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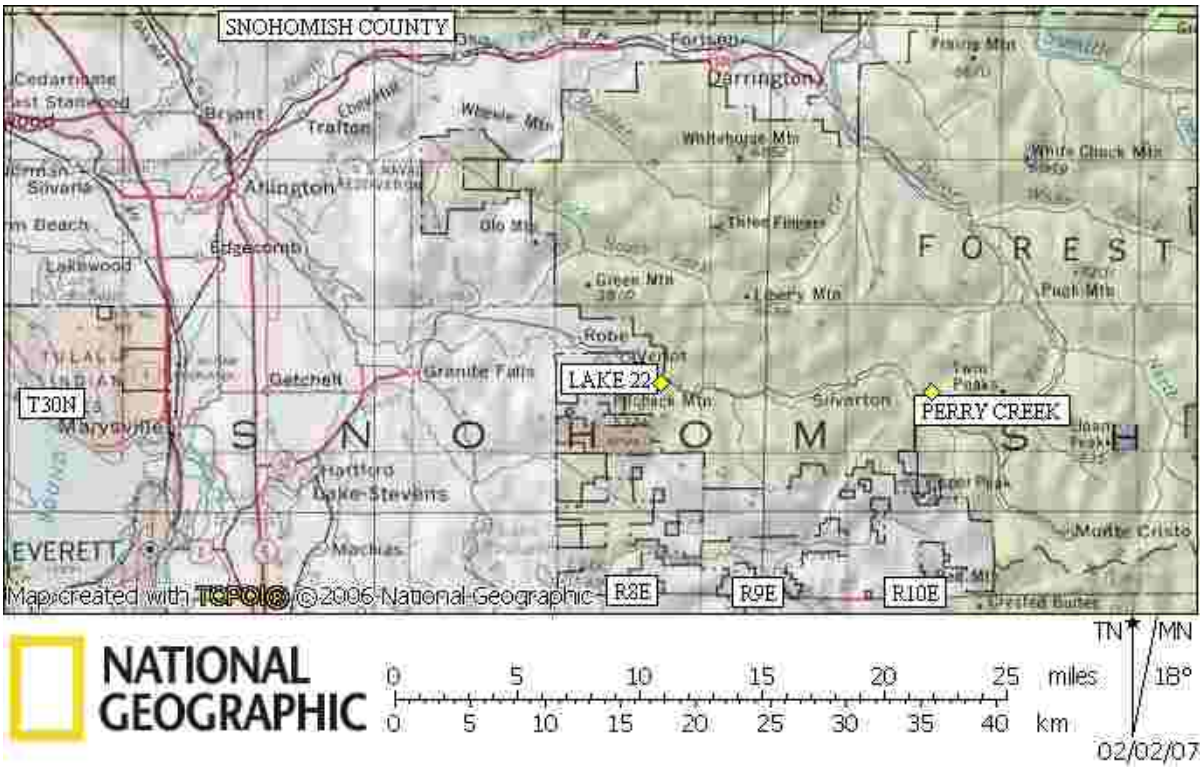
Figure 1. Vicinity Map



Chapter 1 –Purpose of and Need for Action

Introduction

The Mountain Loop National Forest Scenic Byway traverses 51 miles between the towns of Darrington and Granite Falls with 41 miles of it through the Mt. Baker-Snoqualmie National Forest. The Mountain Loop National Forest Scenic Byway (aka Mountain Loop Scenic Byway), and the recreation opportunities along it, are major tourist draws to the area. Funding is available through the Washington Forest Highway program of the Federal Highways Administration, for recreation enhancement along this Forest Service Scenic Byway. The parking capacity is exceeded at several recreation sites and with this proposed action; the Forest Service would use those funds to enhance the recreational experience, capacity, and safety at those sites.

The Mountain Loop Scenic Byway is mostly a double-lane paved highway. There is a 27 miles-long paved section from Granite Falls to Barlow Pass, and a 10 mile paved section from Darrington to the confluence of the White Chuck and the Sauk Rivers (maintained by Snohomish County Public Works) In between the paved sections, there is 14 miles of single-wide gravel road with turnouts, maintained by the Forest Service. The National Forest boundary is seven miles east of Granite Falls and three miles south of Darrington.

This 51-mile drive is easily accessible to more than three million residents living in the central Puget Sound area. Recreationists are the main users of the road and its associated enhancements. The Mountain Loop Scenic Byway provides access to 12 campgrounds, 30 trailheads, 2 boat launches, numerous interpretive sites, a Wild and Scenic River, 3 wilderness areas, 3 Research Natural Areas, 5 picnic areas, 2 National Historic Register sites, the Big Four Ice Caves National Scenic Trail, Monte Cristo historic mining town, Mount Pilchuck State Park and over 200 miles of trail. There are also residences and private land along this route. The highest use of the area occurs between May and September, with less use during the winter months.

Purpose and Need for Action

The purpose and need of this action is to provide appropriate capacity and safe parking for the Lake 22 and Perry Creek Trails, and to enhance the recreational experience.

The Lake 22 Parking Lot (30 parking slots) is filled most weekends and holidays. This trail is one of the most heavily used on the Darrington Ranger District and provides access to the Lake 22 Research Natural Area. Additional vehicles park along the highway with an estimated 18 vehicles during peak use. This popular parking lot is often times filled to capacity with winter recreationists using the area for winter hikes and snow activities. Pedestrians, who park along the Mountain Loop Scenic Byway, must walk along the often-busy highway to reach the trailhead, which can be a safety concern. Snohomish County Public Works is planning to install guardrails along this portion of the Mountain Loop Scenic Byway in 2007, which would reduce the available roadside

parking. There is a need to increase the an capacity of the Lake 22 Parking Lot to an appropriate level to accommodate those using the trailhead.

The Lake 22 parking lot, circular in shape, has vegetation growing in the middle (refer to Appendix A for figure), which obscures the view across the parking lot. Every year, there are numerous vehicles break-ins at this trailhead, and the poor visibility makes it difficult to observe suspicious activities. Limited visibility is a concern to Forest Service and law enforcement staff because of the potential for hazardous confrontations (personal communication with Mike Gardiner, Law Enforcement Officer). There is a need to add security to the parking lot for hikers, Forest Service staff, and law enforcement officers.

Currently the trailhead has only a single toilet facility, which is old, and does not function well. The location of the toilet is in a shaded area, which contributes to sanitation and odor problems. There is a need to remove and replace the toilet in order to eliminate the odor, and to increase the capacity of the facility to accommodate the large numbers of people using it.

A single bulletin board provides only limited information. There is a need to improve the capacity of information available to the recreationists using the area. This trailhead is located within Section 23, T30N, R8E.

The Perry Creek Trailhead is located at the end of Road 4063, a narrow, single-lane road originally built for timber hauling. The Perry Creek Trail provides access to the Perry Creek Research Natural Area. Vehicles are parked for several hundred yards from the trailhead because there is no “official” parking lot, and very limited turn-around space at the road’s end. If one vehicle parks in the tight turn around area, it makes it impossible for other vehicles to turn around, forcing them to back up for a long distance to an alternate turn-around site. The narrow road has steep slopes above and below, and several times a year vehicles must be towed because of being stuck over the edge of the road.

An estimated 25 cars park along the road during peak summer weekend days. There are no toilet facilities and very little recreation information available on the single bulletin board.

There is a need to increase the capacity of this parking lot to an appropriate level of capacity. This trailhead is located within Section 23, T30N, R10E.

The Dickerman Trailhead is located about one mile from the Perry Creek Trailhead and currently accommodates 20 vehicles, has one toilet, and a bulletin board. This site could be expanded to accommodate Perry Creek Trail parking.

This project would contribute to Developed Recreation (MA 3) goal to provide a wide variety of year-round recreational experiences and facilities at developed sites. This trailhead is located with Section 26, T30N, R10E.

Proposed Action

The proposed action is the same as Alternative 3.

Lake 22-The parking lot would be expanded from approximately 30 to 48 vehicles by removing some of the vegetation from around the interior island and parking lot perimeter. Forty-eight is the current estimate of use when the lot is full and cars are parked along the Mountain Loop. Brush, rocks, and small trees would be removed, but not any of the large trees. The entire parking area would receive a new lift of crushed rock (approximately 2 inches), and the entrance would be constructed to meet County road intersection standards, with ditching on both sides. Wheel stops would be installed in the new parking slots. Total area of disturbance would be approximately 0.08 acre. No parking would be allowed along the remaining open road shoulder of the Mountain Loop Scenic Byway and would be enforced by County and Forest Service law enforcement personnel. Once the parking lot fills, hikers would need to go to a different destination.

A new toilet (double stall CXT Rocky Mountain style) would be installed north of its current location to take advantage of better sunlight to improve the flow of air to the toilet, reducing odor. The old toilet would be removed, the hole filled, and concrete beat into chunks with the excavator. No new kiosk would be needed. Signing would be added (trailhead parking ahead, stop sign, a one-way sign). A small bulletin board would be installed near the new toilet. The cost estimate is approximately $91,000.

Dickerman Trailhead-The current parking lot would be expanded from approximately 20 to 70 vehicles. The new addition and existing parking lot would get a layer of gravel to the depths needed, the entrance would be constructed to meet County road intersection standards, and about four to five feet of width added to the entrance road. A log would be placed between the rows of parking, which would come from on-site, and wheel stops would be added to the old and new sites. There would be straight pull-in parking rather than angled parking. Boulder traffic barriers would be added to both ends of the parking islands, at the west end of the parking lot, and at the east end to separate the toilet area. The total area of new disturbance would be approximately 0.44 acre. The estimate of trees to be removed is as follows:

- Douglas-fir-25 trees at 21 to 35 inches diameter, 15 trees at 15 to 21 inches diameter, and 5 trees less than 15 inches diameter.
- Western red cedar-10 trees at 5 to 15 inches diameter.

The existing Dickerman toilet would remain with a new single stall toilet (CXT Rocky Mountain style) added to the west end for Perry Creek trail users. The existing kiosk for Dickerman would be replaced and a new kiosk added to the west end for Perry Creek Trail. The existing bulletin board at the current Perry Creek Trailhead would be removed. New signs include an entrance sign (indicating parking for Dickerman and Perry) and directional signing.

A connector trail would be built between the parking lot and milepost 0.70 on the Perry Creek Road leaving 0.40 mile to be converted to trail. The hiker-only trail would be approximately three-feet wide, and one mile in length. The route is dry, crossing few streams, all of them ephemeral. No bridges, turnpike, or puncheon would likely be used. The Perry Creek Road-to-trail conversion would entail side cast pull back, removal of some culverts, and installation of water bars. The remaining 0.70 mile of the Perry Creek

Road and the 0.30-mile long Road 4063030 would be closed and placed in storage. This would include pulling unstable side cast, removing some culverts, installing water bars and blocking the road.

Project Scope and Decision to be Made

The scope of the project includes analyzing the proposed recreation enhancements that include reconstruction of the Lake 22 Trailhead and the Perry Creek/Dickerman Trailhead, associated interpretation and sanitation, and the closure of the Perry Creek Road.

The District Ranger (Responsible Official) will decide whether or not to implement the proposed recreation enhancements and, if so, what design and mitigation measures are to be implemented.

Relationship to the Forest Plan and Other Documents

This project tiers to the Final Environmental Impact Statement (FEIS) for the Mt. Baker-Snoqualmie Land and Resource Management Plan (USDA Forest Service 1990), as amended (referred to as Forest Plan). Major amendments include:

- FEIS on Management of Habitat for Late-Successional and Old-Growth Related Species Within the Range of the Northern Spotted Owl, as adopted and modified by the April 1994 Record of Decision (ROD), which provides additional standards and guidelines (referred to as 1994 ROD);
- Record of Decision Amending Resource Management Plans for Seven Bureau of Land Management Districts and Land and Resource Management Plans for Nineteen National Forests Within the Range of the Northern Spotted Owl to Clarify Provisions Relating to the Aquatic Conservation Strategy (March 2004);
- Record of Decision and Standards and Guidelines for Amendments to the Survey and Manage, Protection Buffer, and other Mitigation Measures Standards and Guidelines USDI Bureau of Land Management 2001), as reinstated by U.S. District Court Order (January 9, 2006), as the ROD was amended or modified as of March 21, 2004[1];
- Record of Decision for Preventing and Managing Invasive Plants in the Pacific Northwest Region (October 2005).

The 1990 Mt. Baker-Snoqualmie National Forest Land and Resource Management Plan (Forest Plan), provides management direction for National Forest System lands within the project area. Direction is provided in the form of goals and objectives, standards and guidelines (S&G), and Management Area (MA) prescriptions.

Land Allocations

The 1994 ROD described seven land allocations and amends the 1990 Forest Plan allocations. There is considerable overlap among some allocations and more than one set

[1] *This same Court Order set aside a 2004 ROD, which removed/modified the survey and manage mitigation measure standards and guidelines.*

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 guides apply. The 1994 ROD and the two 2004 amendments include additional forest-wide standards and guidelines that guide management of the Mt. Baker-Snoqualmie National Forest. The project sites are located within Management Areas of Late Successional Reserve (LSR) and Recommended Wild and Scenic River (MA 5B). The Lake 22 and Dickerman Trailheads are designated Developed Recreation Sites (MA 3A). Riparian Reserves overlap a portion of the proposed connector trails and trailhead. Research Natural Areas (MA 18) are adjacent to each of the trailheads and their trails are within them. The following are brief descriptions of these management allocations:

Developed Recreation Sites (MA 3A)

The goal of developed recreation is to provide a wide variety of year-round recreational experiences and facilities at developed sites. Developed recreation sites may appear mostly natural to rural in setting. Physical facilities may be evident; design and construction will repeat the color, shapes, and lines of the surrounding environment.

The Lake 22 and Dickerman Trailheads are Developed Recreation Sites Management Area (MA) 3A Public Sector Developed sites. Perry Creek Trailhead is not designated as MA 3A, it is designated as a road.

MA 3A Standards and Guidelines (Forest Plan page 4-176, 177)

- Constructed structures should be architecturally compatible with the established landscape.
- Sites may be modified to accommodate recreational facilities and uses.
- Building should present naturally harmonious colors.
- Sites will be developed that are appropriate to the forest environment.
- Where the need exists, facilities in existing developed sites should be modified to make them usable by the handicapped.
- Sites shall be designed to ensure that the People At One Time (PAOT) capacity of the site is in proper relationship to the desired Recreation Opportunity Spectrum (ROS) class (natural roaded to rural) and the ability of the site to withstand use.
- Overcrowding and loss of privacy will be prevented by strategically locating improvements, limiting their number, or designing facilities so as to limit the number of persons who can physically use or occupy them at one time.
- Site plans should show the specific location and design of all facilities and will provide for proper utilization of the site, control of traffic, public safety, sanitation, site protection, grading, landscape planting, and use distribution.

Late-Successional Reserves (LSR)

The main objectives for these reserves, in combination with other land allocations and standards and guidelines, is to maintain a functional late-successional and old-growth forest ecosystem as habitat for late-successional and old-growth related species. Proposed actions should be designed to contribute to attainment of the Aquatic Conservation Strategy objectives and be consistent with Late Successional Reserve Standards and Guidelines. A Forest-wide LSR assessment has been completed (Forest Service 2001).

LSR Standards and Guidelines (Forest Service, Bureau of Land Management 1994)

- Non-silvicultural activities located within Late-Successional Reserves that are neutral or beneficial to the creation and maintenance of late-successional habitat are allowed (1994 ROD, pg C-16).
- Development of new facilities that may adversely affect Late-Successional Reserves should not be permitted. New development proposals that address public needs will be reviewed on a case-by-case basis and may be approved when adverse effects can be minimized and mitigated.
- Existing developments in Late-Successional Reserves such as campgrounds, recreation residences, etc. are considered existing uses with respect to Late-Successional Reserve objectives, and may remain (1994 ROD, pg C-17).

Riparian Reserves

This allocation includes areas along all streams, wetlands, ponds, lakes and unstable or potentially unstable areas. Riparian Reserves overlay other management areas, and the Riparian Reserve standards and guidelines apply wherever Riparian Reserves occur (including Late-Successional Reserves). The South Fork Stillaguamish River is a Tier 1 Key Watershed. Project elements within riparian reserve include the proposed trails, the Lake 22 Trailhead, and the proposed additional parking at Gold Basin Mill Pond.

Key Watershed Standards and Guidelines (from 1994 ROD)

- Outside Roadless Areas, reduce existing system and non-system road mileage. If funding is insufficient to implement reductions, there will be no net increase in the amount of roads in Key Watersheds (1994 ROD, pg C-7).
- Key Watersheds are highest priority for watershed restoration (1994 ROD, pg C-7).

Riparian Reserve Standards and Guidelines for 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 (1994 ROD, pg C-34).
- 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 (1994 ROD, pg C-34).

Recommended Wild & Scenic River (MA5B)

The South Fork Stillaguamish River was recommended for scenic designation under the Wild and Scenic Rivers Act in the 1990 MBS Forest Plan. Recommended Wild and Scenic Rivers are to be managed to protect those characteristics that contribute to their eligibility until formally designated by Congress. No substantial evidence of human activity should be present, although the river may be accessible by roads, which may occasionally bridge the river. Lands should appear natural when viewed from the riverbanks.

MA 5B Standards and Guidelines (from Forest Plan page 4-192)

- A.1.a. Recreational sites and facilities are to be located, designed, and constructed to be unobtrusive from the river and riverbank.

Research Natural Areas (MA 18)

Research Natural Areas (RNA) are part of a national network of ecological areas designated in perpetuity for research and education, and/or to maintain biodiversity on National Forest lands. They are designated by the Research Station Director. Except for riparian reserves, no other designation from the Forest Plan, as amended, applies. RNA objectives are to: preserve elements and processes; preserve and maintain the natural genetic diversity of native plants and animals; serve as a baseline area for the research of plant and animal communities, and for measuring long term ecological changes; provide opportunities for education about plant and animal communities, and; allow recreational use in a manner that will not compromise the purposes of the RNA. The Lake 22 and Perry Creek Research Natural Areas are adjacent to the proposed projects and are accessed by the trails originating at the trailheads being analyzed.

RNA Standards and Guidelines (from Forest Plan pg 4-252)

- A.1.a. Recreation activities and use within RNAs shall not be encouraged. If necessary to prevent damage, permits or closures may be instituted.
- A.5.a. Existing trails will be allowed to remain. Public use of existing trails in RNAs may be allowed to continue, but increases in such use or off-trail use will not be encouraged.

Other Relevant Laws and Direction

Watershed Analysis

The Lake 22 Trailhead is located in the Lower South Fork Stillaguamish River watershed, and the Perry Creek Trailhead is located in the Upper South Fork Stillaguamish River watershed. Watershed analysis has been completed for both. The South Fork Upper Stillaguamish Watershed Analysis (Forest Service 1995) and the South

Fork Lower Stillaguamish River/Canyon Creek Watershed Analysis (Forest Service 1996) have been completed. Some findings from those analyses that are relevant here include the following:

- The existing heavy use within the Lake 22 RNA is inconsistent with RNA management standards and guidelines in the MBS Forest Plan.
- With the increased recreation use of the (Perry Creek) area, the viability of some plant species may be of concern. Populations of several *Botrychium* species in the Perry Creek RNA may be jeopardized with increased foot traffic along the Perry Creek Trail.
- Wildlife habitat condition and use has been altered primarily by past timber harvesting and human disturbance. Restoration opportunities include road closures.
- Roads in close proximity to special habitats should be assessed for impacts along with needed mitigation. Opportunities for decommissioning roads should be considered in area where a single road infiltrates an area. Roads proposed for decommissioning should be evaluated for trail conversion opportunities.

Lake 22 Research Natural Area Management Plan

This plan provides background on the history of the Lake 22 Research Natural Area (RNA), a description of its natural resources, current conflicts, and management recommendations. Specific items that apply to this proposal can be found in the RNA description in Chapter 2, Alternatives.

National Environmental Policy Act

This environmental assessment has been prepared in accordance with regulations established under the National Environmental Policy Act of 1969 (NEPA).

Endangered Species Act

Section 7 (a)(2) of the Endangered Species Act of 1973 as amended, requires federal agencies to review actions authorized, funded, or carried out by them, to ensure such actions do not jeopardize the continued existence of federally listed species, or result in the destruction or adverse modification of designated critical habitat. The Forest Service consults with the U.S. Fish and Wildlife Service (USFWS) and National Marine Fisheries Service (NMFS) on projects that could potentially affect listed species or critical habitat. The Forest currently has three programmatic consultation documents with these regulatory agencies that cover most of the Forest's program of activities for several years.

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. For this project, the Pacific Coastal Salmon Plan manages for chinook, coho, and pink salmon. According to EFH regulations, 50 CFR section 600.920(a)(1), EFH consultations are not required for completed actions or project-specific actions with a signed decision under the National Environmental Policy Act, and these regulations enable Federal agencies to use existing consultation and environmental review procedures to satisfy EFH consultation requirements.

National Historic Preservation Act

The National Historic Preservation Act of 1966, Executive Order 11593, 36 CFR 800.9 (Protection of Historic Properties), Section 106 requires documentation of a determination of whether each undertaking would affect historic properties. The Mt. Baker-Snoqualmie National Forest 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

The Clean Air Act Amendments of 1977 give federal land managers an affirmative responsibility to protect the air quality related values (including visibility) within Class 1 areas.

Wilderness areas are designated as Class 1 areas for air quality protection. Visibility is a value that is protected primarily within the boundaries of a Class 1 area, although the Clean Air Act includes provision for definition of vistas integral to a visitor's experience, even if these vistas extend beyond the boundaries of the Class 1 area.

Clean Water Act

The Clean Water Act (CWA) of 1977 and subsequent amendments established the basic structure for regulating discharges of pollutants into the waters of the United States. It gives the Environmental Protection Agency (EPA) the authority to implement pollution control programs, and to set water quality standards for all contaminants in surface waters. The Act makes it unlawful for any person to discharge any pollutant into waters of the United States, unless a permit (i.e. Section 404 permit) has been obtained under its provisions. The EPA delegated implementation of the CWA to the States; the State of Washington recognizes the Forest Service as the Designated Management Agency for meeting CWA requirements on National Forest System lands.

Section 303(d) of the federal Clean Water Act requires Washington State (Department of Ecology) to periodically prepare a list of all surface waters where pollutants have impaired the beneficial uses of water (for drinking, recreation, aquatic habitats, etc.). Types of pollutants included high temperatures, fecal coliform, excess nutrients, low levels of dissolved oxygen, and toxic substances. The current Washington State list for these Water Quality Limited Water bodies is dated 2004 (EPA approved the 2002/2004 list in November of 2005). The Forest Service Region 6 and the Washington State

Department of Ecology meet this management mandate under a Memorandum of Agreement (MOA) with emphasis on reducing effects of roads on water quality.

Executive Orders 11988 (Floodplains) and 11990 (Wetlands)

The purpose of these orders are to "…avoid to the extent possible the long and short term adverse impacts associated with the occupancy and modification of floodplains and to avoid direct and indirect support of floodplain development…" and "avoid to the extent possible the long and short term adverse impacts associated with the destruction or modification of wetlands…"

Invasive Species Management

The 1999 Executive Order on invasive species (direction found in Forest Service Manual 2080) and National and Regional strategies for noxious weed management identify prevention as the preferred strategy for managing competing and unwanted vegetation.

A Record of Decision has been signed for Preventing and Managing Invasive Plants in the Pacific Northwest Region (Forest Service October 2005). The MBS National Forest is implementing its own invasive plant environmental assessment (2005) which has Best Management Practices complementary to Regional direction. The two documents describe prevention measures and detail methods for control of noxious weeds. In the event of a conflict, the most restrictive document takes precedence.

Roads Analysis

Forest-wide roads analysis, a process used to inform decisions related to road management, has been completed: Mt. Baker-Snoqualmie National Forest Roads Analysis, July 2003. Roads analysis is not a decision-making process but assesses Forest transportation management needs, long-term funding, and expected ecosystem, social, and economic effects. Each road segment on the Forest was assessed for both access need (e.g. needed for recreation, vegetation management, etc.) and by concern for resource impacts. This information can be used to provide the responsible official with critical information needed to identify and manage the Forest road system.

Public Involvement

Following identification of the proposed action, scoping letters (dated April 13, 2005) were mailed to 327 groups and individuals and to 7 tribes. Twelve responses were received.

The comments were analyzed to help identify key issues to the proposed action. Key issues are those that can be used to develop alternatives as they directly or indirectly influence or are impacted by implementing the proposed action. Non-key issues are: 1) those 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. Table 8 in Chapter 4

identifies the comments and issues. About half of the comments supported the proposed action and the other half supported no action (mostly in regards to Perry Creek Trailhead, in that last case).

Issues

Chapter 4 identifies substantive public comments that were considered in developing the following key issues. The responsible official identified the following key issues for this proposed action.

1. Increased impacts to the Research Natural Areas as greater parking capacity facilitates increased use of the Perry Creek and Lake 22 Trails within Research Natural Areas. Measure = number of parking slots.
2. Reduce safety hazards, including pedestrians walking along the Mountain Loop Scenic Byway and the personal safety of Forest Service personnel working in heavily screened parking areas. Measure = acres of lost vegetation screening, amount and location of parking.
3. Minimize cost, both short term construction cost and long term maintenance cost. Measure = cost in dollars.
4. Adverse impacts on LSR. Measure = acres of late successional forest removed.
5. More difficult and longer access to the Forgotten Mountain backcountry by closing Perry Creek Road 4063, which may eliminate or change the type of user from day hiker to overnight backpacker and eliminate a scenic drive. Measure = miles of trail, miles of drivable Perry Creek Road, hiking time.
6. Potential impacts to fish, fish habitat, and riparian areas. Measure = Effect determination, acres of disturbance in riparian reserves.
7. Potential impacts to suitable nesting habitat and designated critical habitat for spotted owls and marbled murrelets. Measure = acres removed, numbers of trees 21 inches diameter and above removed.

