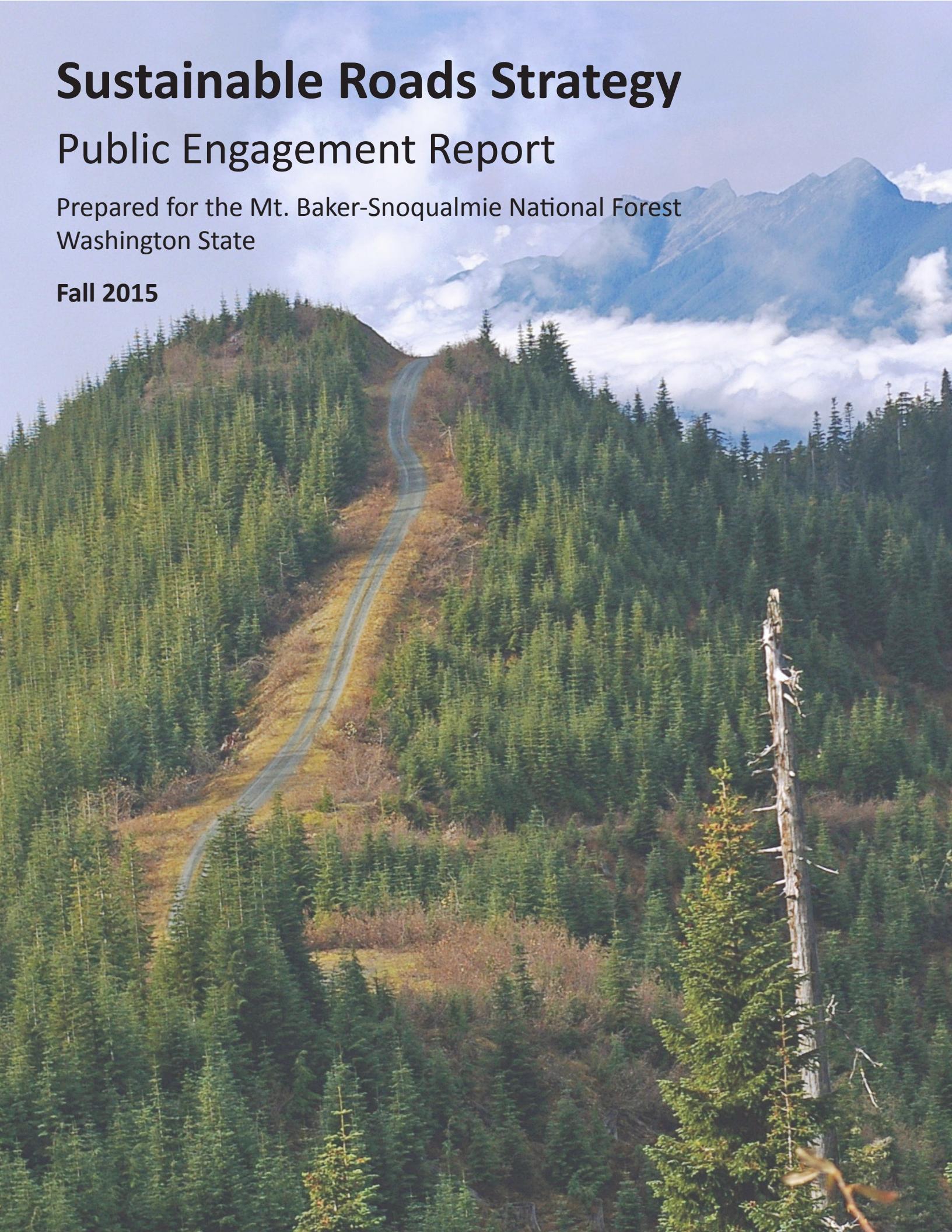


Sustainable Roads Strategy

Public Engagement Report

Prepared for the Mt. Baker-Snoqualmie National Forest
Washington State

Fall 2015



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Access Fund	North Cascades Conservation Council
Alpine Lakes Protection Society	Northwest Motorcycle Association
American Forest Resources Council	Pacific Crest Trail Association
American Whitewater	Pacific Northwest Four Wheel Drive Association
Around the Sound Jeep Club	Pilchuck Audubon
Back Country Horsemen of Washington	Premier Polaris
Back Country Horsemen of Washington: Traildusters Chapter	Sierra Club Cascade Chapter
Back Country Hunters and Anglers	Sultan Visitor Center
Citizens for Forest Roads	The Mountaineers
City of Darrington Mayor Dan Rankin	The Wilderness Society*
Confederated Tribes of the Colville Reservation	Trout Unlimited
Conservation Northwest	Washington Off Highway Vehicle Alliance
Darrington Area Friends for Public Use	Washington State Department of Natural Resources
Evergreen Mountain Bike Alliance	Washington Climbers Coalition
Forest Fire Lookout Association	Washington Trails Association*
Mountain Loop Tourism Bureau	Washington Watershed Restoration Initiative
Mountains to Sound Greenway	(* Cadre organizer)

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Photo: Illabot Creek Road; Courtesy of Kim Brown

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1 | Executive Summary

The Mt. Baker-Snoqualmie (MBS) National Forest is among the most visited national forests in the country. With more than 2,500 miles of roads, this road system provides access to trails, campgrounds, rivers, timber and other recreational, commercial and non-commercial activities. Although the extensive road network provides access to far reaches of the forest, it is simply too large for the Forest Service to maintain given the national trend of shrinking maintenance budgets.

