage to individual trees associated with off-trail riding. High road density may be a source of species and habitat disturbance in all stand age classes.

Alternative 2–The Proposed Action

Federally Listed Threatened and Endangered Species and Designated Critical Habitat, All Species: Expanding the facilities accommodations by reconstructing and reconfiguring existing day-use parking and the campground would permanently remove potential habitat, but the loss is not adverse. Reducing road density (road/trail decommissioning) would increase habitat effectiveness as forested stands mature and provide nesting/denning, roosting, and forage habitat that are not subject to ORV use.

Direct Effects–In the proposed action, the cutting of second-growth trees needed to expand the campground and parking areas would not cause an adverse decline in potential use by the spotted owl or marbled murrelet. These species are largely dependent on old growth that was removed from much of the watershed basin, including the project area (excluding the habitat within Mount Rainier National Park). Only a few remnant old-growth patches remain within the planning area, but would not be removed. Over time, the second-growth forests on federal lands would continue to grow into mature and eventually old-growth forests. Without catastrophic disturbance, habitat should improve over time for the owl and murrelet. There would be a slight increase in edge effect in the action area, but is isolated on federal lands. Non-federal lands are currently undergoing aggressive forest management, which would perpetuate large amounts of edge. Competitive/predatory species such as members of the Corvid family would benefit from increased edge and could increase potential predation to nestlings of the marbled murrelet. The grizzly bear and gray wolf, which are considered absent from the project area, will remain unaffected by the proposed action.

Region 6 Sensitive Species: The survivability of low mobility sensitive species (salamanders and mollusks) may increase, as select motorized trails are decommissioned and convert to habitat.

Direct Effects–The reduction of road/trail density in the proposed action may have a contributing benefit to species that need isolation from human activities. This includes species such as the wolverine, and to a lesser extent, the pine marten. In the adjacent non-federal lands, the ownership does not allow access, without a permit, by motorized vehicles thereby increasing the amount of non-motorized habitat areas at least during the winter period. The proposed action will also implement a winter period closure, which should benefit most species to reduce disturbance. It is unknown, however, what benefits this closure period will have on species such as the wolverine. The reduction of roads may increase the survival of slow mobility species such as mollusk and salamanders and improve dispersal survival of these species. The fundamental theory of the LS/OG network is to promote dispersal of old growth dependent species and connectivity between habitat areas.

Management Indicator Species: Where roads/trails are decommissioned the adjacent forests would, in time, provide suitable habitat conditions and lower disturbance from ORVs.

Direct Effects–The Forest indicator species include deer and elk, primary excavators, marten, and mountain goat. The past clear-cut harvests on federal and non-federal lands affected the distribution and density of species that were dependent on old growth forests. This would include the primary excavators (woodpecker species) and the pine marten. The marten is also a sensitive species and was discussed in the previous paragraphs. The proposed action will have very little effect to primary excavators since the removal of second-growth habitat is not substantial and that, other than foraging, does not provide optimal nesting habitat. Big-game such as deer and elk largely depend on early to mid-successional habitats. Deer numbers probably increased as available forage increased following timber harvest. Forage habitat generally decrease as the forest canopy blocks sunlight to the ground. Deer are found in the project area, but probably occur in low numbers since much of the habitat on federal lands are dominated by mid-successional second-growth. Elk were probably exterminated from the watershed due to unregulated harvest prior to existence of game management regulations and hunting restrictions. Their occurrence in the project area is probably low since they are not prevalent in the project area. The current forest management activity on non-federal lands is probably the primary big-game food source in the watershed basins.

Roads and Trails (Decommissioning or Closure): This effort would have significant beneficial effects towards meeting LS/OG standards and guidelines. Edge effect would be reduced and the amount of wildlife and habitat impacts such as excessive exhaust, noise, vegetation damage, illegal shooting, and littering help suppress the loss of quality habitat.