Chapter 2 Alternatives

Introduction

The Responsible Official approved the proposed action and its alternatives as well as the issues identified in the previous chapter.

This chapter describes and compares the three alternatives considered for this project. This section also presents the alternatives in comparative form, displaying the differences between each alternative and providing a basis for choice among options by the decision maker and public.

Process Used to Formulate the Alternatives

In March 22, 2005, the Acting District Ranger chartered a team to conduct an environmental analysis of the proposed action and alternatives to it (Letter to Interdisciplinary Team Members March 22, 2005).

The Interdisciplinary Team assessed the existing conditions for the proposed action areas as well as surrounding lands that could be affected by the proposed project. The team compared the existing condition to desired future conditions for the area, as established by the Forest Plan. The team also examined findings from the South Fork Upper Stillaguamish Watershed Analysis (Forest Service 1995) and the South Fork Lower Stillaguamish River Canyon Creek Watershed Analysis (Forest Service 1996), the Forest Roads Analysis (Forest Service 2003) and other laws, regulations, and direction.

Early public participation produced scoping comments from interested organizations and individuals. The Interdisciplinary Team reviewed each comment and used this input, as well as issues identified at team meetings, along with internal (agency) scoping to identify key issues (described in Chapter 1). These comments were used, in combination with the stated purpose and need for action, to consider the effects and frame the alternatives, design criteria, and monitoring plans (see table of scoping comments in Chapter 4).

The National Environmental Policy Act (NEPA) requires analysis of a No Action Alternative (40 CFR 1502.14d) in addition to an Action Alternative. This No Action alternative is used as a baseline to compare the action Alternatives, although it does not meet the purpose and need for action. No action is defined as no change from current management. Current projects and activities would continue, however the stated purpose and need described in Chapter 1 would not be achieved.

All proposed actions would meet existing laws, regulations, and policies. All known threatened, endangered, sensitive, survey and manage plant or animal species would be assessed for potential adverse impacts, and conservation measures from the Biological Assessment and Biological Opinion would be used to minimize potential impacts. Wetlands would not be adversely impacted. Cultural resources would be protected in accordance with the National Historic Preservation Act, Executive Order 11593, and other legislation and policy.

Alternatives Considered but Eliminated from Detailed Study

The purpose and need for the proposed action is to provide appropriate, safe parking for the Lake 22 and Perry Creek Trails. Suggested actions that did not contribute toward meeting the purpose and need were eliminated from detailed study, except for the no action alternative.

An alternative to enlarge the existing Perry Creek Trailhead was considered, but was not studied in detail. The Perry Creek Trailhead consists of an unimproved road end with little room for turning around. The Perry Creek Road 4063 is a single lane road built originally for timber haul purposes. The slope above and below it is very steep. Several times a year, a vehicle puts one or two tires over the edge trying to turn around and has to be towed back up onto the road. The road is so narrow and the slopes so steep at this location that construction of a parking lot was not feasible since the massive amount of excavation would create extreme impacts and costs.

An alternative to build a new parking lot along the north side of the Mountain Loop, between Perry Creek and the Perry Creek Road, was examined in the field by the specialists. The area towards Perry Creek contains old growth, with trees that have good limb structure for spotted owls and murrelets. It is also within the riparian reserve. The area along the Road contains second growth, but contains wetlands and steep slopes making it unsuitable for a parking lot. Preliminary assessment indicated that construction of a parking lot and trailhead at this location would have adverse effects on threatened or endangered species, Late Successional Reserves, and Riparian Reserves.

An Alternative to build a parking area along the Perry Creek Road in some formerly clearcut land was also examined. Field reconnaissance showed the stands along the road to be on fairly steep ground requiring undesirable amounts of excavation. A parking area here would have had adverse effects on threatened or endangered species, and LSRs.

A suggestion to enlarge the existing Hemple Creek picnic area parking site was suggested but also not considered in detail. This site is on the opposite side of the Mountain Loop Scenic Byway from the Lake 22 Trailhead and would have added to the safety concern of pedestrians crossing the Mountain Loop to access Lake 22. It is also limited to its current size as it is between the South Fork of the Stillaguamish and Hemple Creek.

Alternatives Considered in Detail

Under all Alternatives, an item that must be factored into the description and effects is Snohomish County's plans to install guardrails along the Mountain Loop Scenic Byway beginning in late 2007. The guardrails would be installed along several miles of the Mountain Loop, including adjacent to the Lake 22 Trailhead entrance. They would physically block most of the parking along the road shoulder that currently exists.

Refer to Appendix A for drawings of the trailhead alternatives. See the following figures for project area maps.

Figure 2. Lake 22 Map

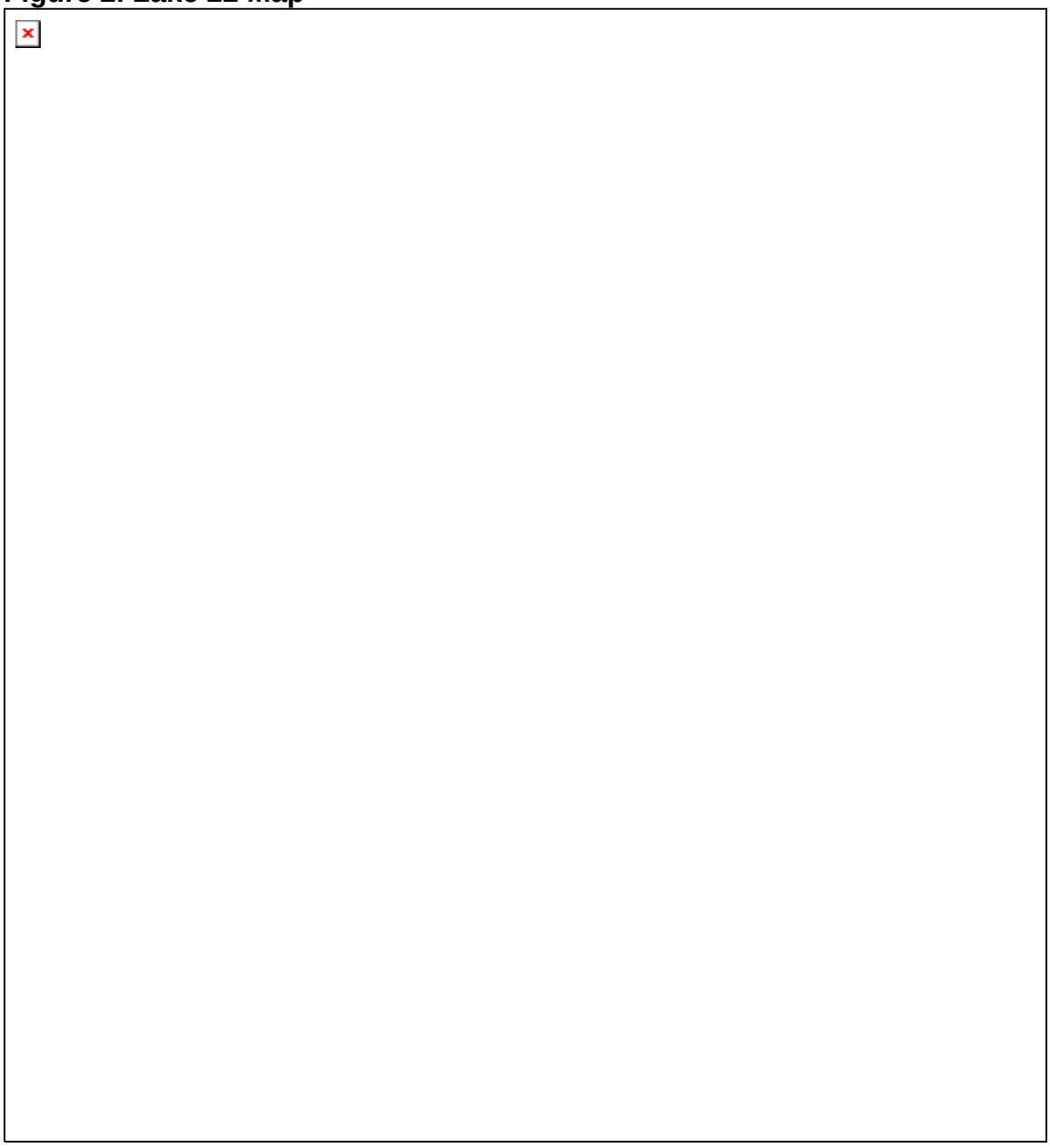
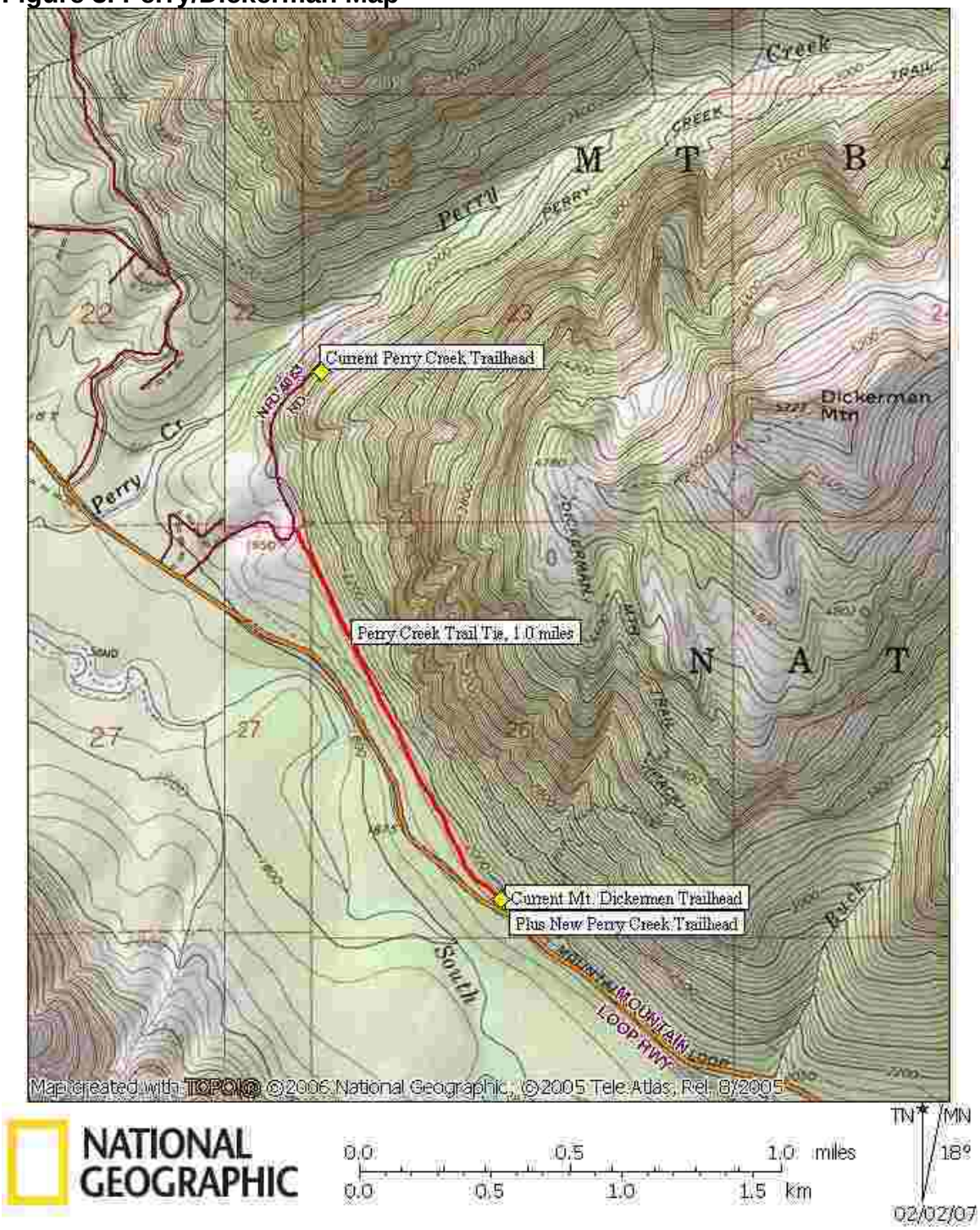


Figure 3. Perry/Dickerman Map



Alternative 1 No Action

Lake 22 Trailhead-The no action alternative would leave the Lake 22 parking lot (30 parking slots) as it is. Additional vehicles (18 estimated) would park along the highway until Snohomish County Public Works installs guardrails along this portion of the Mountain Loop Scenic Byway in 2007. Some limited parking (about 6 vehicles) along the Mountain Loop would likely continue once capacity is exceeded at Lake 22. There would be no new trails, toilets, kiosks, or signs. There would be no changes to the Gold Basin Mill Pond site. Maintenance of the recreation sites and trails would continue.

Perry Creek Trailhead-No changes would be made to the Perry Creek Trailhead, which consists of an unimproved road end, with little room for parking or turning around. During peak summer weekends, an estimated 25 cars park alongside the road. There would continue to be no toilet to provide for visitor needs and a single bulletin board. The difficult and limited parking and the lack of sanitation facilities and information would continue. Perry Creek Road 4063 would continue to be open. No changes would be made at the Mt. Dickerman Trailhead. Maintenance of the roads and trails would continue.

Alternative 2

Lake 22 Trailhead-No additional parking would be added to this site. Once the parking lot fills, people would have to find another trail. No parking would be allowed along the remaining open road shoulder of the Mountain Loop Scenic Byway and would be enforced County and Forest Service law enforcement personnel. Once the parking lot fills, hikers would need to move to another destination.

The parking lot would get a new layer of gravel, and the entrance would be constructed to meet Snohomish County road intersection standards, with ditching on both sides. There would be a new toilet (double stall CXT Rocky Mountain style), located due north of the current facility, to take advantage of better sunlight which improves the airflow and odor. The old toilet would be removed, the hole filled, and concrete broke into chunks with the excavator. No new kiosk would be needed. No trees would likely be removed under this alternative. Signing would be added (trailhead parking ahead, stop sign, a one-way sign). A small bulletin board would be installed near the new toilet.

Perry Creek Trailhead would be relocated to the Mt. Dickerman Trailhead and a mile of trail construct to tie the Perry Creek Trail to this new trailhead. The Mt. Dickerman Trailhead parking lot would be expanded by approximately 35 stalls (from 20 to 55) to incorporate the Perry Creek Trailhead. The current estimate of use at Perry Creek is 25 vehicles, and Dickerman is already full at times, so an increase of 35 would accommodate current Perry Creek use and also some of the increasing demand at the Mt. Dickerman Trail.

The new addition and existing parking lot would get a layer of gravel to the depths needed, the entrance would be constructed to meet County road intersection standards, and about four to five feet of width would be added to the entrance road. A log would be placed between the rows of parking, which would come from on-site, and wheel stops

would be added to the old and new sites. There would be straight pull-in parking rather than angled parking. Boulder traffic barriers would be added to both ends of the parking islands, at the west end of the parking lot, and at the east end to separate the toilet area. Total area of new clearing would be approximately 0.37 acre. Trees to be removed are estimated as follows:

- Douglas-fir-15 trees at 21 to 35 inches diameter, 10 trees at 15 to 21 inches diameter, and 3 trees at less than 15 inches diameter.
- Western red cedar-7 trees at 5 to 15 inches diameter.

The existing Dickerman toilet would remain, and a new single stall toilet (CXT Rocky Mountain style) would be added to the west end for Perry Creek trail users. The existing kiosk for Dickerman would be replaced, and a new kiosk added to the west end for Perry Creek Trail. The existing bulletin board at the current Perry Creek Trailhead would be removed. New signs include an entrance sign (indicating parking for Dickerman and Perry) and directional signing.

There would be a connector trail built between the parking lot and milepost 0.70 on the Perry Creek Road, leaving 0.40 mile to be converted to trail. The connector trail would be approximately one mile in length. It would be a hiker-only trail, three feet in width. The route is dry, crossing few streams, all of them ephemeral. No bridges, turnpike, or puncheon needs are anticipated. The Perry Creek Road-to-trail conversion would entail side cast pull back, removing some culverts, and installing water bars. The remaining 0.70 mile of the Perry Creek Road and the 0.30 mile 4063030 spur road would be closed and placed in storage. This would include pulling unstable side cast, removing some culverts, installing water bars and blocking the road.

Cost - The estimated cost for this alternative would be $160,000 for trailhead construction, $60,000 for trail construction, and $46,000 for Perry Creek roadwork. Gravel and rock would be obtained from commercial rock pits located outside of the National Forest.

Alternative 3

Lake 22 Trailhead-The trailhead parking lot would be expanded from approximately 30 to 48 vehicles by removing some of the vegetation from around the interior island and parking lot perimeter. Forty-eight vehicles comprise the current estimate of use when the lot is full, and overflowing cars are parked along the Mountain Loop. Brush, rocks, and small trees would be removed, but no large trees. The entire parking area would receive a new lift of crushed rock (approximately 2 inches), and the entrance would be constructed to meet County road intersection standards, with ditching on both sides. Wheel stops would be installed in the new parking slots. Total area of disturbance would be approximately 0.08 acre. No parking would be allowed along the remaining open road shoulder of the Mountain Loop Scenic Byway, and would be enforced by the County by installing guardrail and no parking signs. Once the parking lot fills, hikers would need to go to a different destination.

A new toilet (double stall CXT Rocky Mountain style) would be installed north of its current location to take advantage of better sunlight to improve airflow and odor. The old toilet would be removed, the hole filled, and concrete beat into chunks with the excavator. No new kiosk would be needed. Signing would be added (trailhead parking ahead, stop sign, a one-way sign). A small bulletin board would be installed near the new toilet.

Perry Creek Trailhead-The Perry Creek Trailhead would be relocated to the Mt. Dickerman Trailhead and a mile of trail construct to tie the Perry Creek Trail to this new trailhead. At the Mt. Dickerman Trailhead, the current parking lot would be expanded from approximately 20 to 70 vehicles. The current estimate of use at Perry Creek is 25 vehicles, and Dickerman is already full at times, so an increase of 50 would accommodate current Perry Creek use and provide for increases in future demand at the Mt. Dickerman Trail.

The new addition and existing parking lot would get a layer of gravel to the depths needed, the entrance would be constructed to meet County road intersection standards, and about four to five feet of width added to the entrance road. A log would be placed between the parking rows (from on-site), and wheel stops would be added to the old and new sites. There would be straight pull-in parking rather than angled parking. Boulder traffic barriers would be added to both ends of the parking islands, at the west end of the parking lot, and at the east end to separate the toilet area. The total area of new disturbance would be approximately 0.44 acre. The estimate of trees to be removed is as follows:

- Douglas-fir-25 trees at 21 to 35 inches diameter, 15 trees at 15 to 21 inches diameter, and 5 trees less than 15 inches diameter.
- Western red cedar-10 trees at 5 to 15 inches diameter.

The existing toilet would remain and a new single stall toilet (CXT Rocky Mountain style) would be added to the west end for Perry Creek trail users. The existing kiosk would be replaced, and a new kiosk would be added to the west end for Perry Creek Trail. New signs would include an entrance sign (indicating parking for both trails) and directional signing.

There would be a connector trail built between the parking lot and milepost 0.7 on the Perry Creek Road leaving 0.40 mile to be converted to trail. The trail would be approximately one mile in length. It would be a hiker-only trail and about three feet in width. The route would be dry, crossing few streams, all of them ephemeral. No bridges, turnpike, or puncheon are anticipated.

The Perry Creek Road-to-trail conversion would entail side cast pull back, removing some culverts, and installing water bars. The remaining 0.70 miles of the Perry Creek Road and the 0.30 mile-long Road 4063030 would be closed and placed in storage. This would include pulling unstable side cast, removing some culverts, installing water bars and blocking the road.

Costs-The estimated for this alternative would be $270,000 for trailhead construction, $60,000 for trail construction, and $46,000 for Perry Creek roadwork. Gravel and rocks would be obtained from commercial rock pits located outside of the National Forest.

Alternative 4

This alternative would be the same as Alternative 3 with additional parking for Lake 22 at Gold Basin Mill Pond by connecting with a trail. Parking would also be added to the Gold Basin Mill Pond interpretive site by using some of the space currently occupied by vegetation islands and adding sites to the east side of the parking lot. Two sites would be added to the vegetation island closest to the Mountain Loop, and five sites would be added to the east side of the parking lot by bringing in fill and expanding in that direction. All new sites would be paved and striped. The five sites to the east would have wheel stops. The two sites in the island would need new curbing but no wheel stops. Striping would be added to the west edge and signed for large vehicles.

The entire parking lot would be pressure washed first and the old striping re-painted. The parking capacity would increase from 10 to 17. Total area of new disturbance at this site would be approximately 0.03 acre. A new single-stall toilet (CXT Rocky Mountain style) would be added to the west side. One tree may need removing to accommodate it. A new entrance sign (to indicate both the Mill Pond and Lake 22 parking) would be installed as well as “keep right” sign, large vehicle parking sign, and a stop sign. A new kiosk would be installed at the start of the interpretive trail to replace the board there.

A connector trail between Gold Basin Mill Pond and the Lake 22 trail would be constructed. This route would be about 0.50 miles-long. It would be a hiker trail, three foot-wide tread, four foot-wide bridges. There would be approximately 250 meters of turnpike, 180 meters of puncheon (cedar plank boardwalk), three foot log bridges (33 feet, 40 feet, and 50 feet long), culverts, and ditches. One to two small (18 inch diameter) trees would need to be removed. The foot logs for the bridges would be flown from the trailhead to the trail by helicopter.

Costs-The total estimated cost for this alternative would be$310,000 ($40,000 for Gold Basin Mill Pond) for trailhead construction, $192,000 ($132,000 for Gold Basin connector trail) for trail construction, and $46,000 for Perry Creek roadwork. Gravel and rocks would be obtained from commercial rock pits located outside of the National Forest.

Mitigation and Conservation Measures for Alternatives 2, 3, and 4

Fisheries, Hydrology, Riparian Reserve

Mitigation measures used are from the Standards and Guidelines in the ROD (Forest Service 1994), and the Conservation Management Practices, Terms and Conditions, and essential fish habitat Conservation Recommendations from the NMFS Biological Opinion (USDC NMFS 2003). The evaluation of effectiveness of the measures is assessed in relation to the nature of the effect, the timing of the effect, proximity of the

effects, disturbance potential (frequency, intensity, and severity) and in the distribution of impacts. Conservation measures and best management practices would be employed, based on experience gained from previous projects on their effectiveness. Measures pertinent to this project are listed below. The complete list of measures from the documents identified above is in the analysis file at the Darrington Ranger District. While activities associated with Alternatives 2 and 3 are expected to have no effect to fisheries, the conservation measures would eliminate or minimize effects to riparian and aquatic habitats from road treatment and trail construction. Because activities associated with Alternative 4 could affect coho and coho essential fish habitat, the conservation recommendations are particularly appropriate.

- Felled Trees. Trees that must be felled within the riparian reserve and/or within the channel migration zone and floodplain should be felled toward the stream and left in place.
- Equipment Staging and Maintenance. Equipment/machinery staging, cleaning, maintenance, refueling, and fuel storage involving potential contaminants such as fuel, oil, and hydraulic fluid, should take place in a staging area placed 150 feet or more from any stream, water body or wetland. All vehicles and equipment operated within 150 feet of any stream, water body or wetland should be inspected daily for fluid leaks before leaving the staging area. Any leaks detected should be repaired in the staging area before resuming operation. Hazardous spill clean-up materials should be retained on site pertinent to the equipment being used.
- Weather Conditions. If wet weather conditions during project operations generate and transport sediment to a stream channel or other water body, operations should cease until the weather conditions improve.
- Erosion Control. Erosion-control methods should be used to minimize the entry of silt-laden water into streams or other water bodies, and all disturbed ground should be reclaimed using appropriate best management practices. Measures should be retained after project construction until soil has stabilized and are unlikely to erode into streams. Excess material should be disposed of and stabilized so it does not enter stream channels or other water bodies.
- Streambanks. Streambanks should be properly sloped to an angle of natural repose after culverts have been removed.
- Treated Wood. Projects using treated wood for any structure that may contact flowing water or that will be placed over water should not be used.
- Trail Rehabilitation. Old trail sections should be treated to prevent further use from occurring, and rehabilitated as needed.
- Trail Bridge Works. Trees within 100 feet of a stream course should not be used as bridge stringers. Construction of trail bridges should adhere to these design parameters:
    - The bridge should fully span the bankfull elevation of the stream channel, especially if over a spawning area.

- The bridge should be of sufficient height above flood waters to allow debris passage underneath.

Alternative 4-Interpretive signage at Gold Basin Mill Pond would be relocated if moved for construction of the connector trail between Lake 22 Trail and this site. Additional signs would be installed to help prevent users from disturbing coho during spawning season and when eggs are in the gravel.

- Timing of In-Water Work. Work within or immediately adjacent to the active channel should be completed during the summer low flow period, and preferably during the Washington State Department of Fish and Wildlife in-water work period of July 15 to August 15.