The legacy of a robust road network

Forest Service roads serve many purposes, from access to popular trails and campground to critical routes for vegetation management, collecting and harvesting, and private land access. In the past, roads were built for purposes less used today, such as logging and mining, access to working fire lookout towers, and sheep grazing.

After World War II, the building boom prompted increased demand for timber from National Forests, and new roads were built to improve access to timber stands. Logging was at an all-time high in the 1980s, and the already extensive network of roads was expanded. As logging declined, the legacy of an extensive network remained, leaving the Forest Service with a growing maintenance backlog, and increasingly limited dollars to manage the system.

Too many roads, not enough money

After years of struggling to maintain roads to appropriate standards, the downward trend of the road maintenance budget has reached a critical point — the Mt. Baker-Snoqualmie National Forest can only afford to maintain 25 percent (600 miles) of the 2,500 miles of roads on the forest. In 2013, the approximately \$400,000 budget was an almost 50 percent decrease from 2011.

Mandate to develop sustainable road system

In response to the widespread need to address the overextended road network across the nation and the use of that system, the Forest Service adopted the Travel Management Rule of 2005. One critical aspect of the Travel Management Rule was the mandate for each National Forest across the country to identify a “sustainable road network” by 2015 that provides a vision of a road system more aligned with budgetary realities and informed by on-the-ground needs such as recreational and cultural access and aquatic impacts. By the end of 2015, the Mt. Baker-Snoqualmie National Forest is required to submit a report to the US Forest Service’s regional and Washington, DC offices to identify which roads are likely needed and those which are not likely needed for management and public use in the future.

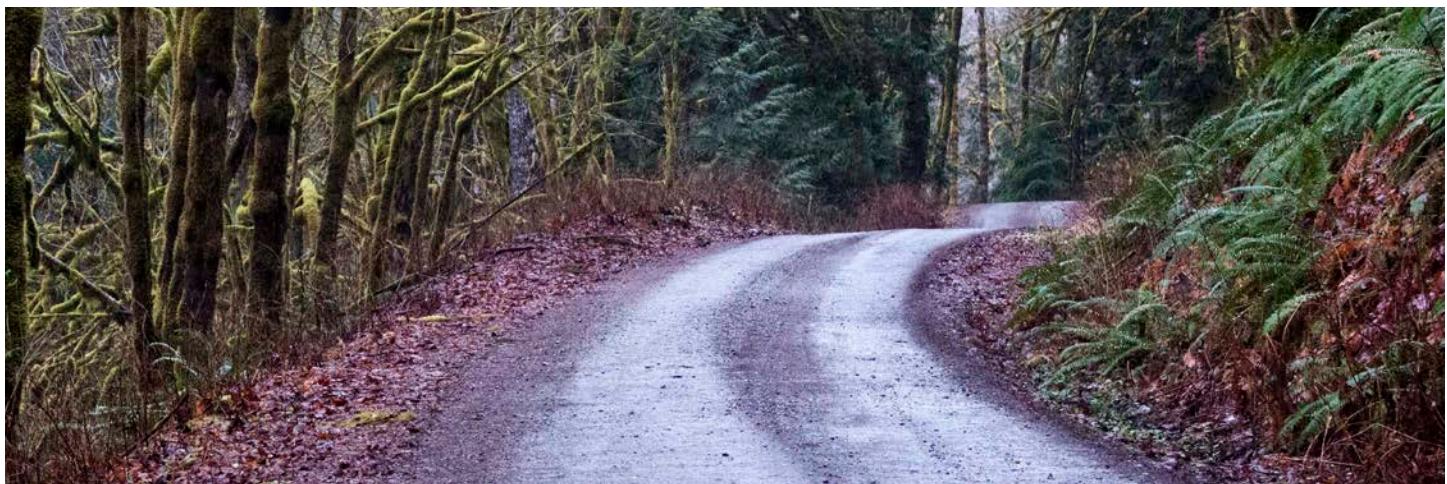


Photo courtesy of Mt. Baker-Snoqualmie National Forest

Need for understanding of public use

The Mt. Baker-Snoqualmie National Forest is one of the most visited forests in the country and is the backdrop — and backyard — of millions of people who live in the Puget Sound region, it is critical for the Forest Service to have a sound understanding of how people use the extensive road system before making decisions on how the road system could be reduced.

In 2012, the Mt. Baker-Snoqualmie National Forest, U.S. Forest Service Pacific Northwest Research Station, The Wilderness Society and Washington Trails Association began discussions about the development of a public engagement process that would gather important information about how people use the forest's road system.