Wildlife Cumulative Effects

The Spatial Area for cumulative effects to wildlife is defined as that area covering T17N, R07E, Sections 4 and 5 (south of FSR 78), 6, 8, 16, 17, 18, 19, 20, 21, 28 (N ½). The Temporal Area for cumulative effects to wildlife is during the existence of the ORV area and its uses.

Threatened and Endangered Species: The proposed action would not contribute to cumulative effects to T&E species.

Sensitive species: The proposed action would not contribute to cumulative effects to Sensitive Species.

Management Indicator Species–The proposed action would not contribute to cumulative effects on big game including the mountain goat.

Forest Plan Consistency

The District is taking several steps to enhance and protect LS/OG.

- Reduce road and trail density to improve habitat connectivity.
- Approve an area wide closure during peak winter months and monitor closure for compliance.
- Monitor old-growth habitat for site protection compliance.

Common to Both Alternatives

Barricade and discourage off-road travel in vulnerable old-growth habitat (USDA FS, USDI BLM 1994, p. C–11 and USDA 1990, p. 4–124).

Alternative 2–The Proposed Action

The District initiated and completed Section 7 Consultations of the Endangered Species Act, as required in FSM 2670. The USFWS concurred with the Forest Service findings on July 18, 2008. The District is taking measures to protect and enhance species and habitat through measures discussed in the Wildlife Resource Specialist Report and this document (USDA FS 1990, p. 4–127).

Inventoried Roadless Areas and Unroaded Characteristic

Roadless areas were identified by direction of the Secretary of Agriculture and included tracts of land 5,000 acres or larger that were roadless and undeveloped. Smaller areas were also included if they were adjacent to existing wilderness areas. The Mt. Baker-Snoqualmie National Forest conducted an inventory to identify these lands during the Roadless Area Review and Evaluation (RARE II) process in 1979. In 1984, Congress addressed the RARE II roadless area issue in the state of Washington by passing the "Washington State Wilderness Act of 1984".

An Unroaded area is an area, without presence of a classified road, of a size and configuration sufficient to protect the inherent characteristics associated with its roadless condition. Unroaded areas do not overlap with inventoried roadless areas. Unroaded areas have typically not been inventoried and are therefore, separate from inventoried roadless areas.

There is an Inventoried Roadless Area (IRA), Tolmie Creek IRA 6056, east of the project area approximately 0.5 miles bordering Mt. Rainier National Parks northwest boundary line in Sections 4 and 9, T17N, R07E (USDA FS 1990, Appendix C, p. C–4, –199). The Tolmie Creek IRA is inventoried at 274 total acres and is outside the project area. No activities associated with the proposed project occur within the Roadless Area.

The project area was previously harvested (1910s up to the late 1980s) and is comprised primarily of second growth timber stands. In 1980, an EA was signed to develop the area into an Off Road Vehicle area and overtime has become the primary use of the area. The project area does not contain areas that meet the criteria for unroaded characteristics.

Environmental Effects

Alternative 1–No Action

There would be no direct, indirect or contribution to cumulative effects to Inventoried Roadless Areas or the Unroaded Characteristics as a result of this alternative as none exist within the project area.

Alternative 2–The Proposed Action

There would be no direct, indirect or contribution to cumulative effects to Inventoried Roadless Areas as a result of this alternative as none exist within the project area. Currently, the project area is considered to be roaded and does not meet the Unroaded characteristics by definition but there are some aspects of the project proposal that could result in the restoration of unroaded characteristics. The decommissioning of FSRs 7920–610, 7930 (junction with single track trail #1151 to end), 7930–310 (junction with 7930–311 to end), 7930–320, 7930–330, 7930–410, 7930–414, 7930–418, and 7930–419 would in the long–term return to characteristics that resemble unroaded once vegetation is reestablished.