Cultural Resources

- Should previously unidentified heritage resources be discovered during project implementation, or if an identified resource is affected in an unanticipated way, the Heritage Specialist shall be notified and the Forest would fulfill its responsibilities within the Programmatic Agreement regarding Cultural Resource Management. The Stillaguamish Tribe shall also be notified.
- If Alternative 4 were selected, then ground disturbance in the vicinity of the Gold Basin Mill Pond will be monitored by cultural resource personnel. Ground disturbance at Lake 22 Trailhead would be monitored by cultural resource personnel. If anything of cultural significance is found, the Stillaguamish Tribe will be notified.

Botany

- All areas disturbed during construction will be re-seeded with the following seed mix "C": tufted hairgrass (Deschampsia caespitosa) @ 4 lbs/acre, annual ryegrass (*Lolium multiflorum*) @ 10 lbs/acre, winter triticale (*Triticum aestivum x Secale cereale*) @ 60 lbs/acre, and alsike clover (*Trifolium hybridum*) @ 2 lbs/acre. Applies to Alternatives 2, 3, and 4.
- Once seeded, the areas will be covered with weed-free straw. The seeding and mulching applies to disturbed areas around the Lake 22 Trailhead, Dickerman Mountain Trailhead, Gold Basin Mill Pond parking lot, and the portion of the Perry Creek Road converted from road to trail. Applies to Alternatives 2, 3, and 4.
- All equipment brought on to the National Forest must be free of weeds and weed seeds. Applies to Alternative 2, 3, and 4.
- All gravel sources, rock sources, and borrow sites must be weed free. See the District Botanist for a list of rock sources that have been surveyed and found to be weed free. Applies to Alternatives 2, 3, and 4.
- Maintain trail registration boxes for all trails (Lake 22, Perry Creek, and Dickerman Mountain) to monitor levels of use. Install an electronic counter (if available) to monitor use of the Perry Creek trail above Perry Creek Falls. Applies to Alternatives 2, 3, and 4.

- The Gold Basin Mill Pond to Lake 22 connector trail location would avoid the moss *Schistostega pennata* located at Hemple Creek. Applies to Alternative 4.

Wildlife

These conservation measures are to minimize noise disturbance during the breeding season for spotted owl and marbled murrelet.

- For the Perry to Dickerman connector trail construction, blasting may occur from August 6 to February 28. From August 6 to September 15, blasting and use of motorized equipment would occur between two hours after sunrise and two hours before sunset. Applies to Alternatives 2, 3, and 4.
- For the Gold Basin Mill Pond to Lake 22 connector trail construction, blasting and use of motorized equipment may occur from August 6 to February 28. From August 6 to September 15, blasting and use of motorized equipment would occur between two hours after sunrise and two hours before sunset. Helicopter use would occur after September 15. Applies to Alternative 4.
- The breakup of the cement at the existing Lake 22 toilet would occur between two hours after sunrise and two hours before sunset if it occurs from May 1 to September 15 with no restrictions between September 16 and April 30. Applies to Alternatives 2, 3, and 4.

Recreation

- Implement management treatment monitoring described in the Lake 22 RNA Management Plan. This monitoring would measure use levels, and physical impacts along the trail, and along the lakeshore.
- Develop and implement monitoring in the Perry Creek RNA that also measures use and physical impacts along the trail, and at Perry Creek Meadows.

Contract Monitoring

- All Government contract work shall be conducted under the general direction of the Contracting Officer and is subject to Government Inspection and tests at all places and at all reasonable times before acceptance to ensure strict compliance with the terms of the contract.

Comparison of Alternatives

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

Table 1. Comparison of Alternatives

Issue and Measure	Alternative 1 No Action	Alternative 2	Alternative 3	Alternative 4
Increased use in RNAs				
Lake 22 Trailhead Parking	48 Slots 36 Slots, 2007	30 Slots	48 Slots	65 Slots
Perry Creek Trailhead Parking	25 Slots	55 Slots*	70 Slots*	70 Slots*
Dickerman Trailhead Parking	20 Slots			
Safety				
Number of acres of Vegetation Screening Removed at Lake 22	0	0	0.08	0.11
Parking Along Perry Creek Road	25	0	0	0
Cost				
Parking Lot Construction	0	$160,000	$270,000	$310,000
Trail Construction	0	$60,000	$60,000	$192,000
Road Treatment	0	$46,000	$46,000	$46,000
Annual Maintenance				
Trail Mile Change	0	+1	+1	+1.5
Road Mile Change	0	-1.4	-1.4	-1.4
Loss of Late-Successional Forest				
Number of Acres Cleared	0	0.37	0.44	0.44
Number of Trees 21" and Above	0	15	25	25
Change in Perry Creek Use				
Change in Miles of Trail	0	+1	+1	+ 1
Change in Miles of Drivable Road	0	-1.4	-1.4	-1.4
Additional Hike Time (minutes)	0	30	30	30
Impacts to Fish and Riparian Areas				
Affect on Fish and Habitat	No effect	No Effect	No Effect	May impact coho or sucker
Disturbed Riparian Reserve Acres	0	0.06	0.16	0.26
Impacts to owl and murrelet nesting and critical habitat				
Acres of habitat removed	0	0.37	0.44	0.44
Trees over 21 inches diameter removed	0	15	25	25
Impacts to Grizzly Bear Habitat				
Net loss of core habitat and late season foraging habitat	0	0	0	0

These figures are combined parking for the Perry Creek and Mt. Dickerman Trails

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 the comparison of alternatives presented in Chapter 2.

Roads and Access

The Mountain Loop Scenic Byway from Granite Falls to Barlow Pass (27 miles) is a double lane paved road, which is operated and maintained by Snohomish County Public Works. Perry Creek Road 4063 is a single lane gravel road that provides access to the current Perry Creek Trailhead. Stalwart Road 4063030 is a short logging spur road off the Perry Creek Road. Lake 22 Trailhead is Road 4006 and is a graveled parking area. Gold Basin Mill Pond Road 4019 is a short paved road with parking.

Roads Analysis

The Mt. Baker-Snoqualmie National Forest Roads Analysis (July 2003) identifies transportation management opportunities and priorities. It assesses Forest transportation management needs, long-term funding, and expected ecosystem, social, and economic effects, including effects on the values of roadless and unroaded areas. It also incorporates Forest transportation management objectives and priorities. Road analysis provides the responsible official with critical information needed to identify and manage a minimum road system that is safe and responsive to public needs and desires. The following table displays the road information and roads analysis results.

Table 2. Roads Analysis Results

MP-milepost, ML-Maintenance Level, Obj.-Objective, Op.-Operational

Road No.	Road Name	MP	End MP	Miles	ML Ob	ML Op.	Resource Concern	Access Need
4063	Perry Creek	0	1.1	1.1	3	3	Yes	Yes
4063030	Stalwart	0	0.3	0.3	1	1	Yes	No-closed
4006	Lake 22 Parking	0	0.1	0.1	3	3	Yes	Yes
4019	Gold Basin Mill Pond Parking	0	0.2	0.2	4	4	Yes	Yes

In the 1998 Access and Travel Management report, however, specific comments for the Perry Creek Road refer to closing the road and relocating the trailhead to the Mountain Loop Scenic Byway. Comments were, “Possibly relocate trailhead off Mountain. Might be able to do this through Stalwart T[imber] S[ale].”

Maintenance Level 1: Intermittent service roads managed as closed to vehicular traffic. They are kept in storage until the next project access need; the closure period must exceed one year.

Maintenance Level 2: Roads open for use by high clearance vehicles. Passenger car traffic is not a consideration. Traffic is normally minor, usually consisting of one or a combination of administrative, permitted, dispersed recreation or other specialized uses.

Maintenance Level 3: Roads open and maintained for travel by a prudent driver in a standard passenger car. Roads are typically low speed, single lane with turnouts and spot surfacing.

Maintenance Level 4: Roads that provide a moderate degree of user comfort and convenience at moderate travel speeds. Most roads are double lane and aggregate surfaced; however, some may be single lane. Paved surfaces or dust abatement may be used.

Maintenance Level 5: Roads that provide a high degree of user comfort and convenience. These roads are normally double lane and paved, although some may be aggregate surfaced and dust abated.

Roads and Access Environmental Consequences

No Action

There would be no change in Road 4063. It would remain open to the public and passenger cars to use and access the existing Perry Creek Trailhead. The Perry Creek Trailhead parking would continue to be hazardous due to the narrow road, steep slopes, and no designated parking. Vehicles would continue to park along the Mountain Loop Scenic Byway, creating unsafe conditions. Snohomish County would continue to maintain and operate the Mountain Loop Scenic Byway up to Barlow Pass.

Alternative 2, 3 and 4

Perry Creek Road 4063 would be treated and closed to vehicles (including ATVs). The Perry Creek Trailhead would be relocated by expanding the Dickerman Trailhead and building one mile of trail. The last 0.40 mile of Road 4063 would be converted to trail, and the first 0.70 mile and the 0.30 mile Road 4063030 would be treated and put in storage.

Roads and Access Cumulative Effects

There are no other known activities affecting road access that overlap in time and space with this proposed project so there are no cumulative effects.

Recommended Scenic River

Mt. Baker-Snoqualmie Forest Plan (1990) calls for a Visual Quality Objective (VQO) of Retention in the Foreground and Partial Retention in the Middleground as seen from the Mountain Loop Scenic Byway. All of the proposed project sites (all 4 Alternatives) fall within the Foreground viewing zone from the Mountain Loop Scenic Byway. In a Retention objective, “management activities are not visually evident.” Activities may

only repeat form, line, color, and texture, which are frequently found in the characteristic landscape. Changes in their qualities of size, amount, intensity, direction, pattern, etc., should not be evident.

The South Fork Stillaguamish River was recommended for scenic designation under the Wild and Scenic Rivers Act in the 1990 MBS Forest Plan. Recommended Wild and Scenic Rivers are to be managed to protect those characteristics that contribute to their eligibility until formally designated by Congress. No substantial evidence of human activity should be present, although the river may be accessible by roads, which may occasionally bridge the river. Lands should appear natural when viewed from the river banks.

Recommended Scenic River Environmental Consequences

No Action

There would be no impact or effect to the existing Visual Quality Objectives (VQO's) along the Mt. Loop Highway. The river would continue to be eligible as a Wild and Scenic River.

Alternative 2

The minimum developments and improvements proposed in this Alternative would not have an effect to the existing VQO of "Retention" for this area. The proposed developments are small in scale and would not be noticed by drivers using the Mountain Loop Scenic Byway. In addition, the proposed toilet building structures would meet the Forest Plan architectural design theme of "Cascadian Architecture" which is in line with meeting the Retention VQO standards and guidelines for this area.

Recreational sites and facilities would be unobtrusive from the river and riverbank. The characteristics that contribute to eligibility for Wild and Scenic Rivers would be maintained. No substantial evidence of human activity would be present. Lands would appear natural when viewed from the riverbanks.

Alternative 3

The proposed developments in this alternative are larger in scale than in Alternative 2, but not large enough to be noticeable from the Mountain Loop Scenic Byway. Proposed developments at the Lake 22 Trailhead are screened from view from the highway due to the heavy vegetation along the edge of the road. The proposed parking expansion at the Dickerman Trailhead is also visually filtered from view due to the 100-foot wide tree buffer left adjacent to the highway. The Retention VQO would not be affected by the proposed developments at either of the two trailheads. In addition, the proposed toilet building structures would meet the Forest Plan architectural design theme of "Cascadian Architecture" which is in line with meeting the Retention VQO standards and guidelines for this area.

Recreational sites and facilities would be unobtrusive from the river and riverbank. The characteristics that contribute to eligibility for Wild and Scenic Rivers would be maintained. No substantial evidence of human activity would be present. Lands would appear natural when viewed from the river banks.

There would be no effect on the visual quality.

Alternative 4

The proposed developments in this Alternative are the same as Alternative 3 except for adding some additional improvements to the Gold Basin Mill Pond parking area. These proposed improvements/developments to the Gold Basin Mill Pond area would not have any negative effects to the Retention VQO for this area. The developments are visually screened from view from drivers on the Mountain Loop Scenic Byway. In addition, the proposed toilet building structures would meet the Forest Plan architectural design theme of "Cascadian Architecture" which is in line with meeting the Retention VQO standards and guidelines for this area.

There would be no effect on the visual quality.

Recommended Scenic River Cumulative Effects

There would be no effects that could contribute to cumulative effects.

Recreation

The Mountain Loop, a National Forest Scenic Byway, provides outstanding recreational opportunities for the growing population in the greater Puget Sound Region. The Loop is considered a premier driving destination, offering the visitor spectacular views of mountain peaks, rivers, streams, and waterfalls—all within a 30 to 60 minute drive from the densely-populated Seattle-Everett metropolitan area.

The estimated population increase in Snohomish County was 30.2 percent from 1990-2000. When the Lake 22 RNA was established in 1947, the estimated population of the Puget Sound region was 1,295,408 (1950 US Census Data). The most recent Census data (2000) for the area estimates the population at 3,657,739 people. (**http://www.psrc.org/datapubs/pubs/trends/**)

With the increased population in the Snohomish County and the greater Puget Sound area, there is a corresponding increase in the recreational use of the surrounding forest areas.

Dispersed recreation activities make up a large portion of the recreation in the project area. Long-time users of the area are generally made up of local residents of Darrington, Granite Falls, Marysville, Everett, and Lake Stevens, plus the greater Puget Sound metropolitan area and lower British Columbia, Canada.

For much of the year, seasonal and traditional dispersed uses include camping (dispersed, non-fee), picnicking, hiking, wild mushrooms gathering, berry picking, game hunting,

target shooting, fishing, and some trapping. (The rules and regulations for hunting and fishing are determined and administered by the Washington State Department of Fish and Wildlife.)

Dispersed camping use-levels are considered to be high. Particularly during summer and on holidays, dispersed visitors utilize every wide spot and turn-out along the Mountain Loop and adjacent roads for dispersed camping and/or picnicking. The Perry Creek Road receives some dispersed use in addition to the trailhead access, mostly driving related with little camping.

The Mountain Loop Scenic Byway also has three heavily used picnic areas along the loop for recreationists to enjoy. The Hemple Creek Picnic Area is across the Mountain Loop Scenic Byway from the Lake 22 Trailhead. It has about 20 parking slots and picnic sites. It is full on peak summer weekends.

A Recreation Pass is required at the Hemple Creek Picnic Area as well as the Lake 22, Perry Creek, and Dickerman Trailheads.

Lake 22 Trailhead and Trail

The Lake 22 parking lot (30 parking slots) is filled most weekends and holidays. Additional vehicles park along the highway with an estimated 18 vehicles during peak use. This means pedestrians are walking along the busy Mountain Loop Scenic Byway to get from their vehicles to the trail. The Lake 22 parking lot can be filled during the winter months as well. This trail is one of the most heavily used on the District. Snohomish County Public Works is planning to install guardrail along this portion of the Mountain Loop Scenic Byway in 2007, which would reduce the parking available there.

This parking lot is circular in shape and has vegetation growing in the middle (refer to Appendix A for figure). This vegetation limits the ability for people to see across the parking lot. There are numerous vehicles break-ins every year at this trailhead and people are not able to see from a distance if there is any suspicious activity. This also applies to Forest Service and law enforcement staff and increases the potential for hazardous confrontations (personal communication with Mike Gardiner, Law Enforcement Officer). There is a single toilet at the trailhead which is old and shaded so it does not function well to eliminate odor, and is inadequate in size for the large number of people using it. A single bulletin board provides limited information. The difficult and limited parking and the lack of sanitation facilities and information provide a more negative recreational experience and increased hazards.

The Lake 22 Trail is a 2.7 mile-long more difficult hiker trail located within the Lake 22 Research Natural Area (RNA). Construction of a trail around the lake was completed in 2006 to reduce impacts to lake side vegetation and to disperse visitors onto more use tolerant areas such as the talus near the inlet. Reconstruction to minimize impacts to sensitive plant along the trail up to the lake was completed in 2002. The trailhead is located approximately 45 minutes from Everett. The RNA was established in 1947 to preserve a remarkable stand of cedar and hemlock and to study the associated natural processes. The trail provides easy access and a unique backcountry experience through

old growth forest to a sub alpine lake destination. This accessibility combined with a long use season has made the trail especially popular with school groups, youth programs, and families with small children.

The Lake 22 Trail is one of the more popular trails on the Mt. Baker-Snoqualmie National Forest. The estimated annual use is about 12,000 hikers. Trailhead registration, compliance rate calculations, trail counters, and visual observations were used to make this estimate. Further information is contained in the analysis file (Trail Use Information for Lake 22, Mt. Dickerman, and Perry Creek March 9, 2005).

Perry Creek Trailhead and Trail

The Perry Creek Trailhead consists of an unimproved road end, with little room for parking or turning around. The Perry Creek Road 4063 is a single lane road built originally for timber haul purposes. The slope above and below it is very steep. Vehicles park for several hundred yards along the road near its end because the road is narrow and there is no parking lot. Several times a year, a vehicle is stuck over the road edge trying to turn around and must be towed back onto the road. Vehicles parked in the turn around make it impossible for other vehicles to turn around so they have to back for along distance down the road. There is an estimate of 25 cars that park along the road during peak summer weekends. There is no toilet to provide for visitor needs and very little recreation information is provided on the single bulletin board. The difficult and limited parking and the lack of sanitation facilities and information provide a more negative recreational experience and increased hazards.

Perry Creek Trail #711 (also known as Mt. Forgotten Meadows) is 3.8 miles long and is a easy to more difficult hiker trail, located entirely within the Perry Creek RNA. The first portion of the trail climbs gradually through timber and numerous open talus slopes with spectacular views across the valley of the many cascading waterfalls. Perry Creek Falls are reached at 2.0 miles. This is a destination and turn around point for many hikers as the trail beyond this point quickly starts to switchback and transition from a well graded trail to a rock and root ridden steep trail. Many users of the trail past the falls are climbers of Mt. Forgotten and Stillaguamish Peak. Mt. Forgotten Meadows, at the end of the 3.8 mile trail, is also a destination in itself.

The first two mile portion of the trail was constructed as an easiest hiker trail. It receives regular maintenance and has had much tread work done in recent years. The trail from the falls to Mt. Forgotten Meadows was never constructed as a trail. Its current location has been determined by generations of climbers and hikers visiting the meadows and peaks above Perry Creek. As use has increased over the past decades, the upper trail corridor has begun to show signs of deterioration. The estimated annual use is about 3,400 hikers.

Mt. Dickerman Trailhead and Trail

The Mt. Dickerman Trailhead is located about one mile east of the Perry Creek Road junction on the Mountain Loop Scenic Byway. Currently there are about 20 parking slots,

1 toilet and a bulletin board at the trailhead along with an entrance sign. Most summer weekends the parking area is full.

Mt. Dickerman Trail #710 is a 4.3 mile long and is a difficult trail. There are steep switchbacks for 3.0 miles. The trail is generally in good condition and there are views in all directions as the trail climbs to the 5,723 foot summit. The estimated annual trail use is 4200 hikers.

Gold Basin Mill Pond

The Gold Basin Mill Pond is located at the site of an old mill and is across the Mountain Loop Scenic Byway from the Gold Basin Campground and past (east) of the Lake 22 Trailhead approximately 0.33 mile. There is a short wheelchair accessible trail that tells the Gold Basin story. A pond provides salmon habitat and has wood duck and bat boxes and interpretive signing. The parking capacity is currently 10. There are no toilets. There is an old bulletin board at the start of the interpretive trail. The signs are damaged and deteriorated.

Recreation Environmental Consequences

Alternative 1 (No Action)

Lake 22 Trailhead-The no action alternative would leave the parking area and toilet as is. The Lake 22 parking lot (30 parking slots) would be filled most weekends and holidays and begin to fill up during the week as recreation use increases over time. Additional vehicles (about 18) would park along the highway until Snohomish County Public Works installs guard rail along this portion of the Mountain Loop Scenic Byway in 2007 with room for about six vehicles left. This would reduce safety hazards from pedestrians walking along the Mountain Loop Scenic Byway. When the parking is full, hikers would have to go to another site or not go hiking. This would create a negative recreational experience for those visitors.

This parking lot is circular in shape and the vegetation growing in the middle would continue to limit the visibility across the parking lot. The increased potential for law enforcement and Forest Service staff to become involved in hazardous confrontations would continue. The odor from the single toilet at the trailhead would continue and the size would continue to be inadequate. The limited parking and the lack of sanitation facilities and information would continue to provide a more negative recreational experience and increased hazards for staff and visitors.

The constructed structures are currently architecturally-compatible with the established landscape. The site does not accommodate the current recreational demand as parking often overflows onto the Mountain Loop Scenic Byway shoulder. The current toilet building is a naturally harmonious color. This developed site has existed for many years and is appropriate to the forest environment. The existing toilet is usable by the handicapped. Overcrowding occurs for parking and sanitation during peak summer

weekends. The developed site provides for some control of traffic, public safety, sanitation, site protection, grading, and use distribution.

The current use of the Gold Basin Mill Pond as an interpretive trail and site would continue.

Perry Creek Trailhead-The No Action Alternative would leave the current trailhead parking as is, hikers would continue to use a dangerously small turn around area, and continue to park for several hundred yards alongside the narrow Road 4063. The Perry Creek Trailhead would continue to be an unimproved road end, with little room for parking or turning around. Vehicles would continue to park in the turn around and make it impossible for other vehicles to turn around, causing them to back up on the narrow road. The tendency of vehicles trying to turn around on the narrow road and becoming stuck, necessitating towing would continue. There is an estimate of 25 cars that would continue to park along the road during peak summer weekends. There would be no toilet and very little recreation information provided. The difficult and limited parking and the lack of sanitation facilities, and information would continue to provide a more negative recreational experience and increased hazards.

The quicker access to the Forgotten Mountain backcountry would continue to be by keeping Perry Creek Road 4063 open, and the current trail length as 3.8 miles. The type of hiker using this trail would continue to be mostly single day hikers. The scenic driving experience and opportunity for roaded dispersed recreation on the Perry Creek Road (1.4 miles) would continue.

There would continue to be no constructed structures or visitor amenities at this trailhead. The site would not be modified to enhance recreational facilities and uses. This site has very steep slopes and would not be appropriate for developments. There are no facilities usable by the handicapped. The lack of parking and sanitation would continue to limit the number of persons who can physically use or occupy the trailhead. Proper utilization of the site, control of traffic, public safety, sanitation, site protection, grading, landscape planting, and use distribution is not provided at this trailhead.

Mt. Dickerman Trailhead would continue to be used only by hikers on that trail.

Maintenance - Maintenance of the existing trails and roads would continue.

Alternative 2

Lake 22 Trailhead–The Lake 22 parking lot with its 30 slots, would be filled most weekends and holidays and begin to fill up during the week as recreation use increases over time. Additional vehicles would park along the highway until Snohomish County Public Works installs guardrail and no parking signs along this portion of the Mountain Loop Scenic Byway in 2007. This would reduce safety hazards from pedestrians walking along the Mountain Loop Scenic Byway, but it would also reduce the amount of parking about 40 percent (18 spots) from what it currently is today. When the parking is full, hikers would have to go to another site, or not go hiking. This would create a negative recreational experience for those visitors.

The parking lot would get a new layer of gravel, and the entrance would be constructed to meet Snohomish County road intersection standards, with ditching on both sides. There would be a new toilet (double stall CXT Rocky Mountain style), located due north of where it is now to take advantage of better sunlight which improving the airflow and odor. The old toilet would be removed, the hole filled, and concrete broke into chunks with the excavator. No new kiosk would be needed. No trees would likely be removed under this alternative. Signing would be added (trailhead parking ahead, stop sign, a one-way sign). A small bulletin board would be installed near the new toilet. The recreational experience would be enhanced with the new toilet, gravel and signing.

This parking lot is circular in shape and the vegetation growing in the middle would continue to limit the ability for people to see across the parking lot. The increased potential for hazardous confrontations would continue.

The constructed structures are currently architecturally compatible with the established landscape. The site does not accommodate the current recreational demand as parking often overflows onto the Mountain Loop Scenic Byway shoulder. The current toilet building is a naturally harmonious color. This developed site has existed for many years and is appropriate to the forest environment. The existing toilet is usable by the handicapped. Overcrowding occurs for parking and sanitation during peak summer weekends. The developed site provides for some control of traffic, public safety, sanitation, site protection, grading, and use distribution.

The current use of the Gold Basin Mill Pond as an interpretive trail and site would continue.

Perry Creek Trailhead-This alternative would relocate the Perry Creek Trailhead to the Mt Dickerman Trailhead. This would add one mile of easy trail to the Perry Creek trail. The current trailhead parking on Road 4063 would be closed and use of the dangerously small turn around area and parking along Road 4063 would be discontinued. The estimated need for parking of 25 cars would be provided at the Mt. Dickerman Trailhead location. The combined trailhead would have a total of 55 parking slots. The current estimate of use at Perry Creek is 25 vehicles, and Dickerman is already full at times, so an increase of 35 would accommodate current Perry Creek use and also some of the increasing demand at the Mt. Dickerman Trail (10 parking spots). There would be an additional toilet installed to provide for visitor needs. Recreation and interpretive information would be provided at two kiosks. The enhanced parking and sanitation facilities and information would provide a more positive recreational experience with decreased hazards as compared to the current trailhead.

The access to the Forgotten Mountain backcountry would increase by an additional mile of easy trail, for a total of 4.8 miles. This additional mile may take an additional 15 minutes one way for a total addition of 30 minutes round-trip. This extra 30 minutes would not likely change the type of use from a day hike to an overnight camping trip. The scenic driving experience and opportunity for roaded dispersed recreation on the Perry Creek road (1.4 miles) would not continue, as the road would be closed.

The constructed structures would be architecturally compatible with the established landscape. The site would be modified to accommodate recreational facilities and uses. The toilet buildings would be a naturally harmonious color. This developed site would be on gentle ground and appropriate to the forest environment. The toilet facilities would be usable by the handicapped. The site would be designed to ensure that the People At One Time (PAOT) capacity of the site is in proper relationship to the desired Recreation Opportunity Spectrum (ROS) class (natural roaded to rural) and the ability of the site to withstand use. Overcrowding and loss of privacy would be prevented by strategically locating improvements, limiting their number, or designing facilities so as to limit the number of persons who can physically use or occupy them at one time. Proper utilization of the site, control of traffic, public safety, sanitation, site protection, grading, landscape planting, and use distribution would be provided.

Maintenance-There would be an additional mile of trail to maintain. About 1.4 miles of road would be closed and need minimal maintenance. There would be additional facilities at the combined Perry/Dickerman Trailhead to maintain and operate, but it would be done at one site instead of traveling to two different trailhead sites.

Alternative 3

Lake 22 Trailhead-The trailhead parking lot would be expanded from approximately 30 to 48 vehicles by removing some of the vegetation from around the island and parking lot perimeter. Forty-eight parking slots would provide for what is estimated to be the current use in 2005 when the lot is full and cars are parked along the Mountain Loop. Additional vehicles would park along the highway until Snohomish County Public Works installs guardrail and no parking signs along this portion of the Mountain Loop Scenic Byway in 2007, which would reduce safety hazards from pedestrians walking along the Mountain Loop Scenic Byway.

As the population and number of hikers increase and the parking is full, hikers would have to go to another site or not go hiking. This would create a negative recreational experience for those visitors.

The parking lot would get a new layer of gravel, and the entrance would be constructed to meet Snohomish County road intersection standards, with ditching on both sides. There would be a new toilet (double stall CXT Rocky Mountain style), located due north of where it is now to take advantage of better sunlight which improves the airflow and odor. Signing would be added (trailhead parking ahead, stop sign, a one-way sign). A small bulletin board would be installed near the new toilet. The recreational experience would be enhanced with the new toilet, gravel and signing.

This parking lot is circular in shape and the vegetation growing in the middle would be reduced so that visibility across the parking lot would be improved. The increased visibility would reduce the potential for hazardous confrontations.

The constructed structures would be architecturally compatible with the established landscape. The site would accommodate the current recreational demand. The toilet

building would be a naturally harmonious color. This developed site has existed for many years and is appropriate to the forest environment. The toilet would be usable by the handicapped. The PAOT capacity of the site is in proper relationship to the ROS class of natural roaded to rural and the ability of the site to withstand use. Overcrowding and loss of privacy would be prevented locating improvements and signing, limiting the number of parking slots so as to limit the number of persons who can physically use or occupy them at one time. The proper utilization of the site, control of traffic, public safety, sanitation, site protection, grading, landscape planting, and use distribution would be provided.

The current use of the Gold Basin Mill Pond as an interpretive trail and site would continue.

Perry Creek Trailhead-This alternative would be similar to Alternative 2 except the trailhead would provide 70 parking slots instead of 55. This alternative would relocate the Perry Creek Trailhead to the Mt Dickerman Trailhead. This would add one mile of easy trail to the Perry Creek trail. The current trailhead parking on Road 4063 would be closed and use of the dangerously small turn around area and parking along Road 4063 would be discontinued. The estimated need for parking of 25 cars for the Perry Creek Trail use would be provided at the Mt. Dickerman Trailhead location. The combined trailhead would have a total of 70 parking slots, The current estimate of use at Perry Creek is 25 vehicles and Dickerman is already full at times, so an increase of 50 would accommodate current Perry Creek use and provide for increases in future demand (25 parking spots).

There would be an additional toilet installed to provide for visitor needs. Recreation and interpretive information would be provided at two kiosks. The enhanced parking and sanitation facilities and information would provide a more positive recreational experience with decreased hazards as compared to the current trailhead.

The access to the Forgotten Mountain backcountry would increase by an additional mile of easy trail (4.8 miles total). This additional mile may take an additional 15 minutes one way for a total addition of 30 minutes. This extra 30 minutes would not likely change the use from a day hike to an overnight camping trip. The scenic driving experience and opportunity for roaded dispersed recreation on the Perry Creek road (1.4 miles) would not continue, as the road would be closed.

The constructed structures would be architecturally compatible with the established landscape. The site would be modified to accommodate recreational facilities and uses. The toilet buildings would be a naturally harmonious color. This developed site would be on gentle ground and appropriate to the forest environment. The toilet facilities would be usable by the handicapped. The site would be designed to ensure that the PAOT capacity of the site is in proper relationship to the desired ROS class (natural roaded to rural) and the ability of the site to withstand use.

Overcrowding and loss of privacy would be prevented by strategically locating improvements, limiting their number, or designing facilities so as to limit the number of persons who can physically use or occupy them at one time. Proper utilization of the site,

control of traffic, public safety, sanitation, site protection, grading, landscape planting, and use distribution would be provided.

Maintenance-There would be an additional mile of trail to maintain. About 1.4 miles of road would be closed and need minimal maintenance. There would be additional facilities at the combined Perry/Dickerman Trailhead to maintain and operate, but it would be done at one site instead of traveling to two different trailhead sites.

Alternative 4

Lake 22 Trailhead-This alternative would provide for a total of 65 parking slots, with 48 slots at the Lake 22 Trailhead, and 17 at the Gold Basin Mill Pond and have an additional 0.50 miles of trail. This alternative would have the same consequences as those described under Alternative 3 for the Lake 22 Trailhead except for the following:

Parking would be added to the Gold Basin Mill Pond interpretive site by using some of the space currently occupied by vegetation islands and adding sites to the east side of the parking lot. The Gold Basin Mill Pond would be paved with stripes painted, curbing, wheel stops, a new toilet and signing installed to provide an enhanced visitor experience. The parking capacity here would increase from 10 to 17. The additional parking here would provide for future demand for hiking.

A connector trail between Gold Basin Mill Pond and the Lake 22 Trail would be constructed. This 0.50 mile trail would provide an additional hiking experience. It would also be an additional 0.50 mile trail to maintain with bridges and puncheon.

Perry Creek Trailhead-This alternative would have the same consequences as those described under Alternative 3 for the Perry Creek Trailhead.

Recreation Cumulative Effects

Population increase is the biggest factor for the increasing demand for recreation in this area. As the greater Puget Sound area continues to grow, more people will seek out the forest areas for refuge from the city.

Botany

The Lake 22 Trailhead is in an old-growth western hemlock/Pacific silver fir forest, dating to approximately 1508. There are small patches of younger forest around Hemple Creek, where flooding has occurred, and near gold Basin Mill Pond, due to construction of that site in the first decade of the twentieth century. The understory is a typical array of native plants, such as salmonberry, various ferns, huckleberry, foamflower, and bunchberry dogwood, and there is a heavy and diverse bryophyte flora.

The Perry Creek Trailhead is located in old-growth timber dating to approximately 1508, but is at higher elevation and is comprised of Pacific silver fir, western hemlock, and Alaska yellow cedar. The Mt. Dickerman Trailhead is in a Douglas-fir/western hemlock/western redcedar forest dating to approximately 1910. The understory here is sparse, due to greater shade. There is, however, heavy brush in places between the Mt.

Dickerman Trailhead and the end of the Perry Creek Road along the proposed connector trail. The understory is generally composed of various ferns, salmonberry, queens' cup, and a less diverse bryophyte flora than that found at Lake 22.

Late Successional Reserves

The entire project area is in Late Successional Reserve. This particular LSR is 110,108 acres in size. Both the Lake 22 and Perry Creek Trails pass through LSR to access Research Natural Areas.

The Forest-Wide Late Successional Reserve Assessment (2001) provides guidelines for new developments in LSRs, based on Standards and Guidelines in the Record of Decision (1994) and subsequent Regional direction. In general, new developments should be located outside LSRs when possible. When in LSRs, they should be designed and mitigated to a condition that is neutral or beneficial to late successional forest function. The Forest-Wide LSR Assessment lists general and specific instances when new developments may result in adverse effects to LSR function that could not be mitigated sufficiently (LSRA, Appendix G). General instances are:

- Development in old growth stands where total old growth in the western hemlock and Pacific silver fir zones is less than 50 percent of the LSRs potential spotted owls nesting habitat–not the situation in this area.
- Development in old growth less than 620 acres or where the development would reduce the old growth patch to less than 620 acres in potential spotted owl nesting habitat–not the situation in this area.
- Development in low and mid elevation forest over 80 years of age when it comprises less than 80 percent of the area in a 2350-meter radius centered on the proposed development–not the situation in this area.
- Development in stands more than 450 years old in potential spotted owl nesting habitat–this occurs at both the Lake 22 site and the Dickerman/Perry connector trail route.

Specific instances identified in the LSR Assessment for this LSR are the following areas, none of which is found in the project areas:

- The area between Long Mountain and Marble and Hall Peaks, where low and mid elevation forest habitat is constrained to valley bottoms and south slopes.
- Old growth stands between Wiley and Marten Creeks.
- The south side of the Sauk River from Iron Mountain to Mt. Forgotten, where low and mid elevation forest habitat is constrained by high elevation ridges.

Research Natural Areas

The Lake 22 Trail accesses the Lake 22 Research Natural Area (RNA). This RNA was established in 1947 and was added to the RNA system because it was considered a good example of a typical western hemlock-western redcedar old growth forest commonly found on the west slopes of the North Cascades.

The Perry Creek Trail accesses the Perry Creek RNA, established in 1997 and added to the system because of its unusual plant assemblages and a large variety of fern species, some of them rare.

Policy for establishment and management of RNAs comes from FSM 4063. The pertinent passages include the following:

- RNAs may be used only for research, study, observation, monitoring, and those education activities that maintain unmodified conditions
- The prime consideration in managing RNAs is maintenance of unmodified conditions and natural processes. To the extent practicable, protect RNAs against human activities that directly or indirectly modify the integrity of the ecological processes
- Recreation use should be restricted or prohibited if such use threatens or interferes with the objectives or purposes for which the RNA is established
- Protect against human-caused environmental disruptions

Further direction comes from the MBS Forest Plan (1990), pages 4-252 and 4-254, and in appendix E that states:

- Recreation activities and use within RNAs shall not be encouraged. If necessary to prevent damage, permits or closures may be instituted
- Existing trails will be allowed to remain. Minor rerouting or upgrading shall be allowed provide it does not compromise the purpose of the RNA
- New trails will not normally be constructed unless needed for research purposes or can be shown to conform to the purpose of the RNA and complement its management objectives
- Public use of existing trails in RNAs may be allowed to continue, but increases in such use or off-trail use will not be encouraged

The Lake 22 RNA has its own management plan (1999) that provides the following further guidance for that area:

- Continue to allow recreation use of the Lake 22 Trail in a manner that will not compromise the purpose of the RNA, as described in the MBSLMP, Appendix E
- Develop and implement a strategy for addressing visitor use at the lake

A long history of recreation use exists for both RNAs, but is most well-documented for the Lake 22 RNA. A YMCA camp existed there in the 1930s, and by the mid-1960s, the District and Forest had documented concerns over the high use levels. At one point, the Forest even suggested removing it from the RNA system, but advice from the PNW Experiment Station was to accept the high use for the area, based on the mitigation measures that made it into the Forest Plan, as described above. Current use of the Lake 22 RNA is very high, estimated conservatively at nearly 12,000 people per year. It is not uncommon for hikers to show up by the bus-full. It is also one of the most popular trails

on the District for people to bring their dogs. In 2005, volunteers counted 57 dogs on the trail over seven separate days, and this number climbs each year. The South Fork Lower Stillaguamish River Watershed Analysis (1996) lists the Lake 22 RNA as an area of concern because of the high use. Due to the ease of access year round, the trail is used all months of the year.

Adding to the RNA use issue at Lake 22 is the presence of many Sensitive plant species scattered in patches along the entire trail length. Evidence of over-use exists primarily in the lake basin. The trail used to end abruptly at the north shore of the lake, and from there people would wander looking for a way around the lake or for a place to have lunch. The result was braided trails and a large denuded spot near the lake's outlet (see photo below). Camping is discouraged but not officially closed, so evidence of heavy use exists as well.

Figure 4. Denuded Use Site Near Outlet at Lake 22 (2003)

To help address the effects of over use, a volunteer RNA Steward program was instituted in 1999 and has operated each summer since then at both the Lake 22 and Perry Creek RNAs. The Stewards talk to the public about minimum impact methods, explain RNA policy and values, collect user information, pick up trash, etc. Dog waste bag dispensers were installed at the Lake 22 Trailhead and at the Verlot PSC in 2005, and will be installed at the Perry Creek Trailhead. At Lake 22, a new loop trail was completed in October 2006 that was designed to help confine hikers and eliminate the braided trails and bare spots. The Steward Program seems to have helped convince users to keep their

dogs under control better, and future monitoring will show the effectiveness of the trail project.

When the Perry Creek RNA was established, the Establishment Report also discussed heavy recreation use. The current conservative estimate of use is approximately 3,400 people per year, also accompanied by their dogs often times. In 2005, a total of 16 dogs were counted by the RNA Stewards over five days, and this number also climbs each year. The South Fork Upper Stillaguamish Watershed Analysis (1995) discussed concerns with heavy recreation use and possible adverse impacts to Sensitive species in the Perry Creek RNA. Field observations by Forest personnel show a system of braided trails and erosion at Mount Forgotten meadows, as shown by the following photo taken in October 2004.

Figure 5. Final Approach to Mt. Forgotten Meadows (October 2004)

Sensitive and Survey/Manage Species

Botanical surveys were conducted at the Mt. Dickerman Trailhead and the proposed Dickerman/Perry Creek connector trail on September 16, 2004, and at the Lake 22 Trailhead and proposed Lake 22/Mill Pond connector trail on June 27, 2005. The moss *Schistostega pennata* was located at Hemple Creek, along the route for the connector trail between the Lake 22 Trailhead and the Gold Basin Mill Pond. This is a Sensitive and Survey/Manage species. No other Sensitive or Survey/Manage species were found in the surveyed areas, although there are Sensitive and Survey/Manage plants adjacent to the Lake 22 and the Perry Creek Trails in multiple spots.

It is Forest policy to look for and document all species found during botanical surveys regardless of a plant's status. The two previous surveys would have detected the presence of species on the Survey/Manage list from the 2001 ROD that was re-instated by Court Order in January 2006. For that reason, surveys of the project sites have been done to protocol and no further surveys are necessary (the December 2003 Survey and Manage plant list was used).

Wetlands

The definition of wetland comes from the 1987 Corps of Engineers Wetlands Manual. A wetland exists in the project area, specifically at Gold Basin Mill Pond where the proposed connector trail would leave the existing boardwalk and cross a small arm of the pond. At this site, there was standing water in September. The vegetation was primarily red alder, salmonberry, devils club, foamflower, and some skunk cabbage.

Noxious Weeds

No noxious weeds were found at any of the proposed trailhead and trail project areas.

Botany Environmental Consequences

Late Successional Reserves

No Action

This Alternative would be expected to be neutral or beneficial because no vegetation would be removed or altered.

Alternatives 2, 3, and 4

The general direction to locate developments outside LSRs cannot be met in this project. There is no non-LSR land close enough to the two trailheads that could be used. These Alternatives are expected to be neutral to late successional habitat function for the following reasons: 1) the project sites fit none of the specific conditions listed in the Late Successional Reserve Assessment where new development may result in adverse effects that could not be mitigated; 2) the project sites fit none of the general conditions, except one, where new developments may result in adverse effects that could not be mitigated; 3) the one condition that does apply–developments in stands more than 450 year old in potential spotted owl nesting habitat–is easily mitigated.

None of the trees proposed for removal are suitable nest trees for the spotted owl. In other areas, where the trees are sufficiently large, none of these trees would be removed. Vegetation that would be removed is a minute fraction of the LSR area. In the case of the proposed trails, the resulting corridors would be narrow and the movement of plant propagules and animals across them would be unimpeded; 4) the scale of the areas to be disturbed under any of the action Alternatives is nearly imperceptible. Alternative 2 would eliminate the potential of 0.30 acre to achieve old growth conditions. This represents approximately .0003 percent of the total LSR acreage. This amount, however, is off-set by a gain of 0.36 acre of area that could achieve old growth conditions if the

Perry Creek Road is converted to trail near its end, for a net gain. Alternative 3 would eliminate the potential for 0.52 acre to achieve old growth conditions, again off-set by the Perry Creek Road conversion. This represents a net loss of 0.16 acre, or 0.0001 percent of the total LSR acreage. Alternative 4 would eliminate the potential of 0.55 acre to achieve old growth conditions, off-set by 0.36 acre of Perry Creek Road conversion, for a total loss of 0.19 acre, or 0.00017 percent of the total LSR acreage.

Research Natural Areas

The determination of effects on RNAs is based on the likelihood of an Alternative causing an increase in use from the current capacity. An action causing an increase is considered "encouraging" use, which is inconsistent with direction. Current capacity is defined as 48 vehicles at the Lake 22 Trailhead, and 25 vehicles at the Perry Creek Trailhead.

No Action

For the Lake 22 RNA, the No Action Alternative would likely have positive effects. This is because there would be no additional parking stalls constructed, and also because of the guardrails that the County will be installing along the Mountain Loop Scenic Byway. These will physically block access to most of the areas where overflow parking currently goes, so the parking capacity will decrease from 48 to about 36 vehicles.

For the Perry Creek RNA, this Alternative would be expected to be beneficial since parking at the current trailhead is minimal and essentially self-limiting. Once the road-end parking is filled, hikers are willing to park down the road only so far before they move on to another destination.

Alternative 2

This Alternative, if implemented, would likely be most beneficial to the Lake 22 RNA since it decreases current capacity even further than the No Action Alternative. Once the parking lot fills, people would have to move on to another destination. There would be no overflow parking along the remaining available road shoulder along the Mountain Loop Scenic Byway.

This Alternative would also be expected to be most beneficial to the Perry Creek RNA because parking would be eliminated from the current trailhead and placed at the Mt. Dickerman Trailhead. The Dickerman parking lot would be increased in size only enough to accommodate the current Perry Creek capacity. Since use of the Mt. Dickerman Trailhead has already exceeded the parking lot's capacity on most summer weekends, there would be insufficient parking for the Perry Creek RNA (and the Mt. Dickerman Trail). In addition, the extra mile of trail that would be constructed between the Mt. Dickerman Trailhead and the start of the current Perry Creek Trail is expected to discourage some users, especially those with Mount Forgotten Meadows as their destination.

Alternative 3

This Alternative, if implemented, would be expected to have a neutral effect on the Lake 22 RNA, because it maintains the current parking capacity. An increased capacity would be a method of encouraging use, which would be inconsistent with the Forest Plan Standards and Guidelines. This neutral effect is also based on the assumption that there would be successful enforcement of the no-parking restrictions along the shoulder of the Mountain Loop Scenic Byway.

This Alternative would be expected to have a neutral effect on the Perry Creek RNA because of the longer hike. The planned increase in parking capacity at the Mt. Dickerman Trailhead, to accommodate Mt. Dickerman trail users, would undoubtedly also provide for increased parking slots for users of the Perry Creek Trail, inadvertently. The longer hike, however, is expected to discourage some users and off-set increased use.

Alternative 4

This Alternative if implemented would be expected to have an adverse impact on the Lake 22 RNA, because it increases parking capacity by adding parking for Lake 22 at the Gold Basin Mill Pond. The connector trail between the two would be an easy, quick walk and it is not expected to discourage use. This Alternative would be inconsistent with Forest Plan direction and would require a Forest Plan amendment, because it would encourage more use of the RNA.

The effects of Alternative 4 on the Perry Creek RNA are the same as for Alternative 3.

Sensitive and Survey/Manage species

For all Alternatives, there would be an expected *No Impact* on the Sensitive and Survey/Manage moss species found along the proposed Lake 22/Gold Basin connector trail. The trail location can be easily altered to avoid this site (and would be), so there would be no direct or indirect effects.

Alternative 4 represents the highest likelihood of increased direct effects to the Sensitive and Survey/Manage plants along the Lake 22 and Perry Creek trails because of the increase in users it provides for. The plants are right along the trails' edge in places, and an increase in users adds to the risk of increased trampling.

Wetlands

For all Alternatives, there would be an expected *no effect* on the wetlands at the Mill Pond. At this site, the wetland would be spanned by a bridge, so there would be no short or long term effect on the soils, vegetation, or hydrology of the site.

Noxious Weeds

The 2005 Regional ROD for invasive plants prescribes prevention Standards to be followed for all projects in the Region. Those are the basis for the mitigation measures described earlier. The effectiveness of the prevention measures is discussed in detail in

the Regional invasive plants EIS, Section 4.2.3, and Appendices D and E. The Standards are expected to be effective at these projects sites as well.

Botany Cumulative Effects

In estimating cumulative effects, consideration was given to other past, present, or reasonably foreseeable actions. Other projects, whose effects were considered along with the effects of this project, include:

- recently completed trail construction around Lake 22
- noxious weed treatments within the LSR
- reconstruction of the River Road
- Mountain Loop campground improvements
- planned repair of the Waldheim slide
- planned replacement of the Marten Creek bridge
- phone line installation along the Mountain Loop
- general trail maintenance and recreation site maintenance
- placement of guardrails along the Mountain Loop Scenic Byway by Snohomish County in late 2007, which will eliminate some of the road side parking opportunities

Late Successional Reserves

In considering cumulative effects to the LSR, most of the list of projects above was used as well as the specific project sites for this project. The Lake 22 loop trail was not considered, as it is not in LSR. Noxious weed treatment was also not considered because it occurs immediately along roadsides and has no direct effect on old growth forest. Phone line installation along the Mountain Loop also was not considered because it was installed along the road shoulder and did not directly affect old growth forest. The cumulative effects of the remaining projects on the list are expected to be insignificant, because the total amount of habitat to be disturbed is still fractions of an acre and, when added to the amount directly affected by this project under all Alternatives, is still nearly imperceptible.

Research Natural Areas

Each RNA was considered on its own for cumulative effects. If there were no direct effects, there are no cumulative effects. Projects or activities used in the cumulative effects analysis are: the recently (2002) completed reconstruction of the existing trail to Lake 22, past trailhead improvements at Lake 22, the recent (2006) completion of the loop trail around Lake 22, generally increasing recreation use at RNAs, and the planned installation of guardrails along the Mountain Loop Scenic Byway.

Lake 22 RNA–With an increasing population there has been a steady rise in the use at Lake 22 over the years. The response has typically been to meet the demand by increasing the available parking. At a time when, on the one hand, we are attempting to

curtail impacts to the RNA by constructing the loop trail around the lake and through use of the RNA Stewards, it is counter to that aim to increase parking and encourage more use. This is the likely cumulative effect of Alternative 4, even aside from the fact that implementation of it would require a Forest Plan amendment.

Sensitive and Survey/Manage species

At Lake 22, the recently completed loop trail around the lake has drawn much praise from users. Under Alternative 4 where parking capacity rises, it is likely the draw of this loop trail added to the parking would increase direct trampling of plants along the trail.

Hydrology, Soils, and Water Quality

The Mt. Loop Scenic byway trail project is within two sixth field watersheds; Upper South Fork Stillaguamish River #171100080201 (47,000 acres), and Middle South Fork Stillaguamish River #171100080202 (30,000 acres). The average annual precipitation for the project site area is about 160 inches. The elevation range is from 5900 feet in the rocky head waters of the upper watershed to about 200 feet at the Canyon Creek confluence with the South Fork Stillaguamish River. There are approximately 36 miles of the South Fork Stillaguamish River in these two glacially carved, U-shaped watersheds with numerous tributary streams. Upper slopes consist of rocky bench type terrain covered with shallow soils. The lower slopes are characterized by colluvial landslide deposits and glacial lake and outwash valley train materials. The valley bottom is a mix of erosion prone fluvial cross-bedding and glacial deposits. These natural deposits usually produce substantial amounts of suspended sediment (fine glacial lake clays) during runoff events.

The Perry Creek and DickermanTrailhead portion of the project is located within the Upper South Fork Stillaguamish River watershed. Tributaries such as Palmer, Perry, Coal, Deer, Marten, Blackjack, Mallardy, Gordon, Boardman, and numerous other small perennial and ephemeral creeks dissect the rugged terrain. Using the Washington State DNR rain-on-snow model, the dominant precipitation zone in this watershed is “Snow Dominated” (approximately 33 percent of the watershed). However, the primary Rain-on-Snow Zone extends into lower Perry Creek. Perry Creek and the Upper South Fork Stillaguamish River watershed are “hydrologically mature”, thus posing no concerns for rain-on-snow effects. Road density is about 0.40 mile per square mile of landscape.

The Lake 22 Trailhead and Gold Basin Mill Pond portion of the project is located in the Middle South Fork Stillaguamish River watershed. Tributaries such as Wiley, Black, Hemple, Lake 22, Benson, Heather, Turlo, Hawthorn, Rotary, Cranberry and numerous other small perennial and ephemeral creeks dissect the rugged terrain. Using the Washington State DNR rain-on-snow model, the dominant precipitation zone in this watershed is “Rain Dominated” (approximately 57 percent). The Lake 22 Trailhead project site is located in the Rain Dominated Zone. This watershed has seen more vegetation management than the Upper South Fork Stillaguamish River. Close to 25 percent of this watershed is “hydrologically immature”, meaning there is a potential for

increased peak flows from rain-on-snow effects during large winter storms. Road density is about 0.65 mile per square mile of landscape.