These roads are located on the outside perimeter of the project area and would eventually blend into the unroaded characteristics of the lands that surround them. Other roads proposed for decommissioning would not revert to an unroaded characteristic even when vegetation is restored due to the fact that they are located on the interior or near other roads and trails that are part of the active ORV system. The roads that are proposed for conversion to dual track trails (while they would no longer technically be classified roads) would remain visible on the landscape as a roadlike feature and remain a roaded area. Otherwise, there are no additional direct, indirect or cumulative effects to the Unroaded Characteristics for this project.

Air Quality

National parks more than 6,000 acres and national wilderness areas more than 5,000 acres that were in existence before August 1997, are designated as Class I areas. Mt. Rainier National Park (adjacent to the project area) and some of the surrounding U.S. Forest Service wilderness areas (including Goat Rocks and Alpine Lakes) are Class I areas. The project area and a majority of the Snoqualmie Ranger District are designated Class II areas. Areas designated as Class I receive the highest level of air quality protection.

Visibility is a protected value in Class I areas and is monitored in Mt. Rainier National Park. Pollutants that impair visibility are a mix of sulfates, nitrates, and fine particulates. The average annual Standard Visual Range (SVR) has been improving in the area over the last 10 years, showing that air quality in general has been improving.

Within Washington, Pierce County often experiences worse air quality than other parts of the state due to a combination of prevailing meteorology and the location of upwind air pollution sources. Most of the air quality issues in the county are found within the city of Tacoma (approximately 30 air miles northwest of the project area), but some pollutants, ozone in particular, can be transported far downwind.

The Evans Creek ORV area is located downwind of a number of urban and industrial areas to the northwest and southwest and is not isolated from the byproducts of industrialization. Manmade air pollutants can be transported long distances and have been detected through air quality monitoring programs in nearby Mt. Rainier National Park. Pollutants arriving in the area come from a variety of industrial and transportation sources throughout the Puget Sound region as far north as Vancouver, BC and as far south as Portland, Oregon

Environmental Effects

Alternative 1–No Action

There would be no change to current air quality conditions with implementation of Alternative 1.

Alternative 2–The Proposed Action

There may be short-term impacts to air quality as a result of use of heavy equipment in the construction, reconstruction and decommissioning activities associated with the implementation of Alternative 2. Heavy equipment needed for extended durations would add to the existing emissions and dust levels within the project area during use. The Mt. Baker-Snoqualmie National Forest Fire Management Plan (FMP) contains direction to minimize fire size in the Evans Creek Area, with control and containment strategies, but no burning activities are planned for the project implementation. Any effects to air quality from the implementation of this alternative would be of short durations and would revert back to current levels once the heavy equipment moves out of the area.

Cumulative Effects

There would be no negative contribution to cumulative effects to air quality as a result of the implementation of this project because the effects of air borne pollutants are not expected to change in a way that would measurably impact the air quality, as it currently exists.

Other Effects Analyzed

Aquatic Conservation Strategy

The Aquatic Conservation Strategy (ACS) is a primary component of the Forest Plan, as amended for the protection of aquatic and riparian-dependent species and resources, and to restore degraded habitats. There are four components of the ACS:

- Riparian Reserves
- Key Watersheds
- Watershed Analysis
- Watershed Restoration

In addition to the four components of the ACS, there are nine objectives that collectively assure the processes that Riparian Reserves are intended to protect function appropriately. Project consistency determinations under the requirements of the National Forest Management Act include a determination of consistency with these nine objectives as described in the Record of Decision for amendments to Forest Service and Bureau of Land Management planning documents within the range of the northern spotted owl (USDA FS, USDI BLM 1994) page B–10. In addition, court in *Pacific Coast Fed. of Fisherman's Assn. et al v. Natl. Marine Fisheries Service, et al and American Forest Resource Council, Civ.* No. 04–1299RSM (W.D. Wash) (*PCFFA IV*) ruled that project consistency reviews must include the project or site scale and the watershed scale. The following is an assessment of the Evans Creek ORV project against the nine ACS Objectives.

Objective 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.