None of the project sites would be within a floodplain; however, there are perched water tables and associated small surface water channels on the alluvial fan of Hemple Creek in the vicinity of the Lake 22 Trailhead and Gold Basin Mill Pond.

Soils

Because the project sites mostly are located within or near the valley bottom of the South Fork Stillaguamish River, the soils are mostly depositional, either from colluvium resulting from upslope soil movement or alluvium from tributary streams. More notably at the Lake 22 and Gold Basin areas, the soils include a high amount of clays derived from glacial lake (lacustrine) deposits. All of the soil types at the project are considered relatively unstable due to non-uniform or imperfect soil drainage. Slope stability concerns are high where these soils are on steep slopes. Where slopes are gentle, such as most of the project area, the soils are poorly drained and remain wet much of the year, but mass wasting is not a concern. Trailhead areas and trail treads need to be well drained and constructed to prevent puddling of water and rutting of parking areas and trails. Erosion on these soils will release find lacustrine clay sediment that clouds streams and causes feeding, breathing and reproduction problems for aquatic organisms. These soils are easily vegetated and productive due to the availability of moisture and relatively high nutrient base.

Water Quality

The Clean Water Act (CWA) of 1977 and subsequent amendments make it unlawful for any person to discharge any pollutants into waters of the United States, unless a permit is obtained under provisions of the act. The Environmental Protection Agency (EPA) delegated implementation of the CWA to the states and the State of Washington recognizes the Forest Service as the designated management agency for meeting CWA requirements on National Forest System lands.

Washington State periodically prepares a list of all surface waters in the state impaired by pollutants. No impaired water listings are found in the Middle and/or Upper South Fork Stillaguamish River on the 1998 Washington Department of Ecology 303(d) list (2002-2004 consolidated water quality assessment was adopted). However, water quality impairments do exist downstream of the project area. The Clean Water Act requires that water cleanup plans be prepared for each impaired water body.

Ecology recently completed a Water Quality Assessment (TMDL) for the entire Stillaguamish River basin, including both the North and South Forks. Water quality impairments for temperature, nutrients, and bacteria are included in the TMDL. A water cleanup plan is currently being prepared with emphasis on downstream (off-National Forest) concern areas. Activities on NFS lands need to be designed to prevent water quality effects or improve water quality within the watershed. The proposed projects could inadvertently introduce pollutants such as sediment and petroleum into these

waters; however, this is unlikely with the implementation of the mitigation measures, including storm water pollution prevention.

Temperature

There are stream temperature concerns in the South Fork Stillaguamish River; however, no stream temperature data were reviewed for this analysis because the proposed project would not change conditions that affect stream temperature.

Sediment

Several sediment studies have been conducted in the South Fork Stillaguamish (Benda et. al, 1992; Collins, 1997; Beechie, Collins and Pess, 2001) Numerous large sources of sediment exist in the watershed, including the Gold Basin Landslide. Roads are another common source of sediment, particularly where they intercept the lacustrine clay deposits.

Any sediment generated from ground disturbing activities by this project would not be at a measurable amount in any fish bearing waters. This assumption is based on previous fisheries/hydrologic/soils environmental analyses that were completed for recent flood projects such as River Road (2005), Mountain Loop (2006), and Suiattle River Road (2006) that are positioned near flowing bodies of water. Those projects were expected to generate 80–90 percent more sediment than the proposed project. Additionally, the background annual sediment budget is estimated to be about 150 tons/square mile/year (Swanson, 1981) and using the maximum disturbance area possible for this project of about 1.1 acres total, about 0.0015 percent of the two watersheds would be affected.

Hydrology, Soils, and Water Quality Environmental Consequences

Alternative 1(No Action)

Lake 22-No effect on hydrology, soils, or water quality would occur. There would be progressive gulling of Road 4006 surface between the trailhead parking area and the Mt. Loop Highway as a result of poor road ditch drainage. The sediment produced from this road would travel across the fan of Hemple Creek and a portion of it would continue to enter the South Fork Stillaguamish River through culverts under the Mt Loop Scenic Byway.

Perry Creek-No effect on hydrology, soils, or water quality would occur. The parking area would continue to experience heavy compaction, which in turn aids in increasing road surface runoff. The existing parking area is presently undersized and within about 320 feet of Perry Creek on an average slope of 46 percent. Because of the narrow turn-around area, 100 feet of outboard parking, and no toilet facilities, there are potential effects (i.e. sedimentation, vehicle leakage, and bacteria from human waste) to water quality in Perry Creek under rainy weather conditions. About 0.2 mile of road from the parking area south parallels Perry Creek high on the hill side, which increases the

probability of being a source of pollutants. The potential for a mass failure of road material would remain high because of the inherent instability of the soils in the area.

However, the chronic concentrations of the mentioned pollutants that may reach Perry Creek would be at a rate that would remain undetectable based on the distance to water and amount of vegetation on the slope.

Alternative 2

Lake 22-There would be no measurable effect on hydrology or water quality from this alternative and no net change to soil productivity would result. The main ground disturbance would be a result of the old toilet removal and new toilet construction. The new toilet would require 0.03 acre of surface area to be disturbed in the vegetated island. The 0.03 acres of soil removed from production for the new toilet would be offset by the reclamation of the old toilet site. Any increase in runoff would be imperceptible. This determination is based on field examination of the permeability of the subsurface and surface soils. The trailhead Road 4006 would be ditched, and the road and parking area would receive additional rock surfacing, all of which would improve road and parking lot drainage and reduce sediment generating scour. Overall, an improvement in water quality would be expected due to the reduced erosion at the site.

Perry Creek-There would be no measurable effect on hydrology or water quality; there would be a loss of productive soil at the trailhead and for the new trail segment, but a gain from the road conversion to the trail; resulting in a net gain of 0.70 acre of improved soil productivity over time. Alternative 2 would disturb about 0.37 acre of ground to increase parking at the Dickerman Trailhead and approximately 1.2 acres of disturbance for the new trail, which would increase runoff and erosion potential. The addition of two inches of rock on the existing parking area and a six inch layer on the new parking area would offset any new erosion and sediment generation from the parking area. The parking area at Dickerman Trailhead is located about 400 feet away from the nearest perennial stream, incorporates adequate drainage design and is located on gentle sloping terrain that poses no threat to water quality. Trail drainage features would preclude concentration of runoff and erosion on the new trail. Any sediment produced would be filtered in the trailside vegetation.

Further, an additional toilet would be constructed at the northwestern end of the new parking area reducing sanitation concerns that existed at the old Perry Creek Trailhead where no toilet exists. Those concerns centered on the possibility for human-caused pollutants to enter Perry Creek (i.e. fecal coliform bacteria).

The road to trail conversion along the Perry Creek Road, and the storage of the rest of the Perry Creek Road, would improve drainage and reduce the risk of mass wasting, thus reducing sedimentation over time. Even with the enlargement of the Dickerman parking area and new trail construction a net gain of about 6.4 acres of erosion improvement (road-to-trail conversion and stored roadway) would occur due to road treatment. Soil productivity would slowly return (over decades) to the reclaimed road-to-trail area.

Suspended Sediment Estimate-For Alternatives 2 and 3, it is estimated that the project would potentially produce about one to three cubic feet of suspended sediment but it is unlikely that it could reach the South Fork Stillaguamish River because the project locations are far away from the River and/or are on gentle grades.

Alternative 3

Lake 22-There would be no measurable effect on hydrology or water quality; there would be a loss of productive soil at the trailhead. Although there would be 0.08 acre more ground disturbance under this Alternative, total run-off and sedimentation would still be undetectable because total area disturbed remains very small, the parking area would be graveled, and drainage features of the parking area would be improved. Any increase in parking area erosion would be offset by the reduction in erosion from the surface treatment and drainage improvement over the existing condition.

Perry Creek-There would be no measurable effect on hydrology or water quality; there would be a loss of productive soil at the trailhead, and for the new trail segment, but a gain from the road conversion to the trail; resulting in a net gain of 0.70 acre of improved soil productivity over time. Alternative 3 would disturb about 0.44 acre of ground at the Dickerman Trailhead parking lot by adding 50 parking slots, and about 1.20 acres for the new trail, which would increase runoff and erosion. This, however, would be offset by the addition of two inches of rock on the existing parking area and a six inch layer on the new parking area. The parking area at Dickerman Trailhead is located about 400 ft away from the nearest perennial stream; the design would incorporate adequate drainage, and be located on gentle sloping terrain. There would be no threat to water quality because any sediment generated from the parking area would be filtered by vegetation. Trail drainage features would preclude concentration of runoff and erosion on the new trail. Any sediment produced would be filtered in the trailside vegetation.

Further, an additional toilet would be constructed at the northwestern end of the new parking area reducing sanitation concerns that existed at the old Perry Creek Trailhead where no toilet exists.

The road to trail conversion along the Perry Creek Road, and the storage of the rest of the Perry Creek Road, would improve drainage and reduce the risk of mass wasting, thus reducing sedimentation over time. Even with the enlargement of the Dickerman parking area and new trail construction a net gain of about 6.0 acres of erosion improvement (road-to-trail conversion and stored roadway) would occur due to road treatment. Soil productivity would slowly return (over decades) to the reclaimed road-to-trail area.

Suspended Sediment Estimate-For Alternatives 2 and 3, it is estimated that the project would potentially produce about one to three cubic feet of suspended sediment but it is unlikely that it could reach the South Fork Stillaguamish River because the project locations are far away from the River and/or are on gentle grades.

Alternative 4

Lake 22-The effect of Alternative 4 would increase over Alternative 3 but no measurable effects on hydrology or water quality would result. There would be 0.71 new acres of soil removed from production. Ground disturbance would be from constructing 0.50 mile of new trail (about 0.6 acre excluding bridge crossings) and seven new parking slots (0.03 acre) at the Gold Basin Mill Pond parking area. The new parking sites at the Mill Pond would be paved, eliminating the potential for onsite erosion, but increasing runoff from the site. There would be no effect of the small increase in runoff that would be absorbed by the surrounding soil.

With this alternative, an additional toilet would be needed at the Mill Pond parking site that would cause some ground disturbance. The new toilet would require about 0.06 acre of surface area. This would increase runoff by an imperceptible amount. This determination is based on field examination of the subsurface and surface soils in and around the sites.

Perry Creek-Alternative 4 would have the same effect as Alternative 3.

Suspended Sediment Estimate-Alternative 4 has the potential to contribute a minor amount of sediment (less than a cubic foot) to surface water through construction of the connecting trail from Lake 22 Trailhead to Gold Basin Mill Pond, where small drainages are crossed. Because of the small footprint of the trail, the erosion hazard is small.

Riparian Reserves

The ROD (Forest Service 1994b) defines Riparian Reserves as areas along all streams, wetlands, ponds, lakes, and unstable or potentially unstable areas where the conservation of aquatic and riparian-dependent terrestrial resources receives primary emphasis. Riparian Reserves are mapped overlaying all other land allocations.

Riparian Reserve Standards and Guidelines for 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 (1994 ROD, pg C-34).
- ***RM-2-***Adjust dispersed and developed recreation practices that retard or prevent attainment of Aquatic Conservation Strategy (ACS) 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 (1994 ROD, pg C-34).

Project components within Riparian Reserves include the proposed trail segments, the Lake 22 Trailhead, and the proposed additional parking at Gold Basin Mill Pond.

The South Fork Stillaguamish River watershed analysis found riparian conditions in the Middle and Upper South Fork Stillaguamish River as predominantly good. The

percentage of impaired riparian reaches along the South Fork Stillaguamish River on National Forest land is estimated to range from zero to 18 percent with Hemple Creek being one of the tributaries with higher shade reduction. Perry Creek riparian conditions are considerably better with near or above 90 percent of all riparian stream links, and greater than 70 percent conifer in the Riparian Reserve. Existing riparian conditions fulfill important functions of providing shade, supplying large woody material, filtering pollutants, and providing critical elements for bank stability.

Riparian Reserves Environmental Consequences

Alternative 1 No Action

There would be no affect to Riparian Reserves as there would not be any action.

Alternatives 2

The Lake 22 Trailhead site is within the Hemple Creek Riparian Reserve, but there would be no effect to the Riparian Reserves by relocating the toilet.

The Perry Creek to Dickerman connecting trail would cross a few small ephemeral streams. There would be no measurable effect on Riparian Reserve function of the ACS objectives. This trail would disturb about 0.06 acre within Riparian Reserves. The road work would be outside the Riparian Reserve of Perry Creek and the Dickerman parking lot expansion would not be within a Riparian Reserve.

Alternative 3

Expansion of the Lake 22 Trailhead parking lot would disturb approximately 0.08 acre of Riparian Reserve but only small trees would be removed, the large trees would be retained. There would be no measurable effect on the Riparian Reserves function and the ACS Objectives.

The effect at the Perry Creek/Dickerman Trailhead and new trail would be the same as in Alternative 2 because the additional parking is outside of Riparian Reserves.

Alternative 4

In addition to the consequences for Alternative 2 and 3, this alternative would construct a trail between Lake 22 Trail and Gold Basin Mill Pond. There would still be no measurable effect on the Riparian Reserve function or the ACS Objectives. The proposed trail would cross Riparian Reserves for Hemple Creek and other small perennial streams. Approximately 0.2 acre of Riparian Reserve would be disturbed during the trail construction, but only one or two trees would be removed. Additional (0.03 acre) vegetation would be removed in the parking lot, but only one tree would be affected.

Riparian Reserve Cumulative Effects

The effect of the action alternatives on the Riparian Reserves would not be detectable at the site scale nor at the watershed scale. The areas outside of the project area have some

riparian function concerns (lack of large wood recruitment, shade, and insufficient bank stability), but the proposed project would not contribute any effects that would combine with effects in those areas or other projects within the watershed.

Fisheries

The Mountain Loop Scenic Byway Trailhead Enhancements Project is located in the South Fork Stillaguamish River watershed and has project sites near Perry Creek, Hemple Creek, and Gold Basin Creek and Pond.

Fish Species of Interest and Special Habitats

Fish of particular interest are those with Federal status under the Endangered Species Act or have Regional or local Forest Service status as sensitive or management indicator species. Special fish habitats include federally designated critical habitats and essential fish habitats as defined by the Sustainable Fisheries Act of 1996.

Those species of particular interest or that have special habitats in the South Fork Stillaguamish and tributary streams downstream of the project area are listed in Table 1, and include: bull trout (*Salvelinus confluentus*), Chinook (*Oncorhynchus tshawytscha*), steelhead (*O. gairdneri*), coho (*O. kisutch*), pink (*O. gorbuscha*), chum (*O. keta*), coastal cutthroat (*O. clarki clarki*), sockeye (*O. nerka*), and Salish sucker (*Catostomus sp.*). While the resident and anadromous forms of coastal cutthroat trout are present in the watershed downstream of Granite Falls, cutthroat that may be in the action area are likely both descendents of stocked non-native cutthroat as well as native coastal cutthroat.

Table 3. Fish Species or Habitats with Special Status

Species (Stock)	Status[1]	Utilization Associated with Project Analysis Area
Bull trout	USFWS – Listed Threatened (11/99) Designated Critical Habitat (9/05) SaSI 1998–Unknown USFS–MIS	South Fork Stillaguamish mainstem; Perry Creek (known spawning to approximately RM 0.5; presumed rearing to approximately 2.0); lower Hemple Creek (presumed rearing); lower Lake 22 Creek (presumed rearing)
Chinook (South Fork Fall)	NMFS–Listed Threatened (3/99) Designated Critical Habitat (9/05) Essential Fish Habitat SaSI 2003–Depressed USFS–MIS	South Fork Stillaguamish mainstem up to Perry Creek. In 2004 there were 8 redds between RM 35 (approximately at the fish ladder) and RM 65 (approximately at Perry Creek), with an average over the last 10 years of 6-8 redds per year.
Steelhead (winter, South Fork summer)	NMFS–Listed Threatened (5/07) Critical Habitat not proposed SaSI 2003–Winter Depressed; Summer Unknown USFS–MIS	South Fork Stillaguamish mainstem upstream of Granite Falls fish ladder; tribs incl. Perry, Lake 22, and Hemple Creeks
Coho (Stillaguamish)	NMFS–Species of Concern (7/95) Essential Fish Habitat USFS–Sensitive, MIS SaSI 2003–Healthy	South Fork Stillaguamish mainstem known to RM 67.1; Perry Creek known/presumed to approximately RM 1.5; Hemple Creek to about 0.1; Gold Basin east inlet stream, approx. RM 0.1 from pond.
Pink (Stillaguamish)	NMFS–Not Warranted (10/95) Essential Fish Habitat SaSI 2003–Healthy USFS–MIS	South Fork Stillaguamish mainstem downstream of Granite Falls fish ladder
Chum	NMFS–Not Warranted (3/98) SaSI 2003–Healthy USFS–MIS	South Fork Stillaguamish mainstem downstream of Granite Falls fish ladder
Coastal sea-run cutthroat	NMFS–Not Warranted (4/99) USFS–Sensitive, MIS SaSI 2000–Healthy	South Fork Stillaguamish mainstem; anadromous downstream of Granite Falls fish ladder and resident upstream
Sockeye (riverine; not Baker River stock)	NMFS–Not Warranted (Baker River stock in Skagit; 3/99) USFS–Sensitive	South Fork Stillaguamish mainstem downstream of Granite Falls fish ladder
Salish sucker	USFS–Sensitive	Unknown; habitat suspected present in Gold Basin Mill Pond. Sampling in 2005 did not capture suckers.
Resident trout (rainbow,cutthroat)	USFS–MIS	South Fork Stillaguamish mainstem and tributaries (including Perry, Lake 22, Hemple and Gold Basin Creeks) and Gold Basin Pond.

Status comes from: Federal Register for US Fish and Wildlife Service (USFWS) and National Marine Fisheries Service (NMFS) listings (year and month of listing shown); SaSI is the Washington State Salmonid Stock Inventory (WDFW 1998, WDFW 2000, and WDFW and WWTT 2003 draft); USFS is from the Regional Forester's Sensitive Animal Species List, July 2004, and from the MBS Land and Resource Management Plan, Management Indicator Species.

Critical Habitats

Chinook-On September 2, 2005, the National Marine Fisheries Service (NMFS) issued a final rule designating critical habitat for 12 Evolutionarily Significant Units (ESUs), including the Puget Sound Chinook salmon ESU (70 FR 52630). This rule became effective January 2, 2006. The Mountain Loop Scenic Byway Trailhead Enhancements project is adjacent to the South Fork Stillaguamish River, a designated critical habitat segment, with the closest distance approximately 300 feet (cross-country from the Lake 22 Trailhead).

Bull Trout-The USFWS issued a final rule September 26, 2005 (70 FR 56212), designating critical habitat for Coastal-Puget Sound bull trout National Forest System lands managed under the Northwest Forest Plan (including all lands within the Mt. Baker-Snoqualmie National Forest) were excluded from final listing designation. Critical habitat is designated in the South Fork Stillaguamish River at the National Forest boundary at about RM 48.5, about 0.30 mile downstream from the closest project site.

Essential Fish Habitats

Essential fish habitat (EFH) is defined as "those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity." EFH for coho salmon is present in Gold Basin Pond and the low gradient inlet and outlet streams. Lower Hemple Creek from the mouth up to the Mountain Loop Scenic Byway had known spawning and rearing, which has been degraded due to inputs of various-sized rocks and sediments from several years ago. Perry Creek has had coho upstream of the Mountain Loop Scenic Byway, and coho habitat is presumed to be present downstream of the Loop to the mouth. The mainstem South Fork Stillaguamish is coho EFH up to RM 67.1, past the upper extent of proposed project activities.

Pink salmon EFH is beyond the project action area, downstream of the Granite Falls fish ladder (RM 34.5), over 14 miles downstream of the closest project site. EFH for Chinook is in the mainstem South Fork Stillaguamish up to the confluence with Perry Creek (RM 65).

Fisheries Environmental Consequences

Consultation under Section 7(a)(2) of the Endangered Species Act of 1973, as amended (16 USC 1531 *et seq.*), and Section 305(b) of the Magnuson-Stevens Fishery Conservation and Management Act, and implementing regulations (50 CFR Part 600), has been completed for listed and proposed fish, designated critical habitats, and essential fish habitats. This project is consistent with the programmatic biological assessments for forest management activities on the Mt. Baker-Snoqualmie National Forest (MBS 2003, MBS 2004). The U.S. Fish and Wildlife Service provided a letter of concurrence dated June 17, 2004. The National Marine Fisheries Service provided a biological opinion and Essential Fish Habitat consultation dated December 15, 2003.

No Action Alternative

Federally Listed Species and Critical Habitats

This alternative would not affect Chinook or designated Chinook critical habitat, bull trout or designated bull trout critical habitat, or steelhead because no direct or indirect effects would occur to these species or special habitats. The effect determinations for federally listed species and designated habitats, and for the proposed species, are No Effect.

Sensitive Species and Other Special Status Species

This alternative would not affect coho, pink, chum, coastal cutthroat, sockeye, Salish sucker, or resident trout because no direct or indirect effects would occur to these species. This alternative would result in *No Impact* to sensitive and other special status fish species.

Essential Fish Habitats

This alternative would not affect essential fish habitats for Chinook, coho, or pink salmon because no direct or indirect effects would occur to these special habitats. The effect determinations for essential fish habitats are *No Effect*.

Conservation Measures

There are no specific fisheries mitigations or conservation measures associated with this alternative.

Alternative 2

Federally Listed Species and Critical Habitats

Activities associated with this alternative would have *No Effect* to Chinook, bull trout, steelhead, or on designated Chinook or bull trout critical habitats due to the scope and distance of activities at Lake 22 Trailhead, Dickerman Trailhead and the Perry Creek Road system, from these species and their habitats. Activities would not be working directly in (or adjacent to) fish habitats, and the health and safety improvements, plus the road treatments, would benefit these fish and their habitats by reducing the potential for sedimentation and the introduction of nutrients and contaminants. These incremental benefits would be neither measurable nor traceable to this project, however. The trees to be removed are not shading streams and would not influence stream temperatures. Construction of the new trail connecting Dickerman Trailhead and Perry Creek Trail would not affect any of these species or habitats because they are not present in the action area or the area where effects would be suspected to occur.

Sensitive Species and Other Special Status Species

This alternative would have *No Impact* to coho, pink, chum, coastal cutthroat, sockeye, Salish sucker, or resident trout due to the scope and distance of activities at Lake 22 Trailhead, Dickerman Trailhead and the Perry Creek Road system, from these species and their habitats. Activities would not be working directly in (or adjacent to) fish habitats, and the health and safety improvements, plus the road treatments, would benefit

these fish and their habitats by reducing the potential for sedimentation and the introduction of nutrients and contaminants. These incremental benefits would be neither measurable nor traceable to this project, however. The trees to be removed are not shading streams and would not influence stream temperatures. Construction of the new trail connecting Dickerman Trailhead and Perry Creek Trail would not affect any of these species because they are not present in the action area.

Essential Fish Habitats

This alternative would have *No Effect* to Chinook, coho, or pink salmon essential fish habitats due to the scope and distance of activities at Lake 22 Trailhead, Dickerman Trailhead and the Perry Creek Road system, from these habitats. Activities would not be working directly in (or adjacent to) fish habitats, and the health and safety improvements, plus the road treatments, would benefit these fish and their habitats by reducing the potential for sedimentation and the introduction of nutrients and contaminants. These incremental benefits would be neither measurable nor traceable to this project, however. The trees to be removed are not shading streams and would not influence stream temperatures. Construction of the new trail connecting Dickerman Trailhead and Perry Creek Trail would not affect any of these habitats because they are not present in the action area.

Alternative 3

Federally Listed Species and Critical Habitats

Activities associated with this alternative would have *No Effect* to Chinook, bull trout, steelhead, or on designated Chinook or bull trout critical habitats due to the scope and distance of activities at Dickerman and Lake 22 Trailheads, and along the Perry Creek Road system, from these species and their habitats. Activities would not be working directly in (or adjacent to) fish habitats, and the health and safety improvements, plus the road treatments, would benefit these fish and their habitats by reducing the potential for sedimentation and the introduction of nutrients and contaminants. These incremental benefits would be neither measurable nor traceable to this project, however. The trees to be removed are not shading streams and would not influence stream temperatures. Construction of the new trail connecting Dickerman Trailhead and Perry Creek Trail would not affect any of these species or habitats because they are not present in the action area.

Sensitive Species and Other Special Status Species

This alternative would have *No Impact* to coho, pink, chum, coastal cutthroat, sockeye, Salish sucker, or resident trout due to the scope and distance of activities at Dickerman and Lake 22 Trailheads, and along the Perry Creek Road system, from these species and their habitats. Activities would not be working directly in (or adjacent to) fish habitats, and the health and safety improvements, plus the road treatments, would benefit these fish and their habitats by reducing the potential for sedimentation and the introduction of nutrients and contaminants. These incremental benefits would be neither measurable nor traceable to this project, however. The trees to be removed are not shading streams and

would not influence stream temperatures. Construction of the new trail connecting Dickerman Trailhead and Perry Creek Trail would not affect any of these species because they are not present in the action area.

Essential Fish Habitats

This alternative would have *No Effect* to Chinook, coho, or pink salmon essential fish habitats due to the scope and distance of activities at Dickerman and Lake 22 Trailheads, and along the Perry Creek Road system, from these habitats. Activities would not be working directly in (or adjacent to) fish habitats, and the health and safety improvements, plus the road treatments, would benefit these fish and their habitats by reducing the potential for sedimentation and the introduction of nutrients and contaminants. These incremental benefits would be neither measurable nor traceable to this project, however. The trees to be removed are not shading streams and would not influence stream temperatures. Construction of the new trail connecting Dickerman Trailhead and Perry Creek Trail would not affect any of these habitats because they are not present in the action area.

Alternative 4

Federally Listed Species and Critical Habitats

Activities associated with this alternative would have *No Effect* to Chinook, bull trout, steelhead, or on designated Chinook or bull trout critical habitats due to the scope and distance of activities at Dickerman and Lake 22 Trailheads, along the Perry Creek Road system, and at Gold Basin Mill Pond parking area, from these species and their habitats. Activities would not be working directly in (or adjacent to) fish habitats, and the health and safety improvements, plus the road treatments, would benefit these fish and their habitats by reducing the potential for sedimentation and the introduction of nutrients and contaminants. These incremental benefits would not be measurable or traceable to this project, however. Most of the trees to be removed are not shading streams, and removing the few streamside trees in this alternative would not influence stream temperatures. Construction of the new trails connecting Dickerman Trailhead and Perry Creek Trail, and Lake 22 Trail with Gold Basin Mill Pond, would not affect any of these species or habitats because they are not present in the action area.

Sensitive species and other special status species-This alternative would have *No Impact* to pink, chum, coastal cutthroat, or sockeye, due to the scope and distance of activities at Dickerman and Lake 22 Trailheads, and along the Perry Creek Road system, from these species and their habitats. Activities would not be working directly in (or adjacent to) fish habitats, and the health and safety improvements, plus the road treatments, would benefit these fish and their habitats by reducing the potential for sedimentation and the introduction of nutrients and contaminants. These incremental benefits would be neither measurable nor traceable to this project, however. Most of the trees to be removed are not shading streams, and removing the few streamside trees in this alternative would not influence stream temperatures. Construction of the new trail

connecting Dickerman Trailhead and Perry Creek Trail would not affect any of these species because they are not present in the action area.

Work at and associated with the Gold Basin Mill Pond, particularly the construction of the connector trail between Lake 22 Trail and Gold Basin Mill Pond, *May Impact* individual fish, but is not likely to cause a trend toward federal listing of coho or Salish sucker. Any impacts to resident trout species would also be minimal. During the heavy summer recreational use period, coho juveniles, resident trout, and perhaps Salish suckers, would be rearing in Gold Basin Pond. Coho spawn in the winter when use is expected to be low. Resident trouts and Salish suckers spawn in the spring; Salish suckers have been noted in spawning condition into August (Wydoski and Whitney 2003). Because the new trail would cross the inlet of Gold Basin Pond, users could disturb spawners. If dogs are allowed to run in the stream, they could also damage coho or trout redds in the gravel and suffocate eggs or fry (Salish sucker eggs are not buried under gravels and are expected to be minimally impacted by dogs). The effect on fish populations in the watershed would not likely be measurable due to annual variance.

Essential fish habitat -This alternative would have *No Effect* to Chinook or pink salmon essential fish habitats due to the scope and distance of activities at Dickerman and Lake 22 Trailheads, and along the Perry Creek Road system, from these habitats. Activities would not be working directly in (or adjacent to) fish habitats, and the health and safety improvements, plus the road treatments, would benefit habitats for these fish by reducing the potential for sedimentation and the introduction of nutrients and contaminants. These incremental benefits would be neither measurable nor traceable to this project, however. Most of the trees to be removed are not shading streams, and removing the few streamside trees in this alternative would not influence stream temperatures. Construction of the new trails connecting Dickerman Trailhead and Perry Creek Trail and Lake 22 Trail with Gold Basin Mill Pond, would not affect habitats for either of these species or habitats because they are not present in the action area.

This alternative *May Affect*, but is *Not Likely to Adversely Affect*, coho essential habitat due to the construction of footbridges over a spawning channel (Gold Basin Mill Pond inlet), and over Hemple Creek (spawning occurs downstream of the crossing 200-300 feet or more). Work would not occur during the coho spawning period, and sediments from the project are not expected in quantities to measurably degrade coho habitat, as there would not be in-channel construction. The new trail would be upslope of Gold Basin Mill Pond, and the sideslope drainage features to the pond are not perennial. Combined with vegetated slopes, sedimentation from surface erosion or resuspension during the first fall storm after completion of the trail would not be measurable.

Effects of Mitigations and Conservation Measures

Vegetation mitigations of washing heavy equipment prior to entering the Forest, seeding disturbed ground and using weed-free straw would generally be beneficial to fishery resources by helping to prevent perpetuation of undesirable invasive species.

Mitigations for wildlife species include timing restrictions for use of aircraft, and road closure. These mitigations would be neutral to fishery resources unless actual road

treatments are associated with the closure, then they would be beneficial in reducing road-related erosion to fish-bearing streams.

Mitigations and conservation recommendations to address potential impacts to fish and fish habitat from activities in and near water would minimize sedimentation and contaminants to water bodies from activities associated with all action alternatives and use by the public of these trailheads and trails, maintain the function of Riparian Reserves at the watershed scale, and maintain or improve the hydrology at road and trail stream crossings. These measures have been implemented for various projects on the Mt. Baker-Snoqualmie National Forest and have been determined by regulatory agencies as effective in minimizing negative effects to fish and aquatic habitats.

Hydrology, Water Quality, and Fisheries Cumulative Effects

Following are some of the assumptions and background for the cumulative effects analysis that was conducted.

- The effects from site erosion and sedimentation at each repair site are short term (1 to 2 years).
- Any sediment generated from site erosion would remain on site because of the low hillslopes at the sites, the vegetative cover around the sites, and long distances to surface water features. The one exception to this is the trail construction associated with Alternative 4 that would connect the Lake 22 and Gold Basin Mill Pond trailheads. Trail construction would involve three trail bridges and boardwalk construction. Sediment produced at these sites would enter surface water and be carried off-site.
- Sediment generated by project activities would consist of 65 percent suspended sediment, and 35 percent sand and gravel.
- The travel distance of this sediment, in the year following construction, would be 20km (12.4 miles), for suspended sediment and 2km (1.2 miles) for bedload (sand and gravel) (Bunte and MacDonald 1998).

A cumulative effect occurs when the effects of a proposed project overlaps in both space and time with lingering effects from past projects, from incremental effects of concurrent projects, or from estimated additive effects of projects being planned for the near future. Table 4 identifies projects and activities within the South Fork Stillaguamish River watershed that were considered in this cumulative effects analysis for hydrology, water quality, and fisheries. The table identifies whether or not there are potential effects from these activities that could combine with the proposed project to form a cumulative effect. There would be no resulting cumulative effects to hydrology, water quality, fish or fish habitats expected by implementing any alternative.

Table 4. Hydrology, Water Quality, and Fisheries Cumulative Effects Table

Project or Activity and Extent/Description	Potential Influence	Overlap[2]			Comments and Resulting Cumulative Effect of Action Alternatives with Project or Activity Listed?
			Time	Space	
River Road (Rd. 4037) flood repair Repair flood-damaged road and construct rock protection structures along the bank	Channel migration, sediment delivery to fish-bearing waters, pool habitat	Suspended Sediment	No	Yes	Completed in 2005. No potential cumulative effect due to lack of overlap in both time and space. No lingering sediment, channel or habitat effects for proposed actions to overlap with. Action alternatives would have no cumulative effect.
		Bedloading, channel pools	No	No	
Lake Twenty-Two Trail Construction Construct trail around lake; close and rehab multiple user trails	Sediment delivery/ reduction to fish-bearing waters, riparian conditions around Lake 22	Sediment	No	No	Completed in 2006. No potential cumulative effect due to lack of overlap in both time and space. No effects of proposed actions to Lake 22 or Twenty-Two Creek. Action alternatives would have no cumulative effect.
Robe Valley Bank Protection (Snohomish County) Construction of rock vanes for bank protection along SF Stillaguamish	Channel migration, instream habitat diversity, sediment delivery to fish-bearing waters	Suspended Sediment	No	Yes	Completed in 2004. No potential cumulative effect due to lack of overlap in both time and space. No effects of proposed actions to channel conditions or instream habitat, and no lingering sediment from Robe project for proposed actions to overlap with. Action alternatives would have no cumulative effect.
		Bedloading channel habitat	No	No	
Hemple Road 4009 Closure/Storage 0.6 mile of culvert removals or replacement with driveable waterbars	Sediment delivery to fish-bearing waters	Suspended Sediment	Yes	Yes to SF Stilly Alts 2,3	Funded for work in 2007. Cumulative effect exists due to overlap in both time and space, but effects of the action alternatives would not result in a distinguishable effect when combined with any lingering effects of the Hemple project.
				Yes, to SF Stilly and Hemple Creek Alt 4	
		Bedloading	Yes	Yes, SF Stilly, Alts 2,3	
				Yes, to SF Stilly and Hemple Creek, Alt 4	
Little Beaver Creek Fish Passage Culvert replacement at Little Beaver Creek	Improved access for spawning and rearing, Increased fish population size, sediment	Suspended Sediment to fish population	Yes	Yes	Planned for summer 2007. Cumulative effects for sediment and to population sizes of coho, steelhead, bull trout and resident trouts exist due to overlap in both time and space, but effects of the action alternatives would not result in distinguishable effects when combined with any lingering effects of the Little Beaver Creek Fish Passage project.
		Bedloading	No	No	
Marten Creek Bridge Replacement Snohomish County/ Federal Highways will replace existing bridge	Sediment delivery to fish-bearing waters	Suspended Sedment	Yes	Yes	Planned for summer 2008. Cumulative effect for suspended sediments due to potential overlap in both time and space, but effects of the action alternatives would not result in distinguishable effects when combined with any lingering effects of the Marten Creek Bridge Replacement project.
		Bedloading	Yes	No	

[2] Sediment is divided between suspended sediment and bedload sediment for the cumulative effects assessment because transport of the two types of sediment differs; Suspended sediment travels farther in the rivers than bedloading.

Upper Waldheim Slide Treatment Replace unstable soils with rock to provide short-term protection for Mtn. Loop Hwy	Sediment delivery to fish-bearing waters.	Suspended Sedment	No	Yes	Completed in 2006. No potential cumulative effect due to lack of overlap in both time and space. No lingering sediment effects for proposed actions to overlap with. Action alternatives would have no cumulative effect.
		Bedloading	No	No	
Lower Waldheim Slide Treatment Replace unstable soils with rock interspersed with wood and construct instream structures for long-term protection of Mtn. Loop. Hwy.	Channel migration, sediment delivery/reduction to fish-bearing waters; instream habitat diversity	Suspended Sediment	Yes	Yes	Planned for summer 2007 or 2008. Potential cumulative effect for suspended sediment due to possible overlap in both time and space. Effects of the action alternatives would not result in distinguishable effects when combined with effects from sediment from the Lower Waldheim Slide Treatment project.
		Bedloading channel migration, habitat diversity	Yes	No	
Shady Side Dispersed Site Protection and Rehabilitation Installation of large boulders to prevent vehicular access to wetland and riparian habitat along SF Stillaguamish; plant native vegetation	Sediment or contaminants to fish-bearing waters; riparian vegetation; large woody debris recruitment	Sediment, contamination	No	No	Rock placement completed in winter 2006; additional rock and rehabilitation within the site and plantings planned for completion spring 2007. No potential cumulative effect due to lack of overlap in both time and space. Action alternatives would have no cumulative effect.
		Vegetation Large Woody Debris Recruitment	Yes	No	
Instream treatments Structures, gravel placement and off-channel projects for spawning and rearing habitats in multiple streams, including Hemple Creek and Gold Basin Creek system	Instream habitat features: diversity, quantity spawning habitat, access to Gold Basin Pond and overwinter rearing habitat resulting in increased fish population size; sediment delivery to fish-bearing waters	Suspended Sediment	Alt 2,3,4 No	Alt 2,3, No Alt 4, No, to habitat	Completed 1981-1993. Increased diversity; increased quantity and quality for rearing and spawning, though some sites have since experienced flood damage. Cumulative effect for fish populations with Alt. 4 due to overlap in both time and space, but changes to fish population sizes would not be distinguishable.
			Alt 4, No	Alt 4 Yes, fish populations	
		Bedloading	Yes	Yes, fish populations	
Trail Maintenance	Sediment delivery to fish-bearing waters	Suspended Sediment	Yes	Yes	Ongoing maintenance throughout the watershed. Cumulative effect due to potential brief overlap in both time (first year) and space, but effects of the action alternatives would not result in distinguishable effects when combined with lingering sediment effects of trail maintenance.
Road Repairs Multiple fixes from past floods. Replace fill and riprap, clear and replace with larger culverts along Mtn. Loop and spurs	Hydrologic routing, sediment delivery to fish-bearing waters	Suspended Sediment	No	Yes	Sedimentation from past flood events (natural and road-related); local drainage improved where culverts cleaned and upgraded. No potential cumulative effect due to lack of overlap in both time and space.
Road Maintenance Routine road maintenance (brush and grade on rotation, clean culverts, etc.)	Hydrologic routing, sediment delivery to fish-bearing waters	Suspended Sediment	Yes	Yes-not likely, but possible for Rd 4063	Ongoing activities. Potential cumulative effect due to possible overlap in both time and space, depending on timing of maintenance in relation to subsequent storms. Action alternatives would not result in distinguishable effect on top of any lingering effects of maintenance (incl. along Rd. 4063).
Private Land Timber Harvest	Hydrologic routing, sediment delivery to fish-bearing waters	Suspended Sediment	Yes	Yes, if delivery to SF Stilly occurs	Lands managed for harvest downstream of the project could have lingering effects with which effects from proposed activities could overlap in the SF Stillaguamish River; potential cumulative effect of suspended sediments under Alt. 4 due to overlap in both time and space. However, effects of all action alternatives would not result in distinguishable effects when combined with any lingering effects from private timber harvest.
		Bedloading	No, flows	No, flows	

The predominant effect from management activities with which this project could cumulatively overlap is sedimentation. Suspended sediment and bedload are of particular concern for fisheries due to negative effects on spawning and rearing habitats. These materials can smother redds and fill pool habitats, reducing fish survival and growth. The total estimated sediment from all the action alternatives, that would likely enter surface water during or within the first two years after the project, is one to three cubic feet (one or two five-gallon buckets), a very minor amount compared to existing natural loads. Additionally, the Perry Creek project site is 15 miles upstream from the Lake 22 site, and suspended sediment from these sites would not overlap in space.

There is the potential for cumulative effects between the proposed Mountain Loop Scenic Byway Trailhead Enhancements project and lingering or concurrent effects from the Hemple Road 4009 Treatment, Little Beaver Creek Fish Passage, Marten Creek Bridge Replacement, Lower Waldheim Slide Treatment, instream treatments at Gold Basin and Hemple Creeks, trail maintenance, road maintenance along Road 4063, and timber harvests on private land due to the activities' proximity to these projects and because they would occur within the same relative period of time (see the preceding table). However, because the actual effect of the proposed action would not be measurable, there would be no measurable effects on channel processes, sediment transport regime, or water quality, nor to fish or to their habitats. There would be no resulting measurable cumulative effect to fish or their habitats by implementing any action alternative...

Wildlife

Forest Service policy requires the protection of habitat for federally listed threatened, endangered, and candidate species, USFWS Species of Concern, and Forest Service sensitive, survey and manage and management indicator species from adverse modification or destruction, as well as to protect individual organisms from harm or harassment as appropriate (FSM 2670.3).

Based on review of available records of species observations, habitat suitability, and/or high human use, the following species would not be expected to occur within or adjacent to the project area: lynx, larch mountain salamander, Van Dyke's salamander, great gray owl, elk, or common loon. There is adjacent habitat within the fifth-field watershed for peregrine falcon, California wolverine, and mountain goat but no changes in these species habitat were identified from the proposed activities.

The proposed project areas are within or immediately adjacent to suitable habitat for the following species: grizzly bear, gray wolf, Northern spotted owl, marbled murrelet, bald eagle, primary excavators, neotropical migrant songbirds, marten, Townsend's big-eared bat, other bats, and black-tailed deer. Only those species listed here will be discussed further in this document. The proposed project area is within Designated Critical Habitat for the Northern spotted owl and within Designated Critical Habitat for the Marbled Murrelet.

Surveys for existing or proposed Threatened, Endangered, or Sensitive species were not conducted. If suitable habitat is present, timing restrictions on some work activities are incorporated to minimize impacts to species of concern that may be present.

Federal Threatened and Endangered Species

On the Mt. Baker-Snoqualmie National Forest, there are six wildlife species listed as endangered or threatened under the federal Endangered Species Act and two designated critical habitats. The table below lists the species with habitat and the critical habitat found within or adjacent to the project area and are discussed further in this document. Considerations for grizzly bear and gray wolf habitat are part of the "*No Net Loss*" policy for core habitat within the North Cascades Grizzly Bear Recovery Zone.

Table 5. Threatened and Endangered Wildlife Species

Species/Critical Habitat*	Status**	Occurrence
Grizzly Bear (*Ursus arctos*)	T, MIS	The project area is within Bear Management Units (BMUs) 6 and 8. Suitable early and late season foraging habitat is present adjacent to the project area. There are no class 1 sightings in either BMU and no class 2 sightings in BMU 6. There is one class 2 (1986) sighting near the Perry Creek Trailhead just to the west of the project area.
Northern Spotted Owl (*Strix occidentalis caurina*)	T, MIS	Suitable nesting habitat is present within and adjacent to the Lake 22 project area and present within the project area on the west end of the proposed trail connecting the Dickerman trailhead to the Perry Creek trail. Suitable roosting, foraging and dispersal habitat is present within and adjacent to both project areas. The nearest historic owl activity center (pair, 1992) to the Perry Creek project area is a half mile to the northwest of the existing Perry Creek Trailhead and a mile to the northwest of the proposed Dickerman-Perry Creek trail connector. During two years of surveys, a single spotted owl was heard in 1990 a quarter mile to the southeast of the Lake 22 project area.
Marbled Murrelet (*Brachyramphus marmoratus marmoratus*)	T	Suitable nesting habitat is present within and adjacent to the Lake 22 project area and present within the project area on the west end of the proposed trail connecting the Dickerman trailhead to the Perry Creek trail. Occupied behavior in the stands immediately adjacent to the site have been documented during past survey efforts for the Stalwart Timber Sale. There is also a historic nest site just over a half mile to the west of the Lake 22 project area. Murrelets have been observed moving along the river corridor of the South Fork Stillaguamish. Based on surveys (1990-1994), murrelet activity in the South Fork Stillaguamish River drainage is high (Forest Service 1995).
Bald Eagle (*Haliaeetus leucocephalus*)	T, MIS	Eagles have been observed in low numbers along the South Fork Stillaguamish River throughout the winter (generally November through the end of February). The low use of this drainage is believed to be the result of limited foraging opportunities (e.g. salmon carcasses). There are no known nest sites on the Darrington District and no known night roosts or staging areas within the drainage (FOREST SERVICE 1995).
Critical Habitat for the Northern Spotted Owl	D	The Lake 22/Gold Basin project area is not within owl critical habitat, while the proposed Dickerman trailhead parking lot expansion and most of the proposed connector trail to Perry Creek is within Critical Habitat Unit (WA-28).
Critical Habitat for the Marbled Murrelet	D	The entire project area is within Critical Habitat Unit WA-09-b.

**Species list obtained from USFWS (2003)*
***E = Endangered; T = Threatened; D = Designated Critical Habitat; MIS = Management Indicator Species, under NFMA*

Consultation with U.S. Fish and Wildlife Service on the effects of this proposed project occurred under the 5-Year Programmatic Biological Assessment for Forest Management: Mount Baker-Snoqualmie National Forest (June 2002). A Biological Opinion (BO) on this programmatic consultation was issued by USFWS in September 2002 and granted incidental take of spotted owl and marbled murrelet due to harassment from noise

generating projects, consistent with this Biological Opinion. The Level 1 Team (which consists of USFWS, NMFS, and Forest Service biologists) reviewed consistency of this project with the programmatic biological assessment and opinion and the Project Consistency Evaluation Form in October 2005, thus meeting consultation requirements under the Endangered Species Act.

Grizzly Bear "No Net Loss" Policy

The North Cascades Grizzly Bear Management Committee, which consists of the Park Superintendent of the North Cascades National Park and the Forest Supervisors of the Okanogan-Wenatchee, and Mt. Baker-Snoqualmie National Forests, agreed to an interim standard of "No Net Loss" of core habitat until superseded by a Forest/Park Plan amendment or revision (USFS, 1997). Based on grizzly bear habitat use studies in Montana and British Columbia, core habitats are defined as those areas >one-third mile (500 m) from open roads, motorized or high use non-motorized trails. High use non-motorized trails are defined as trails with >20 parties per week during bear seasons. The early bear season is defined as den emergence through early summer (March 15 through July 15) and the late season is defined as late summer to denning (July 16 through October 31).

The baseline for the no net loss policy is open road, motorized and high use non-motorized trails existing in BMUs as of July 31, 1997. Any reductions in core habitat due to new or reopened roads, motorized or high use trails would need to be offset by increases to core habitats in another area of the same BMU. The new core area (created by closing open roads, motorized or high use trails) would need to create an equal or greater area of core habitat and contain equal or greater value of seasonal foraging components compared to the area where core habitat was 'lost'.

The Lake 22 and Gold Basin trailheads and connecting trail fall within BMU 6 (Pilchuck), and the Perry Creek and Mt. Dickerman Trailheads and connecting trail fall within BMU 8 (Boulder). The project area in BMU 6 would not affect net core habitat, therefore, an analysis was not conducted for this BMU. Using Geographic Information System (GIS), an analysis was conducted of BMU 8 to determine existing conditions. BMU 8 is approximately 168,276 acres in size, with 81.2 percent on National Forest land. Based on conditions as of 1997, approximately 63.4 percent of the BMU is early core habitat and 59.2 percent is late core habitat. On Federal lands, 49.7 percent of early season foraging habitat is within core habitat, while 63.7% of late season foraging habitat is within core habitat.

Species of Concern and Other Special Status Wildlife Species

There are three wildlife species and three groups of species listed as species of concern or otherwise have a designated special status expected to occur or that may occur in the project area. These species include Regionally listed Sensitive Species, Forest Plan Management Indicator Species, and Protection Buffer species (Concern species) – see table below.

Table 6. Sensitive Species and Other

Existing conditions for Sensitive Species and other Special Status wildlife species evaluated and found likely to be present in the vicinity of the proposed project sites.

Species*	Status**	Occurrence
Birds		
Primary excavators (pileated woodpecker)	MIS	Suitable nesting and foraging habitat is present within and adjacent to the proposed project areas. The proposed project areas are not within a management area for the Pileated woodpecker.
Neotropical migrants	Concern species	Suitable nesting/foraging habitat is present within and adjacent to the proposed project areas.
Mammals		
American marten (Martes americana)	R6, MIS	Suitable habitat is present adjacent to the upper end of the proposed trail connecting the Dickerman trailhead to the Perry Creek trail. Marten are generally found above 2000 feet in elevation.
Townsend's big-eared bat (Corynorhinus townsendii)	R6	Suitable roosting habitat is not present within the project areas. However, parts of the project area, such as the pond, parking lots, and riparian areas, provide suitable foraging habitat.
Other bats	PB	Suitable roosting and foraging habitat is present within and adjacent to the project area.
Black Tailed Deer (Odocoileus hemionus)	MIS	The project area is within the elevational range considered suitable for winter range and the late-successional stands within and adjacent to the project areas could provide thermal cover. Foraging habitat for deer within the project areas is present but limited, and is likely limiting deer populations within the project area.

**Species list obtained from R6 Sensitive Species List (2003).*
***R6 = Region 6 Sensitive Species; PB = Protection Buffer Species/Concern species; MIS = Management Indicator Species*

Survey and Manage Species

A revised record of decision for Survey and Manage species was signed in January 2001 and became effective February 11, 2001. The species requiring pre-disturbance surveys or management of know sites are reviewed and the list updated annually. All species for which pre-disturbance surveys are currently required were reviewed for suitable habitat in this project area. The current list of species and category assignments (June 2002) was distributed February 21, 2003. The only mollusk that is listed for pre-disturbance surveys on the north half of the Mt. Baker-Snoqualmie National Forest is the Puget Oregonian, *Cryptomastix devia.* This species is listed as a low to mid elevation species found between sea level and 1,500 feet. The project area was surveyed during the fall of 2006. While slugs, an amphibian, and other snail species were found, the listed mollusk species was not located.

Biodiversity

Other Wildlife Species-The Lake 22/Gold Basin project area contains 500-year-old conifer stands and younger riparian areas, which include mixed conifer and hardwood stands. The forest stand in the vicinity of the Perry Creek/Dickerman project area is about 100 years old with patches of hardwoods and younger coniferous forest. There are

streams and seeps within both of the project areas and both project areas contain snags of various sizes and decay classes as well as an abundance of down wood. This combination of habitat types adjacent to each other provides for a high diversity of species in the project and surrounding areas.

Wetlands and Riparian Habitat-There are several small wetland areas that the proposed Gold Basin/Lake 22 trail would cross. Part of the Gold Basin/Lake 22 project area is also within the riparian area of Hemple Creek, the inlet for the Gold Basin Mill Pond, and several un-named creeks. There are a number of streams and seeps within the Perry Ck/Dickerman project area as well, although these were all ephemeral. No activities would occur in the water.