Activities proposed in the Evans Creek ORV management plan would help to restore watershed processes at the project scale by improving drainage and helping prevent erosion and sedimentation to fishbearing waters associated with road failures. Project activities would generally not influence watershed and landscape-scale features; the structural and species diversity of existing forested stands would be maintained.

With the extensive road and trail system in the planning area combined with the extensive drainage networks of Evans, Poch and Tolmie Creeks, there would be ground-disturbing activities in Riparian Reserves (proposed activities in Voight and Meadow Creeks are along the ridge tops in the headwaters of intermittent channels, and would have negligible if any effect.). Most of the disturbance would be in areas already or previously disturbed by existing facilities, road and trail construction or use, and proposed activities would improve drainage and focus recreational use away from sensitive areas. Road and trail

treatments in Riparian Reserves would address erosion concerns and improve drainage, and the decommissioned and closed segments would allow woody vegetation to reestablish. New road construction would be 0.3 mile or less, in the outer edge of the Riparian Reserves, with a net decrease in the road network for the area. Decommissioning the segment of Road 7930–110 around Evans Creek would allow the function of this fishbearing Riparian Reserves to restore.

Facility expansion addresses public safety and management issues for use that is already occurring. Trees removed would consist primarily of small-diameter, dense understory, second growth in the outer Riparian Reserves of Evans Creek, and would redesign of the campground would result in fewer campsites adjacent to Evans Creek.

The proposed project meets the 1994 Record of Decision (ROD) Standards and Guidelines for recreation management in Riparian Reserves as outlined in the ROD (p. C–34) by adjusting recreation use and mitigating impacts. At the watershed and sub–basin scales, managing for use at this ORV site allows the Forest to close and treat other areas where ORV use is damaging sensitive riparian areas. The net effects of this project would be beneficial.

Objective 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.

The proposed Evans Creek ORV project would improve connectivity of resident fish habitat within Evans Creek by removing the passage barrier under Road 7930–110, and ensuring the culvert under Road 7920 is fish-friendly. This would meet ROD Standard and Guideline RF–6 for road management by providing fish passage at road crossings of existing and potential fishbearing streams (p. C–33). Multiple life history stages (adults and juveniles) would benefit. Removal/replacement of these culverts would also improve the passage of sediments, woody material, and water past these roads into lower Evans Creek.

Addressing drainage on 36 miles of roads and jeep trails throughout the project area through a variety of treatments, including system road and trail decommissioning, upgrades, closures, and maintenance, would help restore connectivity of the drainage network and pass surface and subsurface flows through the slope versus down roads and through the fill by failure. Motorcycle trail maintenance and obliteration of user-built trails would also help to restore this drainage connectivity. While a minor amount of new road (about 0.3 mile) is to be constructed, with another 0.1 mile reconstructed, the design and construction would address drainage concerns, and there would be a net decrease in

road network. Proposed activities in Voight and Meadow Creeks are along the ridge tops in the headwaters of intermittent channels, and would have negligible if any effect.

The campground, day-use, and entrance areas would have improvements that directly (adding gravel and improving drainage collection to drain campground runoff away from Evans Creek) and indirectly (delineating parking areas and installing guardrails) address drainage concerns while improving public safety and directing use.

While Riparian Reserves would be entered, the net effect would be beneficial (see review of Objective 1) at the project scale, and neutral (maintained) at the watershed scale.

Addition of a new toilet at the entrance would reduce the likelihood of unwanted organic contaminants reaching the drainage network. Conservation measures would minimize the potential for chemical contaminants from use of heavy equipment, and reconfiguring use of the road/trail system would help keep potential contaminants away from the most sensitive areas. At the watershed and sub-basin scales, managing for use at this ORV site allows the Forest to close and treat other areas where ORV use is damaging sensitive riparian areas. The net effects of proposed activities at the project-level and watershed scales would be beneficial.