Snags and Coarse Woody Debris-There are some snags within the proposed Lake 22/Gold Basin project area, particularly along the proposed trail connector, although none are proposed for removal. There is an abundance of snags of varying sizes and decay classes in the late-successional conifer stands immediately adjacent to the project area. There is also a number of snags of varying sizes and decay classes within the Perry Ck/Dickerman project area, particularly along the west end of the proposed connector trail. No large snags in the proposed projects areas would be impacted. There is an abundance of coarse woody debris within and adjacent to most of the proposed project areas.

Wildlife Environmental Consequences

There are four alternatives considered in this document and the effects to wildlife species and habitats are determined for each of them. There are a number of proposed project activities that are common to each of the three action alternatives and some activities that are only included for an individual action alternative.

Alternative 1-No Action

Selection of this alternative means the project would not be implemented. Therefore, no effects would occur to federal threatened and endangered species, designated critical habitats, sensitive species, other special status wildlife species or biodiversity beyond what currently exists.

Alternatives 2, 3, and 4 New Toilet and Trail Head Maintenance

This section includes effects from maintenance of existing trailheads, installation and replacement of toilets, bulletin boards, kiosks, wheel stops, signs, gravel, rock barriers, pavement, etc.

Federal Threatened and Endangered Species and Designated Critical Habitats

Grizzly Bear-There would be no change in current road and trailhead maintenance and therefore no change in core habitat from those activities. The BMUs would continue to have approximately 60 percent or more of the BMU in habitat away from open roads or high use trails.

Spotted Owl and Marbled Murrelet-The maintenance and toilet projects are all within high recreation and road use ambient noise levels of the project area and would not result in ground disturbance outside of existing facilities. Therefore, *no effects* on the spotted owl and marbled murrelet would be expected.

There is one 30-inch diameter Douglas-fir tree that would be removed in order to widen the entrance to the Mt. Dickerman Trailhead. This tree is one of several scattered isolated trees near the entrance and is not part of a continuous stand and it does not provide suitable nesting habitat for the spotted owl or marbled murrelet. This tree is within designated critical habitat for both the owl and murrelet, however it is not a primary constituent element and its removal would have no effect on critical habitat for either the owl or murrelet. There is a 24-inch diameter hemlock at the Lake 22 parking area that would be removed for the installation of the new toilet. This tree is on the edge of an island of trees that is ringed by the existing parking lot. The branch structure does not provide suitable platforms for murrelet nest platforms. The tree stands alone with no branch overlap with adjacent trees and does not provide suitable nesting habitat for the spotted owl or marbled murrelet. This tree is within designated critical habitat for the murrelet, but not the owl. The removal of this single tree would have *no effect* on the functioning of critical habitat for the murrelet.

These proposed toilet installation and trailhead maintenance are expected to be within high recreation and road use ambient noise levels of the project area with the possible exception of the concrete break up of the old toilet vault. The concrete break up could be louder than normal heavy machine operations given the concussive type sound produced. However, ambient noise levels of the area are high and while this activity may affect, the proposed project would *not likely adversely affect* any murrelets or spotted owls that could be present in adjacent suitable nesting habitat. (Bureau of Land Management 2002).

Bald Eagle-Due to the distance to the river from the project sites in combination with high ambient noise levels, *no effect* to the bald eagle is expected.

Sensitive Species and Other Special Status Wildlife Species

The maintenance type projects are all within ambient noise levels of the project area (high recreation and road use) and would not result in ground disturbance outside of existing facilities. Therefore, no impacts to any sensitive species or other species of concern are expected to occur.

Primary Excavators-The conifers proposed for removal in the new toilet constitution (less than 0.08 acre) do not provide suitable nesting habitat for primary excavators and would not change suitable foraging habitat.

Neotropical Migrant Birds-Neotropical migrant birds could be using the trees and shrubs to be removed for nesting. While any nesting would likely be minimal given the high human use this area receives, some mortality to unfledged juveniles could occur. Most project activities would be expected to be within ambient noise levels of the trailhead and road, although short-term avoidance of the immediate area by Neotropical

migrant birds could still result, particularly during the concrete break up. There are foraging areas available away from the project areas and any mortality that may occur from the vegetation removal would be expected to be slight. Given the high human use of the area and the small area to be disturbed, any impacts from this project on Neotropical migrant birds would be expected to be minimal.

Marten-Marten are not expected to be present due to the low elevation (<1200').

Bats-Suitable roosting habitat for the Townsend's big-eared bat is not present within the project area. The trees to be removed would not be suitable roost trees for other species of bats. This site likely offers suitable foraging habitat for bats, which is expected to remain unaffected as a result of project activities. There are large trees in the vicinity of the project site that likely provide suitable roost sites for bats. Any bats using the adjacent stands for roosting or the parking area for foraging are expected to be acclimated to the noise levels of the area. While most of the project work would be expected to be within ambient levels, the excavator may not be. Any impacts to bats that may be present would be expected to be negligible due to the limited length of exposure.

Deer-The project site does not offer suitable habitat for deer due to the high human use of the area. The adjacent stands likely offer suitable thermal, hiding and some foraging habitat. However, any deer using these stands would be expected to be habituated to the human use of the area. As a result, deer would not be expected to be impacted as a result of the project.

Survey and Manage Species-Surveys needed for survey and manage species were completed and none were found.

Biodiversity

The proposed new toilet and trailhead maintenance are within high recreation and road use ambient noise levels of the project area and would not result in ground disturbance outside of existing facilities. Therefore, no impacts to biodiversity, including other wildlife species, wetlands and riparian habitat, and snags and coarse woody debris, would be expected to occur.

The site proposed for the new toilet at Lake 22 has some shrubs (salmonberry and thimbleberry) and a 24-inch hemlock on the edge of the parking lot that would be removed. Very little coarse woody debris would be affected and no snags would be removed. Removal of the old toilet would not result in new ground disturbance, although the new toilet would result in a small area (approx.12 ft. x 12 ft.) of new ground disturbance. The proposed toilet would not affect any wetland habitat or riparian habitat and would not detract from the biodiversity present. Most project activities would be expected to be within ambient noise levels of the trailhead and road, although short-term avoidance of the immediate area by other wildlife species could still result. Some mortality to unfledged juveniles, if present, could occur. There are foraging areas available away from the project areas and any mortality that may occur from the tree/shrub removal would be expected to be minimal. No major impacts on biodiversity are expected.

Alternative 2-Perry Creek/Mt. Dickerman Trailhead Enlargement

Alternative 2 includes the new toilet and trailhead maintenance described in the previous section, plus the shift in location of the Perry Creek Trailhead to the Mt. Dickerman Trailhead. In Alternative 2, the Perry Creek Trailhead relocation includes increasing the Dickerman trailhead parking by 35slots(0.37 acre of disturbance), installing another toilet, constructing a mile of new trail to connect the Perry Creek trail with the Dickerman parking lot, and decommissioning 1.4 mile of road.

Federal Threatened and Endangered Species and Designated Critical Habitat

The activities with this alternative are all within high recreation and road use ambient noise levels of the project area. Therefore, no effects to any listed species would be expected to occur as a result of noise disturbance.

Grizzly Bear-These project activities would have no effect on the grizzly bear since overall the project would meet "*No Net Loss*". The construction of the Dickerman-Perry Creek connector trail would result in a slight change in core habitat (loss less than 10 acres). In addition, less than three acres of both early and late season foraging habitat would be 'lost' from core habitat. The last half mile of Road 4005011 that is on National Forest System lands was closed several years ago, and off-sets this acreage. Overall, the project would meet the "*No Net Loss*" policy due to roads that have been decommissioned since 1997 in this BMU. Only the acres on National Forest System lands can be used as off-set. One hundred and ninety acres of early and late core habitat and 17.1 acres of early season foraging habitat and 11.2 acres of late season foraging habitat within core habitat were gained from the Road 4005011 closure. As a result, there would still be a net benefit to core habitat within the BMU. The draft recovery plan covering the North Cascades, emphasizes no net loss of core habitat on federal lands. Grizzly bear core habitat was defined as the area greater than 0.3 miles from open roads or from high use trails. Forest Service Geographical Information System (GIS) is used to track and analyze this data.

Spotted Owl and Marbled Murrelet/ Designated Critical Habitat-Effects from parking lot adjustments-According to the Late-Successional Reserve (LSR) Assessment (FOREST SERVICE 2001), the LSR that encompasses the owl Critical Habitat Unit (CHU) and is the equivalent of the murrelet CHU is 110,108 acres in size, with about 67 percent of this LSR comprised of suitable owl nesting habitat. Owl nesting habitat represents an approximation for suitable murrelet nesting habitat. None of the trees to be removed for the trailhead enlargement are suitable nest trees for the spotted owl, but do contribute to suitable foraging and dispersal habitat. While the effects of past and current timber harvest continue to effect habitat within the recovery zone of the northern spotted owl populations (Courtney et al. 2004[SEI Report]), barred owl competition is also of concern.

The proposed trailhead expansion (0.37 acre) would result in a minor modification of habitat on the edge of an existing high use trailhead and adjacent to a high use road and is not expected to diminish the functioning of the stand or the critical habitat unit (CHU) for spotted owl recovery. The change of 0.37 acre of forest cover would not be expected to

result in benefits to the barred owl as a competitor since neither spotted owl or barred owl are associated with forest openings. Therefore, this alternative would result in a *may affect, but is not likely to adversely affect* to owl critical habitat. While these trees to be removed for the trailhead enlargement are also within critical habitat for the marbled murrelet, they do not provide suitable nesting habitat for murrelets, and therefore, are not primary constituent elements of critical habitat for the murrelet. As a result, this project would have *no effect* on the functioning of the CHU for marbled murrelet recovery.

Effects from new trail construction-Suitable nesting habitat for the spotted owl and murrelet is present along the western half of the proposed trail, just north of Road 4063030 and Road 4063. Most of this proposed trail is within designated critical habitat (includes Section 26 and 27 of T.30N, R.10E) for the spotted owl. The entire proposed trail is within designated critical habitat for the murrelet. No trees larger than 21 inches diameter would be removed for the trail construction and road treatment, although some smaller conifers (estimate 10 trees <12 feet) and a number of saplings (<6 feet) may need to be removed. Construction of the trail would not result in a modification of nesting habitat and subsequently would not change the primary constituent element classification of the stand; therefore, *no effect* on the functioning of critical habitat for the murrelet would be expected from the trail. The tree removal would result in a minor modification of owl habitat; however, the primary constituent element classification would not change. The project site would still function as suitable habitat for the owl; therefore, the trail and road activities would have no effect on critical habitat for the northern spotted owl.

The closest historic spotted owl site to the trail is located across Perry Creek to the northwest about a mile from the west end of the proposed trail. The closest murrelet detections (Class #3 and 4) are in the stands adjacent to Road 4063 that were surveyed for the proposed Stalwart Timber Sale.

Most trail work would be conducted with non-motorized hand tools, although chainsaws and motorized wheelbarrows are expected to be used intermittently for an estimated total of 10 days spread out over the course of six months (May through October), with the construction completed in one season. Given the location of the trail within 30 to 50 yards of currently open roads, and the short duration of motorized equipment use spread out over an estimated six months, project activities were consulted on as *may affect, but are not likely to adversely affect* both the owl and murrelet due to noise disturbance during the breeding season. If explosives are needed, they would be used outside of the early breeding season (after August 5). Blasting guidelines would be in effect for August 5 through September, and are expected to mitigate the effects so that *no adverse affects* to either the owl or murrelet would occur.

Combined Trail/parking lot effects-Vegetation that would be removed is a tiny fraction of the LSR and critical habitat areas for spotted owl and marbled murrelets. In the case of the proposed trails, the resulting corridors would be narrow and the movement animals across them would be unimpeded. Alternative 2 would eliminate the potential of 0.37 acre to achieve old growth conditions. This represents approximately .0003 percent of the total LSR acreage. This amount, however, is off-set by a gain of 0.36 acre of area that

could achieve old growth conditions if the Perry Creek Road is converted to trail near its end, for a net gain.

Bald Eagle-Eagle use of this river for winter foraging is low. If any eagles are present, and project activities are a sufficient distance (varies from 600 to over 2,000 feet) from the river, there would be no effect on wintering eagles.

Sensitive Species and Other Special Status Wildlife Species

Primary Excavators (MIS)-There would be approximately 0.37 acre of forest habitat for primary excavators affected during the proposed Mt. Dickerman parking lot expansion. The trees to be removed are considered too small to provide suitable nesting trees for the pileated woodpecker, but the smaller species could potentially use these trees for nesting, as green trees become snags. No cavities were observed during site reviews. Project activities would be expected to be within ambient noise levels of the high use trailhead and road and since the expansion is adjacent to an existing highway where hazard trees are routinely felled, habitat quality in the area is low and would be expected to remain low into the future. The parking lot expansion and narrow trail construction corridor is much smaller than the home range of an individual bird, and there are foraging areas away from the project area so impacts could result in lower habitat quality for individual birds, but would not be expected to reduce the number of available territories. Due to the limited scale and location of the site, impacts to individual birds would be expected to be slight.

Neotropical Migrant Birds-Minor portions of suitable nesting/foraging habitat for Neotropical migrant birds would be affected during the proposed Mt. Dickerman parking lot expansion (0.37 acres) and new trail construction (1 mile). There are foraging areas available away from the project areas and any mortality that may occur from the tree/shrub removal would be expected to be minimal due to the limited scale and scope of the project. Impacts would be expected to be on a within-territory scale, resulting in changes to habitat suitability, not removal of individual territories. Impacts associated with increased forest edge would be expected to improve habitat suitability for some species and reduce habitat suitability for others. However, impacts are so small that they would not be expected to impact population levels for any Neotropical migrant bird species

Marten (MIS): Marten would not be expected to be present within the vicinity of the Mt. Dickerman Trailhead due to high human use and lack of stand structure and complexity. The stand at the Mt. Dickerman Trailhead lacks a structurally diverse canopy and there are no large pieces of down wood present. The understory is also comprised primarily of mosses and some herbaceous cover.

The proposed trail construction falls at the lower (2,000 feet) elevational range of marten. While marten are more closely associated with the Silver-fir forest association than the western hemlock forest association, marten may be present within the trail project area. The new trail corridor is less than four feet in width, and would not impede the use of the area by marten since there would be no change in the stand structure or complexity of ground cover through which the trail passes. The trail construction is still within the

influence of open roads (Mountain Loop, Roads 4063 and 4063030) and have high recreational use, especially during the summer months. The change in habitat that would occur with this alternative is very small compared to the home range of an individual marten. As a result, this alternative would have no impact to marten habitat suitability.

Bats-The Mt. Dickerman Trailhead would be removed forest cover on 0.37 acre as part of project activities; however, the lack of scars, loose bark, and cavities suggest that bat use of these trees as roosts is unlikely. Suitable roosting habitat for the Townsend's big-eared bat is not present at the Mt. Dickerman Trailhead. This site likely offers suitable foraging habitat for bats, which is expected to remain unaffected as a result of project activities. Noise disturbance to bats within the vicinity of the Mt. Dickerman Trailhead would not be expected to occur since project activities would not be expected to be above ambient levels. Due to the small scale and scope of this alternative, no impacts to bats would be expected to occur as a result of the expansion of the Mt. Dickerman Trailhead or installation of the new toilet. The trees to be removed for the trail do not provide suitable roosting habitat for other bat species, although suitable habitat is present in the stands along the western half of the proposed trail. Bats within the project area are within a zone of high recreation use due to the presence of open roads. Construction of the trail is expected to be implemented primarily with non-motorized hand tools, although motorized equipment would be used intermittently where needed. These instances would be expected to be of short duration; therefore, no major impacts to bats are expected from the trail and road activities.

Black-tailed Deer (MIS)-Suitable foraging habitat for deer is limited within the project area, while thermal and hiding cover is provided along the proposed new trail construction route. Some shrubs are present at the edge of the parking lot; however, hiding cover is minimal due to the openness of the stand. Although no sign of deer was observed during site reviews, it is likely that they are present in low numbers. If present, some deer habituation to human use is expected given the presence of open roads, including the Mountain Loop Scenic Byway and two high use trails in the area. The removal of smaller conifers and shrubs would not affect the suitability of habitat for deer. Impacts from the 0.37 ac parking lot expansion or impacts along the trail route would be slight and would not be measurable at the scale of an animal's home range. The impacts of this alternative would be too small to result in a change in habitat suitability for deer, and therefore no impacts to deer would be expected from the trail and parking lot construction activities.

Biodiversity

The site proposed for the Mt. Dickerman parking expansion has some shrubs (salmonberry, thimbleberry, and Devil's Club) and some seedlings and saplings of both conifer and hardwoods on the edge of the parking lot that would be removed. The understory of the stand itself is extremely open with very little shrub cover present; it is comprised mostly of moss and some herbaceous vegetation. Very little coarse woody debris would be affected and no snags were observed that would be affected within the proposed project site. There are no wetlands or riparian habitat present within the

Dickerman area that would be impacted. The trees that are proposed for removal for the lot expansion are not unique; they are representative of the size and structure of the trees in this stand. Their removal would not detract from the biodiversity present. Project activities would be expected to be within ambient noise levels of the trailhead and road, although short term avoidance of the immediate area by other wildlife species could still result. Some mortality to unfledged juvenile birds could occur, but would be minimal given the 0.37 acre size of the parking lot expansion. There are foraging areas available away from the project areas and any mortality that may occur from the tree/shrub removal would be expected to be minimal due to the small scale and scope of the project. Any impacts on biodiversity as a result of this project would be minimal.

No wetlands (404 or waters of U.S.) would be impacted from trail and road activities, although several un-named ephemeral creeks would be crossed with the trail and road treatments. No snags would be removed and any coarse woody debris that may be present would be retained on site. Some impacts to other species could occur as a result of trail construction activities; however, given the small area of linear (2 feet) disturbance, the impacts to other species and biodiversity in general would be expected to be minimal.

Alternative 3-Enlarge Perry/Dickerman Trailhead and Lake 22 Trailhead

The implementation Alternative 3 would result in the disturbance of an additional 0.07 acre more than Alternative 2 (at 0.37 acre) for the Mt. Dickerman Trailhead (total of 0.44 acre) for the expansion of 50 parking slots at the trailhead. This Alternative would result in the removal of an additional 10 trees for a total of 25 trees >21 inches to accommodate the additional parking slots. The effects of Alternative 3 would be expected to be similar to Alternative 2 with impacts that would be no greater than those already discussed under Alternative 2 for the expansion of the Mt. Dickerman Trailhead by 35 parking slots (0.37 acre), the one mile of new trail construction, and 1.4 mile of road decommissioning.

Alternative 3 also includes 0.08 acre of vegetation removed at the Lake 22 Trailhead for the construction of 18 additional parking slots. This would entail the removal of two large (over 21-inch diameter) conifer hazard trees on the very edge of the existing parking lot, but the rest of the vegetation removal would be within the footprint of the existing parking lot. These two trees and the smaller two conifers to be removed, would not contribute to roosting, foraging or dispersal habitat for the spotted owl or nesting habitat for marbled murrelet. Due to the small scale and scope of the 0.08 parking lot adjustments at the Lake 22 Trailhead, there would be no additional impacts to wildlife species or the functioning of designated critical habitat from than those already discussed under Alternative 2.

Alternative 4-Gold Basin Mill Pond Lot Expansion and Trail to Lake 22

The wildlife consequences for Alternative 4 are those in Alternatives 2 and 3 plus the following effects for the Gold Basin Mill Pond parking lot expansion and the 0.50 mile of connector trail.

Federal Threatened and Endangered Species

Grizzly Bear-The project activities described above would be all within high recreation and road use ambient noise levels of the project area. Therefore, no effects would be expected to occur as a result of noise disturbance. There is no change in grizzly bear core habitat.

Spotted Owl and Marbled Murrelet-There is a historic spotted owl activity center a half mile southeast of the proposed Lake 22 to Gold Basin connector trail. This was for a single owl of unknown gender. The two larger (22 and 30 inch diameter) conifers proposed for removal at the Gold Basin Mill Pond parking lot stand alone on the very edge of the existing parking lot. These two trees lack the branch structure and branch size to provide nesting platforms for both the owl and murrelet and are not suitable nesting trees for either species. These two trees do not contribute to roosting, foraging or dispersal habitat for the spotted owl. Their removal would not result in any effect on the use of nearby suitable habitat by either the owl or murrelet. Both trees are within critical habitat for the murrelet; however, both trees are not primary constituent elements of critical habitat for the murrelet and therefore, their removal would result in *no effect* to the functioning of critical habitat.

Suitable nesting habitat for the spotted owl and murrelet is present along the length of the proposed connector trail and this area is within designated critical habitat for the marbled murrelet, but not the spotted owl. No trees larger than 21 inches DBH would be removed for the connecter trail, although some smaller conifers, estimate of 10 trees < 12 inches and a number of saplings (<6 inches) may need to be removed. Construction of the trail would not result in a modification of nesting habitat and subsequently would not change the primary constituent element classification of the stand; therefore, *no effect* to the functioning of the critical habitat for the murrelet would be expected.

Occupied murrelet behavior of stands adjacent to the project site has not been documented, but there is an historic documented murrelet nest site a half mile to the west of the proposed trail. The proposed trail parallels the Mountain Loop Scenic Byway and varies a distance of 20 to 100 yards from the road and trailheads. An estimated three-fourths of the proposed trail is 80 to 100 yards from the road, which is over twice the injury threshold distance of the road (35 yards). Most of the project work would be conducted with non-motorized hand tools over the course of six months. The use of motorized hand tools would be restricted to use after August 5, which is outside the early breeding season for both the spotted owl and marbled murrelet. As a result, trail construction activities were consulted on as a may *affect, but are not likely to adversely affect* for both the owl and murrelet due to potential noise disturbance during the breeding season.

Helicopter use would not occur until after September 15, which is outside the breeding season for the murrelet. Although this is still during the late breeding season for the owl, young have fledged by mid-July and are mobile. Therefore, helicopter use during these last two weeks of the breeding season *could affect, but is not likely to adversely affect* the owl. If explosives are needed, they would be used outside of the early breeding season

(after August 5) for both the owl and murrelet. Blasting guidelines would be expected to mitigate the noise effects so that *no adverse affects* to either the owl or murrelet would occur.

Bald Eagle-Due to the distance to the river from the project sites in combination with high ambient noise levels, there would be *no effect* to the bald eagle from activities at the Gold Basin Mill Pond. Eagle use of this river for winter foraging is low. If any eagles are present, project activities are a sufficient distance (varies from 300 to over 750 feet) from the river so that *no effect* on wintering eagles is expected. Explosives would be used prior to October 30 when wintering eagles could be present.

Sensitive Species and Other Special Status Wildlife Species

Primary Excavators (MIS)-The two conifers proposed for removal do not provide suitable nesting habitat for primary excavators although they likely provide suitable foraging habitat. Suitable nesting habitat for primary excavators would not be affected as a result of project activities. A minor modification to suitable foraging habitat would result from the removal of the small conifers necessary for construction of the trail; however, no impacts to primary excavators would be expected as a result of these activities.

Neotropical Migrant Birds-Birds could have nested in the trees and shrubs to be removed. Since nesting would likely be minimal given the high human use this area receives, the probability of mortality to unfledged juvenile birds would be low. Project activities would be expected to be within ambient noise levels of the trailhead and road. While short-term avoidance of the immediate area by Neotropical migrant birds could still result; there are foraging areas available away from the project areas and any mortality that may occur from the vegetation removal would be expected to be minimal. Consequently, impacts would be minor for Neotropical migrant birds.

Minor portions of suitable foraging and nesting habitat for Neotropical migrant birds would be impacted as a result of 0.50 mile of trail construction activities. The start time of August 6 would be expected to prevent mortality to these species since young are expected to have fledged by this time. Project activities may also result in short term avoidance of the immediate area by these species. Since most young would likely have fledged by this time, these species are mobile, and there are foraging areas available away from the project areas, the impacts from trail construction on these species would be expected to be minimal.

Marten (MIS)-Marten are not expected to be present due to a lack of suitable habitat at the project site and the low elevation (less than 1,200 elevation).

Bat-Suitable roosting habitat for the Townsend’s big-eared bat is not present within the Gold Basin Mill Pond and trail area. The trees proposed for removal, are not suitable roost trees for other species of bats. This site likely offers suitable foraging habitat for bats, which would be expected to remain unaffected after project implementation. There are large trees in the vicinity of the project site that likely provide suitable roost sites for bats; however, noise from project activities would be expected to be within ambient

levels. Any bats using the adjacent stands for roosting or the parking area for foraging are expected to be acclimated to the noise levels of the area. Therefore, no impacts to bats would be expected to occur as a result of the expansion of the Gold Basin Mill Pond parking lot.

Construction of the trail would be expected to be implemented primarily with non-motorized hand tools, although motorized equipment would be used intermittently where needed (after August 5). Young are capable of flight by the time that motorized equipment use would be permitted. Therefore, no major impacts to bats would be expected.

Black-tailed Deer (MIS)-Suitable thermal, hiding and some foraging habitat for deer is present along the proposed trail. Although no sign of deer was observed during the site review, this species could be present in low numbers, although use is expected to be transitory. If present, some habituation to human use is expected given the presence of the Mountain Loop Scenic Byway and the high recreation use of the area. The removal of some smaller conifers and shrubs would not affect the habitat suitability. While construction and future use of this trail could result in avoidance of the immediate area by deer, these impacts would be expected to be minor.