In portions of the project area where road/trail densities exceed more than 2 to 3.5 miles per square mile, terrestrial species linked to Riparian Reserves would continue to incur direct mortality, injury, and physiological impairment including, but not limited to, displacement, isolation, or avoidance of habitat. The problems are exacerbated where vehicles leave designated trails and cause impacts to adjacent riparian and upland habitats. Mitigation measures to confine vehicles to designated routes, eliminating user-built trails, and road/trail decommissioning to reduce density of motorized routes are efforts that will help to recover riparian zones including pathways leading to upland habitats.

Objective 3: Maintain and restore the physical integrity of the aquatic system, including shorelines, banks, and bottom configurations.

Proposed activities in Voight and Meadow Creeks are along the ridgetops in the headwaters of intermittent channels, and would have negligible if any effect. In Evans, Poch, and Tolmie Creeks, localized, short-term impacts to banks would occur as crossings are removed, replaced, or installed, but proposed activities would help to protect banks and bottoms in the long term by minimizing the likelihood of road failures with the consequent erosion of banks downstream. Road and trail treatments, and the drainage improvements in the campground, day-use, and entrance areas, would route runoff across the slopes, versus concentrating it in intermittent channels (which is known to lead to scour). Streambanks would be properly sloped to an angle of stability (natural repose) when removing culverts, such as at Evans Creek.

Decommissioning the Road 7930–110 campground entrance across Evans Creek would help prevent in-channel crossings of (and associated sedimentation to) Evans Creek, and allow the banks there to be reestablished and restored.

Proposed activities would help to restore the physical integrity of the aquatic system at the project scale, and would maintain it at the watershed scale.

Implementation of mitigation measures would help to restore species dependent on riparian habitats.

Objective 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.

Proposed activities would maintain water quality in the short term and improve water quality in the long term. Use of best management practices and conservation and mitigation measures, would minimize and mitigate potential impacts to soil and water. Installation of additional toilets would incrementally reduce inputs of organic contaminants. Some sediment could reach waters from disturbance during project activities, or from storm events, but the effects would be short-term and are not expected to measurably add to other sources or be outside the natural range of erosion for that system. In the long term, road and trail treatments would reduce sediment and contribute to improving water quality in Evans, Poch, and Tolmie Creeks and incrementally to the Carbon River. Proposed activities in Voight and Meadow Creeks are along the ridge tops in the headwaters of intermittent channels, and would have negligible if any effect.

Trees removed for campground and day-use expansion, and for new road construction, would be along the outer edge of the Riparian Reserves, and would not otherwise have recruited to Evans Creek. Water temperatures would not be affected.

Proposed activities would not influence water quality at the watershed scale; water quality would be maintained.

Objective 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.

The objective would be met by the proposed action. The sediment regime would be restored to a state closer to that before the aquatic systems were changed by the development of the activity area. Monitoring and trail maintenance would maintain the sediment regime at that state.

Objective 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.

At the season of low flows, the draw of ground water from the two proposed hand water pumps would draw a miniscule portion of the amount of water flowing in Evans Creek. One new hand pump is proposed at the day-use site, and another at the campground.

Objective 7: Maintain and restore the timing, variability, and duration of floodplain inundation and water table elevation in meadows and wetlands.

Proposed activities in Voight and Meadow Creeks, are along the ridge tops in the headwaters of intermittent channels and would not affect floodplains, meadows, or wetlands. In Evans, Poch, and Tolmie Creeks, proposed activities would mostly not affect floodplains, meadows and wetlands in the project area. Work is not proposed in floodplains or meadows, and the possible wetland associated with the drainage feature crossing Jeep Trail 102 would have puncheon or a bridge installed to allow for elevated flows. Installation of additional hand pumps for potable water would not appreciably reduce flows to Evans Creek. Activities would maintain this objective at the project scale.

Proposed activities would not influence, and would therefore maintain, floodplain, meadows and wetlands at the watershed scale.

Soils Mitigation Measure (9)–"Repair or restoration of trails…" would stipulate a bridge or length of trail puncheon that would allow the water to continue flowing at high flows in the flood plains.

Objective 8: 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.

Decommissioning the Road 7930–110 campground entrance across Evans Creek would help prevent in-channel crossings of (and associated sedimentation to) Evans Creek. Riparian area function at this site would locally restore as it re-vegetates and trees reestablish. Trees removed for campground and day-use expansion, and for new road construction, would be along the outer edge of the Riparian Reserves, and would not otherwise have recruited to Evans Creek.

Proposed activities in Voight and Meadow Creeks are along the ridgetops in the headwaters of intermittent channels, and would have negligible if any effect.

Proposed activities would maintain this objective at the watershed scale.

The purpose and need for this project is primarily to restore disturbed habitats—all of the proposed actions that meet the purpose and need would benefit ecosystem diversity and function.

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

Restoration improvements, mitigation measures, and enforcement would allow impacted habitats adjacent to designated roads and trails to recover.

The purpose and need for this project is primarily to restore disturbed habitats—all of the proposed actions that meet the purpose and need would benefit ecosystem diversity and function.

Environmental Justice

In the past decade, the concept of environmental justice has emerged as an important component of federal regulatory programs, initiated by Executive Order No. 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations.

The Executive Order directed each federal agency to “make achieving environmental justice by avoiding disproportionately high or adverse human health or environmental effects on minority and low income populations” a part of its mission. This Order emphasized that federally recognized Native Tribes or bands are to be included in all efforts to achieve environmental justice (Section 6.606).

The demographics of the affected area were examined to determine the presence of minority, low-income, or tribal populations in the area of potential effect. The following table shows the race and ethnics profile of Pierce county compared to the entire state of Washington, based on 2000 Census data (obtained from the website at : http://www.ofm.wa.gov/census2000/).

Table 22. Race and Ethnicity Profile

	Pierce County	Washington State
Total Population (2000)	**700,820**	**5,894,121**
	Estimated Population and Percent of County, Total*	**Estimated Population and Percent of State, Total***
Black or African American	59,948 (8.6%)	190,267 (3.2%)
American Indian, Alaska Native	19,919 (2.8%)	93,301 (1.6%)
Asian	48,803 (7.0%)	322,335 (5.5%)
Native Hawaiian and Other Pacific Islander	9,581 (1.4%)	23,953 (0.4%)
Hispanic Origin (of any race)	38,621 (5.5%)	441,509 (7.5%)
White	579,234 (82.7%)	4,821,823 (81.8%)
Other	23,000 (3.3%)	228,923 (3.9%)

* Numbers were rounded, thus totals may be off slightly.

Environmental Effects

With Alternative 1, there would be no change in road access to the area and a Recreation Pass (formerly the Northwest Forest Pass) is required to enter area. This alternative would have no long-term impact on current Tribal or recreational uses. The town of Carbonado (nearest community) is approximately 10 miles northwest of the project area. There are no known areas of religious significance in the area. There are no known special places of minority or low-income communities within the project area. Individuals may participate in recreational activities, gather forest products, or pursue other interests (as allowed) in the area. Effects would be similar to all population groups and not disproportionate to low-income or minority groups. Implementing this alternative would result in no adverse civil rights impacts.

With Alternative 2, there would be no change in road access to the area, but many of the current roads within the project area would be converted to dual track trails, and a Recreation Pass would continue to be required to enter the area. This alternative would have little to no long-term impact on current Tribal or recreational uses as a majority of the roads within the project area are designated for high-clearance vehicles and still will be accessible but as a dual track trail instead of a road in many cases, and would not be accessible by passenger vehicle beyond the day-use and campground areas. The town of Carbonado (nearest community) is approximately 10 miles northwest of the project area. There are no known areas of religious significance in the area. There are no known special places of minority or low-income communities within the project area. Individuals may participate in recreational activities, gather forest products, or pursue other interests (as allowed) in the area. Effects would be similar to all population groups and not disproportionate to low-income or minority groups. Implementing this alternative would result in no adverse civil rights impacts.