Biodiversity

The Gold Basin Mill Pond site proposed for the expansion has some shrubs (salmonberry and thimbleberry) and some alder saplings on the edge of the parking lot that would be removed. Very little coarse woody debris would be affected and no snags would be removed. The Gold Basin Mill Pond lies to the west of the parking lot and there is an un-named creek to the south. The proposed parking lot expansion would not affect any wetland habitat and only minimal riparian vegetation would be removed. The vegetation removal proposed would not detract from the biodiversity present. Project activities would be expected to be within ambient noise levels of the trailhead and road. While there may be short-term avoidance of the immediate area by other wildlife species, there is similar forest habitat available away from the project area. Consequently, no impacts would be expected to other wildlife species.

The trail would cross several un-named creeks, Hemple Creek, and the main inlet for the Gold Basin Mill Pond. A cedar boardwalk (puncheon) would be used in these sensitive areas to help prevent impacts to riparian and wetland of habitat. No large snags would be removed and coarse woody debris would be retained on site. Given the small area of disturbance and the availability of like habitat in areas adjacent to the project site, the impacts to other species and biodiversity in general would be expected to be minimal.

Summary of Endangered Species Effects Alternatives 2-4

Consultation on the proposed project activities impacts to threatened and endangered species and critical habitat resulted in a determination of *no effect* for all listed threatened and endangered species except the spotted owl, marbled murrelet and critical habitat for the spotted owl and marbled murrelet. Three of the proposed project activities (the Lake 22 toilet removal, construction of the Mt. Dickerman to Perry Creek trail connector and

the construction of the Gold Basin-Lake 22 trail connector) were determined to *may effect, not likely to adversely affect* the owl and murrelet due to potential noise disturbance during the breeding season. The expansion of the Mt. Dickerman Trailhead was consulted on as a *may affect, not likely to adversely affect* the functioning of spotted owl or marbled murrelet critical habitat due to the removal of vegetation being limited in scope and scale, not resulting in loss of the stand functions for critical habitat.

Cumulative Effects

There are a number of projects that would occur or may occur in the vicinity of the Mountain Loop Enhancement projects during similar time frames. These projects were reviewed for overlap in time and space and potential cumulative effects. Due to a lack of measurable direct or indirect effects, there would be no cumulative effects for Canada lynx, larch mountain salamander, Van Dyke's salamander, great gray owl, peregrine falcon, *Cryptomastix devia*, common loon, mountain goat, wolverine, grizzly bear, gray wolf, bald eagle, woodpeckers, land birds, elk, pine marten, and black-tailed deer.

The actions from the proposed projects and the other projects included in this cumulative effects assessment are not expected to cumulatively result in adverse impacts due to the short-term nature of potential impacts that are temporally separated, scope of activities, and the limited scale of these projects across the area.

Spotted Owl, Marbled Murrelet, and their Critical Habitat-Timber harvest or fire has occurred on roughly 30 percent of the forested land in the upper S.F. Stillaguamish watershed since the early 1900's (FOREST SERVICE 1995). This harvest and its associated road construction have reduced nesting habitat for northern spotted owl and marbled murrelet over the last 100 years.

Late Successional Reserve (LSR) 116 and its associated Designated Conservation Areas, has 58 percent of the forested area in the western hemlock and pacific silver fir forest zones (Cite LSRA). In this area, 66 percent (71,511 acres) of the potential nesting habitat for northern spotted owls and murrelets is currently suitable as nesting habitat (old-growth forest). An additional seven percent of these forest zones currently provide foraging, but not nesting, habitat for northern spotted owls. Forests younger than 80 years-old comprise 25 percent (27,116 acres) of the potentially suitable spotted owl and marbled murrelet nesting habitat. Most of this area was likely suitable nesting habitat that was harvested.

This LSR is currently estimated to provide habitat capable of supporting 19 pairs of northern spotted owls, and has the potential to support more than 26 pairs when habitat conditions recover. Habitat recovery has been occurring for the last 15 years, during which time, no spotted owl or marbled murrelet nesting habitat has been harvested.

Alternative 4 would modify up to 0.54 acre of vegetation that currently does not provide habitat for either species. Although in the long-term, these vegetation types could develop into old-growth forest capable of supporting nesting activities of both species, the area is too small to be meaningful to these species. The average spotted owl home range in the

project area is estimated to be 4,270 acres. Therefore, the area impacted is at most 0.023 percent of the average home range. The sizes of the affected areas are smaller than gaps that commonly occur within the old-growth forests that provide nesting habitat for both species.

Because no suitable spotted owl and marbled murrelet habitat would be affected, none of the alternatives would cumulatively add to past reductions in habitat area that led to the listing of the two species.

Since 1990, over 10 miles of road have been decommissioned in the critical habitat units for northern spotted owl and marbled murrelet. With an average width of 14 feet, the decommissioning of these roads has increased the area of suitable habitat that can potentially provide nesting habitat by 13 acres. Although there would be an additional reduction in this amount by a maximum of 0.54 acres, the decommissioning of 1.4 mile of road would provide for future habitat. The trend since designation of critical habitat has been an increase in potentially suitable habitat with habitat quality on previously harvested stands increasing as those stands age. For both critical habitat units, the cumulative effects of all activities are a net increase in habitat quality and in the amount of area potentially suitable for future nesting habitat. The loss of up to 0.54 acre of potential future nesting habitat would not reverse this trend of improved condition of the critical habitat units.

Primary Excavators-Timber harvest on over 30 percent of western hemlock and silver fir forests on the National Forest System Land in the South Fork Stillaguamish since 1922 has reduced habitat quality for woodpeckers and species that use snags and down wood. Populations of these species have likely decreased where harvest activities have occurred. The habitat value of lands harvested more than 30-years ago is increasing for woodpeckers, but likely will not reach maximum potential until old-growth forest conditions develop. The additional loss of a total of up to 0.54 acre of foraging and potential future nesting habitat from the proposed activity would not be expected to reduce the number of available woodpecker territories. As a result, none of the alternatives would be expected to add to the cumulative effects of past timber harvest. Furthermore, current land management allocations are expected to have a 100 percent probability of maintaining well-distributed, viable populations of all woodpeckers and secondary cavity nesting birds (Forest Service, Bureau of Land Management 1993, p IV, 166, and 167).

Townsend's Big-eared Bat-Big-eared bats forage in a variety of forest environments, both arid and moist regions. As a result, they demonstrate little affinity for specific vegetation types, but are primarily influenced by the availability of roosts. Roosts for this species include caves, mines, bridges and buildings. Timber harvest in the S.F. of the Stillaguamish River drainage of over 30 percent of the western hemlock and silver-fir forests on National Forest System Land since 1922 has modified foraging habitat for this species, but has not affected the availability of roost sites. Alternative 4 would modify up to 0.54 acre of foraging habitat, but would have no impact on roost sites. The addition of up to 0.54 acre of change in foraging habitat would add to cumulative changes to

foraging habitat, but would not affect the distribution or populations of this species, which is thought to be more influenced by the availability of roost sites, than foraging habitat. Roost sites are not known to have been affected by previous actions, or by any of the alternatives.

Table 7. Projects for Wildlife Cumulative Effects Assessment

Project or Activity and Extent/ Description	Potential Influence	Overlap		Comments Resulting Cumulative Effect of Proposed Action with Project or Activity Listed?
		Time	Space	
River Road (Rd. 4037) flood repair Repair flood-damaged road, rock bank protection	Noise disturbance	No	No	Completed in 2005. No potential cumulative effect due to lack of overlap in both time and space. Action alternatives would have no cumulative effect.
Lake Twenty-Two Trail Construction Construct trail around lake; close and rehab multiple user trails	Noise disturbance, murrelet, owl, mt. goat	No	No	Completed in 2006. No potential cumulative effect due to lack of overlap in both time and space. Action alternatives would have no cumulative effect.
Forgotten Thin	Grizzly bear core habitat impacts –, disturbance of bald eagles	yes	yes	Environmental assessment finalized. No adverse effects to listed species or other special status species are expected.
Hemple Rd. 4009 Closure/Storage 0.6 mile of road treated.	Noise disturbance – potential for future bear core habitat	Yes	Yes	Funded for work in 2007. Potential cumulative effect of Alt. 4 due to overlap in both time and space.; action alternatives could have benefical imapct – increase in core habitat
Little Beaver Creek Fish Passage Culvert replacement at Little Beaver Creek	Within road prism – heavy use area-no noise disturbance	No	No	Planned for summer 2006. No potential cumulative effect due to lack of overlap in both time and space.
Marten Creek Bridge Replacement Sno.Co.to replace existing bridge	Along Mountain Loop Scenic Byway – high background noise levels	Yes	No	Planned for summer 2007 or 2008. No potential cumulative effect due to lack of overlap in both time and space. Action alternatives would have no cumulative effect.
Upper Waldheim Slide Treatment Replace unstable soils with rock	Along Mountain Loop Scenic Byway – high background noise levels	No	No	Planned summer 2006. No potential cumulative effect due to lack of overlap in both time and space. Action alternatives would have no cumulative effect.
Lower Waldheim Slide Treatment Replace unstable soils with rock and wood instream structures	Along Mountain Loop Scenic Byway – high background noise levels	Yes	Yes	Planned for summer 2007 or 2008. Potential cumulative effect due to lack of overlap in both time and space. Action alternatives would not result in additonal noise disturbance due to location adjacent to Mt. Loop Highway
Shady Side Dispersed Site Protection and Rehabilitation Installation of large boulders riparian habitat restoration; native vegetation	Provide for riparian wildlife habitat – increase Neotropical migrant songbird habitat	Yes	No	Rock placement completed in winter 2006; additional rock and rehabilitation within the site and plantings planned for summer/fall 2007. No potential cumulative effect due to lack of overlap in both time and space. Action alternatives would have no cumulative effect.
Past timber Management S.F. Stillaguamish	Reduction of suitable habitat for old growth associated species	Yes	Yes	Project would not measurably add to the residual effect from these past actions to spotted owl and marbled murrelet habitat or snag associated species.
Trail Maintenance	Noise disturbance during the breeding season	Yes	Yes	Ongoing maintenance throughout the watershed. New trail construction noise idisturbance limited by seasonal restricitons..
Road Repairs Multiple fixes from past floods – 2006 are needed.	Noise disturbance during the breeding season	Yes	Yes	Ongoing activities. Potential cumulative effect due to possible overlap in both time and space. No additonal effects as activities are part of moderate to high-use roads.
Road Maintenance Routine road maintenance (brush and grade on rotation, clean culverts, etc.)	Noise disturbance during the breeding season	Yes	Yes	Ongoing activities. Potential cumulative effect due to possible overlap in both time and space. No additonal effects as activities are part of moderate to high-use roads
Road Decommission or storage Over 10 miles of road decommissioned or in storage	Increase in core habitat, future murrelet and owl dispersal habitat	Yes	Yes	Road decommissioning in the 1990's – includes 4114, 4111, 4050, last mile 4037, 4150-035, last mile of 4038, 4054, last mile of 41-035 Storage – 4110-014, 41-021,024,4122, last 2 miles of 4120,

Heritage Resources

Information specific to the area was gathered by using record searches and a heritage resource field survey to identify historic properties that may be affected by the proposal, and to provide a contextual framework within which documented heritage resources can be evaluated. In addition, information was provided through government-to-government consultation with the local tribes, and through consultation with the State Historic Preservation Office (SHPO). For this project, the Forest Service has fulfilled its general trust responsibilities through the proper management of natural resources as determined in the Forest Plan, and through continued consultation with Indian tribal governments.

The proposed action has been determined to meet the definition of an "undertaking" pursuant to Section 301(7) of the National Historic Preservation Act (NHPA). The Forest's responsibility to address the effects of a proposed undertaking on historic properties is fulfilled through a Programmatic Agreement developed in consultation with the Advisory Council on Historic Preservation (ACHP) and the Washington State Historic Preservation Office (SHPO) pursuant to Section 800.13 of the 1986 Regulations (36 CFR 800) implementing Section 106 of the NHPA.

The Area of Potential Effect for the proposed project was determined pursuant to Programmatic Agreement Regarding Cultural Resources Management on National Forests in the State of Washington (PA) and 36 CFR Part 800.2 (c). Surveyed locations and intensity were determined in accordance with the Forest's Cultural Resource Inventory Strategy (Hearne and Hollenbeck, 1996). A cultural survey of the project area was completed in the summer of 2004. Surveys did not identify historic properties eligible for the National Register. Following Secretary of Interior Standards and Guidelines for Evaluation, and 36 CFR Part 63, the Forest has reached the determinations of "no historic properties".

Treaty Resources and Reserved Indian Rights

Treaties, statutes, and executive orders obligate federal agencies to fulfill certain trust responsibilities. The extent to which treaty resources (related to hunting, gathering, and fishing on NFS lands) are present or to which federally recognized tribes depend on the project area for treaty resources is not fully known. Lacking specific information from some tribes regarding treaty resources in the project area, this discussion focuses on a narrow range of resources recognized as having high values to Indian people for subsistence, cultural, and ceremonial uses (e.g. western red cedar, deer, elk, and salmon).

The rights of tribal members to access National Forest lands and exercise Treaty rights are unchanged. There may be indirect and cumulative effects to tribal hunting, gathering and fishing practices related to changes in management, access, and effects to fish, wildlife and plant resources. These effects may be positive (e.g. increased forage for large game) or negative (e.g. because of habitat impacts from temporary roads). Refer to the various resource sections for discussions of environmental consequences. For this project, the Forest Service fulfills its general trust responsibilities through the proper management

of natural resources as determined in the Forest Plan and through continued consultation with Indian tribal governments.

Traditional American Indian uses include fishing, hunting, and gathering. Current uses of the watershed by tribal members include the exercise of treaty rights and practices of ceremonial and religious significance. The privacy and purity issues surrounding these practices are of concern to the Indian community.

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. This 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 Tribal Councils were also sent letters as part of the scoping process.

The alternatives would not have any disproportionately high or adverse effects to low income, women, or minority populations.

Socioeconomics

In the past, the economy of the Darrington and Granite Falls areas was heavily dependent on lumber manufacturing and logging. The communities have been trying to diversify their local economy to increase tourism and recreation. Access to recreational sites is an important part of the desired recreational experience for both local residents and visitors. Recreationists spend money to acquire equipment related to their recreation activities and they spend money on food, transportation, lodging, and other services for travel to and from their recreation sites. Much of this money is spent in their home area or area of origin, prior to the start of the trip. Some of the money would be spent along the way and possibly near the destination site. These expenditures contribute to personal income and to the creation and maintenance of jobs in the affected economic sectors (e.g. lodging, gas, groceries, restaurants, auto repair, etc.).

The majority of recreationists would spend money in the Darrington and Granite Falls for incidentals like snacks, forgotten food and supplies, restaurant meal on the way through, or forgotten gas fill ups. These assumptions would lead to the conclusion that only a small portion of the each recreation trip expenditures would actually be spent in the local town. If there were a large number of recreation users, the incidentals spent could have a measurable effect on a local retail business such as a store or restaurant.

None of the alternatives would likely have an effect in the local economy that would be easily separated from general fluctuations brought on by a variety of factors (national and regional economy, weather, events in Darrington, etc.) although there could be measurable effects on local businesses that sell food or gas[3]. The economic impact on Darrington or Granite Falls as a result of the alternative chosen is likely to be small, but could impact some of the retail businesses. None of the alternatives would create new jobs for people, but the action alternatives would create contracts for existing companies to bid on while the No Action alternative would not.

Air Quality

The Glacier Peak Wilderness (east of the project area) is a Class I area for air quality protection. Visibility is a value that is protected primarily within the boundaries of the Class I area. Glacier Peak Wilderness visibility is officially monitored at a site shared with the National Park Service and located at Ross Lake. Another site is located at Snoqualmie Pass for Alpine Lakes Wilderness and has some applicability to conditions as visibility at Glacier Peak probably falls somewhere in between what is measured at the two sites. Average natural visibility in the western United States is estimated to be about 110 to 115 miles. The visual range measured at Ross Lake is very close to this, showing that the visibility is generally excellent. Visibility at Snoqualmie Pass is more impaired.

All Alternatives - No burning is planned with this project so there would not be any impacts on visibility from smoke. Use of vehicles and equipment would return to previous levels.

Irreversible and Irretrievable Commitment of Resources

Irreversible commitments of resources are those that cannot be regained, such as the extinction of a species or the removal of mined ore. The actions described in this document would not cause an irreversible commitment of resources other than removing rock commercial rock source. Gravel and rocks would be obtained from commercial rock pits (multiple pits and materials are available) outside National Forest.

Irretrievable commitments are those that are lost for a period of time 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 road.

With No Action Alternative, no commitments of resources would be made.

With Alternatives 2, 3, and 4, there would be an irreversible commitment of rock that would be used for the projects.

The expansion of the Mt. Dickerman/Perry Creek Trailhead would be an irretrievable commitment of about 0.3 acre of forested area into a parking lot for Alternative 2, 0.4 acre for Alternative 3 and 4.

3 A letter from the Mayor of Darrington (August 2005) indicates that the drop in tourism has affected the businesses in town. (letter on file at the Darrington Ranger District).

Wilderness, Inventoried Roadless Areas, Unroaded Lands

The proposed project sites are not located within congressionally designated wilderness or within Inventoried Roadless Areas.

The nearest Inventoried Roadless Area (IRA) is Boulder River 6050 (Forest Service 1990, pg C-182, 183). Its boundary lies north of the proposed project. There would be no direct, indirect, or cumulative impact on this IRA or its roadless characteristics if any of the alternatives were implemented, including no action.

The project area is currently roaded and the area would continue to be roaded under all alternatives. If the No Action alternative were implemented, the project area would remain roaded for many years. With the action alternatives, Road 4063 and 4063030 would be put in storage. It is unlikely that any acreage would attain the characteristics of unroaded lands in the short-term (one to five years) or in the estimated long-term (10 to 25 years), nor would the area likely be considered for inventory for potential wilderness (as per FSH 1909 Interim Directive No. 1909.12-2005-8).

Prime Farmland, Rangeland, and Other

There is no prime farmland or rangeland within the project area. Noise, climate, minerals, energy, fire, insects, disease, etc. were considered, but are not described here because they are associated with limited or no impacts.

Potential Conflicts with other Jurisdictions

Several private individuals, groups, and government agencies including tribal representatives have been contacted in regards to this project. Further, several articles have been published in various forms of the media. There are no known conflicts between the alternatives discussed in this document and the plans and policies of these other jurisdictions.

Chapter 4 Consultation and Coordination

The following is the list of Forest Service staff that was part of the Interdisciplinary (ID) Team that analyzed the proposed project and its alternatives:

ID Team

Ann Risvold – Team Leader, Botanist
Carol Gladsjo –Environmental Coordinator
Burton Brown – Engineer
Mike Miller – Landscape Architect
Megan Impson – Recreation Specialist
Karen Chang – Fisheries Biologist
Ron Hausinger – Hydrologist
Kerensa King – Wildlife Biologist
Dawn Erickson – Trails Specialist
Aleta Eng – Cultural Resource Technician

The Forest Service consulted the following individuals, federal, state and local agencies, and tribes during the development of this environmental assessment:

Federal Highway Administration
Sarah Greene, Region 6 RNA Coordinator, Pacific Northwest Research Station
National Oceanic and Atmospheric Administration (National Marine Fisheries Service or NMFS)
U.S. Fish and Wildlife Service (USFWS)
Washington State Historic Preservation Office
Sauk-Suiattle Tribal Council
Lummi Indian Business Council
Nooksack Indian Tribal Council
Samish Tribe
Upper Skagit Tribal Council
Snoqualmie Tribe
Stillaguamish Board of Directors
Swinomish Tribal Community
Tulalip Board of Directors

Table 8. Public Scoping Comments

Respondent	Comments	Issue
(1) Stillaguamish Tribe	No cultural concerns.	
	Use caution around wetland and streams that may contain salmon habitat	Impacts on fish and habitat.
(2) Scott Weber	Prefers no action.	Alternative to consider.
	Likes solitude, already too many hikers in the backcountry, disperse hikers to other areas.	Recreation use will increase.
(3) Richard Ward	Has never seen the Perry Cr. Trailhead too full, add to the existing trailhead rather than relocate to Dickerman.	Alternative to consider.
	Perry Cr. Road is best auto related recreation on the District.	Access to backcountry will be more difficult and longer.
	Closing Perry Cr. Road will mean he will never see Forgotten Mt. Meadows again.	Change in type of use.
(4) Sally Pfeiffer and (5) Ish Wood	Favors no action.	
	Adding a mile to the Perrry Cr. Trail is not acceptable as it will make the scrambling destinations marginal as day trips.	Access to backcountry will be more difficult and longer.
	Add a few parking slots to the road end at Perry Cr.	Alternative to consider.
	Build other new trails in the area rather than spend money on these proposals.	Outside scope of proposed action.
(6) Marc Bardsley, North Cascades Conservation Council	Minimize veg loss at Lake 22 Trailhead, do not pave parking lot.	Loss of forest vegetation.
	Favors connector between Lake 22 and Mill Pond, but defer additional parking until need is shown.	Alternatives to consider.
	Consider using the Hemple Creek picnic area rather than remove forest.	Alternatives to consider.
	Favors pulling Perry Cr. Trailhead back to Mtn. Loop.	Alternatives to consider.
	Explore parking area at start of Perry Cr Road and convert road to trail. Overall goal is minimize conversion of lowland forest to parking.	Alternatives to consider.
	Favors combining parking areas if reasonable rec amenities can also be provided.	Adequate access for recreation use.
(7) Nancy Brodie	Favors expanding both lots, favors any action that improves trail access.	Safe and adequate access for recreation use.

(8) Dale and Elaine Wick, Icicle Outfitters & Guides	Favors expansion of both lots. Feels it is important to provide adequate and safe access to these trails and to meet the rec needs of the visitors.	Safe and adequate access for recreation use.
(9) David Cameron	Supports expansion of both lots.	
	Urges close attention to historic and archaeological values at Mill Pond and along the old railroad grade.	Potential impacts to cultural resources.
	Concerned about vandalism at Lake 22 due to the vegetation screening from the Mtn. Loop.	Vegetative screening decreases safety and increases vandalism.
(10) Dennis & Diane Boyd	Favors no work at Mill Pond and no connector trail due to short and long term costs.	Short and long term costs.
	Favors expansion at Lake 22 by removing the center island which will also reduce chances of vandalism.	Alternative to consider.
	Supports the proposal for Perry Cr. Trail.	Safe use and reduce vandalism.
(11) Michael Andreoni	Believes expanding Dickerman Trailhead will add to vandalism.	Safe use and reduce vandalism.
	Feels adding a mile to the Perry Cr. Trail will increase the number of overnight parties in an already over used area.	Access to backcountry will be more difficult and longer which may increase overnight parties.
	Recommends constructing a parking lot along the Perry Creek Road near the Mtn. Loop where the terrain is flatter.	Alternative to consider.
(12) Walter Bailey	Enlarge Lake 22 lot by removing a few trees since they are too small to be nest trees for murrelets.	Effects on murrelets,
	Enlarge this lot and use for awhile to see if it's adequate.	Safe and adequate access for recreation use.
	Check out conditions of the old trail near Dickerman/Perry and use it if helpful.	Alternative to consider.

The 30 day public comment period for this proposed action was completed March 9 to April 9, 2007. Five responses were received and all were fairly supportive of the proposed action except for making the Perry/Dickerman Trailhead a little smaller.

Table 9 30 Day Comment Period Responses

Respondent	Comments	Response
(1) Stillaguamish Tribe	Cultural concerns within one mile, study and notify if anything is found.	Cultural studies described on EA page 79. Additional mitigation added on EA page 21.
(2) Marc Bardsley, North Cascades Conservation Council	Support closure of Perry Creek Road and its return to a more natural state as funds become available.	Comment noted.
	Support Alternative 2, the smaller parking lot option so there wil be fewer trees removed and small footprint.	Alternative 2 and 3 acres and trees is describe on EA pages 16-18 and page 72.
(3) Nancy Brodie	Supports Alternative 3 as easiest way to fix parking problem so it will be easy and pleasant for people to get out and hike.	Comment noted.
(4) Dennis & Diane Boyd	Supports Alternative 2 for Perry Creek Trailhead and Alternative 3 for Lake 22 Trailhead with lots of trees and brush removed from Lake 22 for safety due to vehicle break-ins.	Comment noted. Alternative 3 Lake 22 improved visibility described on EA page 33.
(5) Kathy Johnson, Pilchuck Audubon Society	Support closure of the Perry Creek road and Road 4063030, we think it should be fully decommissioned and not just put in storage as they are frequently used by ATVs.	Comment noted. Clarification added to EA page 25.
	Concerned about the calculation on the “no net loss” provision for grizzly bears, is there a well documented database for this purpose?	Described on EA page 63 with additional clarification added to EA page 68.
	Concerned that the size of the parking lot at Perry/Dickerman exceeds requirements and should be downsized to reduce impacts on trees, RNA, marbled murrelets, spotted owls, and listed fish.	Impacts to RNAs described on EA page 41-42, fish on pages 54-56, LSR and trees on page 40, marbled murrelets and spotted owls on pages 68 & 72
	Concerned about references to necessary limb structure for nesting spotted owls and no mitigation to restrict work around the hours of marbled murrelet activity.	EA page 40 has been changed. Mitigation for marbled murrelet noise disturbance is described on EA page 21-22.
	Monitoring for mitigation and contract compliance is a huge concern of ours, regular and frequent site visits is essential.	EA page 23 has added clarification.