Cumulative Effects

Because neither of the project alternatives would be expected to disproportionately affect low-income populations or minority populations, there would be no contribution by the project to cumulative effects associated with environmental justice when added to other past, present and future projects.

Prime Forestland, Prime Farmland and Rangeland

The entire project area is prime forestland. The removal of approximately 2 acres of second-growth mixed timber to expand and create a new access for the campground to accommodate roads and sites is minor given the overall project area. There would be no direct, indirect and as a result—by definition—no increment to cumulative effects on prime forestland.

There is no prime farmland or rangeland within the project area, so there would be no direct, indirect and as a result—by definition—no increment to cumulative effects on these resources.

Irreversible and Irretrievable Commitment of Resources

An irreversible commitment of resources results from a decision to use or modify resources that is permanent or renewable only over an extremely long period. The actions described in this document would not cause an irreversible commitment of resources other than removing rock from a commercial source for road gravelling.

An irretrievable commitment of resources occurs when opportunities are foregone for the period of time of the commitment such as the temporary loss of timber productivity in forested areas that are kept clear for use as a power line right-of-way or ski run. Under active management, irretrievable resource commitments are unavoidable, because managing resources for any given purpose necessarily precludes the opportunity to use those resources for other purposes.

Existing roads, ORV trails and facilities associated with the Evans Creek ORV Management Plan in Alternative 1 totals about 23 miles of roads, 21 miles of trails (both dual and single track) and the campground, day-use and entrance facilities. This is an irretrievable commitment of resources and a temporary loss of timber production from about 140 acres. Alternative 2 totals about five miles of roads, 40 miles of trails (both dual and single track) and the campground, day-use and entrance facilities. This is an irretrievable commitment of resources and a temporary loss of timber production from about 90 acres. (Assumed road clearing width of 30 feet, dual track trail clearing width of 15 feet, single track trail clearing width of five feet, and facilities areas that are not actively growing trees).

The use of rock from commercial rock sources for necessary road and trail construction, reconstruction, resurfacing, repair or maintenance activities would be an irreversible commitment of rock resources.

Potential Conflicts with Plans and Policies of Other Jurisdictions

Several governmental agencies including state, federal and Tribal representatives have been contacted in regards to this project (a list of individuals, groups and agencies contacted in regards to this project is available in the project record). There are no known conflicts between the two alternatives and the plans and policies of these other jurisdictions.

Chapter 4 - Consultation and Coordination

The Forest Service consulted the following individuals, Federal, State, and local agencies, Tribes and non Forest Service persons during the development of this environmental assessment:

Federal, State, and Local Agencies

National Oceanic and Atmospheric Administration, National Marine Fisheries Service
U.S. Fish and Wildlife Service
Washington State Department of Archaeology and Historic Preservation

Tribes

Muckleshoot Indian Tribe
Puyallup Indian Tribe
Yakama Indian Tribe
Duwamish Indian Tribe

Groups and Individuals

Arlene Brooks	Pacific Northwest Four Wheel Drive Association
Derrick Clark	Rednecks and Rugrats Four Wheel Drive Club
Scott Neff	Cascade Family Motorcycle

Chapter 5 - List of Preparers

ID Team Members, Consultants, and Preparers

Interdisciplinary Team Member	Team Assignment
Stephanie Swain	Team Leader
Robert Pacific	Recreation/Trails
Don Davison	Heritage Resources
Laura Martin	Botanical Resources
Anthony Starkovich	Fire and Fuels Management
Sonny Paz	Wildlife Resources
Karen Chang	Fisheries Resources
Aldo Aguilar	Soils Resources
Ron Hausinger	Road and Transportation
Ian Canaan	Law Enforcement
Doug Schrenk	Environmental Coordinator
Steve Johnson	Budget Coordinator

Team Support

Name	Support Function
Jim Franzel	District Ranger (Deciding Official)
Paula James	GIS Specialist
Jan Hollenbeck	Forest Archaeologist
Janice Peterson	Air Resources Specialist