Engaging the public in the conversation

The primary goals of the Sustainable Roads public engagement process included:

- Inform people about the Sustainable Roads Strategy and the Travel Management Rule of 2005;
- Provide an opportunity for people to talk about their uses and priorities for forest roads; and
- Generate spatial information about public uses and priorities to inform the Sustainable Roads Strategy.

Over the course of 2013, a series of community meetings were held and a number of methods used to gather information from the public. Ultimately, more than 1,700 people participated in the process through workshops, surveys and other community meetings. The Forest Service now has a robust body of information to draw from to inform future decisions made to the forest's road system.

Key findings of the public engagement process included:

- The public uses the road system in a variety of ways — from popular access routes to recreational hotspots to simply enjoying the natural environment and the solitude and peace the forest provides.
- The public, especially those who live close to the National Forest, is intensely passionate about access to National Forest lands, and has concerns about how a reduced road system would impact recreational opportunities and management needs.
- A cadre of volunteers stand ready to help the Forest Service maintain its road system and participate in restoration efforts.

Next Steps

The Mt. Baker-Snoqualmie National Forest will fold the findings presented in this report into the Sustainable Roads System analysis process. The Sustainable Roads Strategy, which will be complete by the end of 2015, will ultimately provide guidance for how to reduce the road network across the forest based on the rigorous evaluation of these data as well as other studies. Ultimately, the implementation of the Sustainable Roads Strategy will happen through future watershed-based Access and Travel Management Plans. The Mt. Baker-Snoqualmie National Forest is committed to a future road system that is ecologically sustainable, economically feasible and socially acceptable.



Figure 1: A Sustainable Roads System

2 | Why Sustainable Roads?

With more than 2,500 miles of roads and five million visitors a year, the Mt. Baker-Snoqualmie National Forest (MBS) has an extensive road system in high demand for a variety of uses year-round, from hikers to harvesters. Although the road network is extensive and provides access to far reaches of the forest, it is simply too big for the Forest Service to maintain, given the trend of shrinking budgets. On the MBS, the Forest Service can afford to maintain 25 percent—about 600 miles—of its system. Road maintenance budgets have steadily decreased over the years, with the MBS having approximately \$400,000 for maintenance in 2013, an almost 50 percent reduction from 2011.

The results of such funding constraints are visible across the landscape: road maintenance happens less frequently, road blockages or failures take longer to repair, and some roads are simply closed to limit maintenance needs. This results in detrimental environmental impacts such as roads sloughing into rivers, and communities losing access to cherished destinations across the forest.

The present situation is not acceptable to the agency, which knows it cannot meet current needs, and to local communities, which are frustrated with the state of the road system and the environment, which suffers from a backlog of maintenance needs.

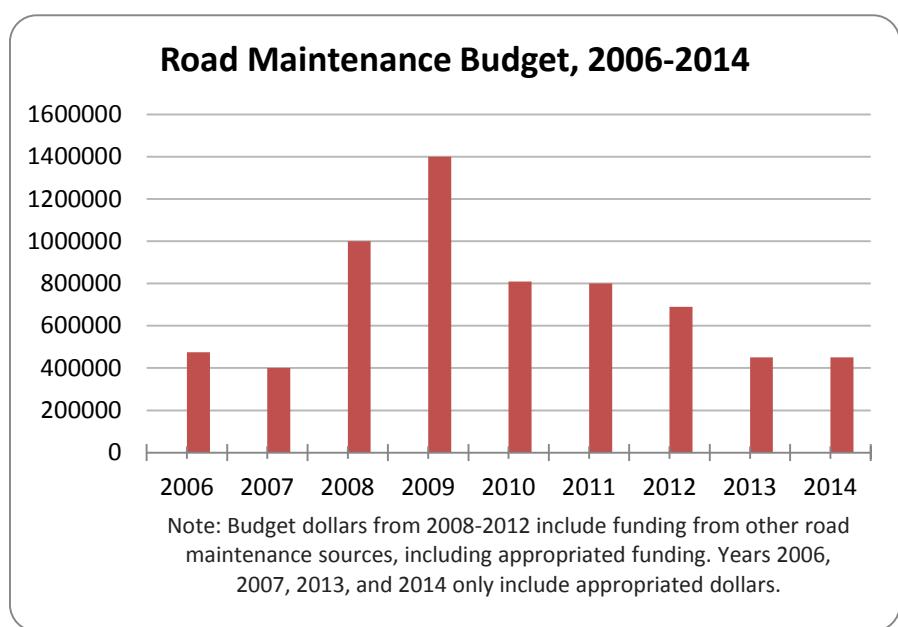


Figure 2: Mt. Baker-Snoqualmie National Forest Road Maintenance Budget



Photo courtesy of Lee Cerveny

A Mandate for Improvement: Travel Management Rule of 2005

Acknowledging the need to address the formidable challenges to road systems across the country, the Forest Service adopted the Travel Management Rule of 2005. The rule addresses the nationwide challenge of adequately maintaining road systems with shrinking budgets and managing motor vehicle use. The Travel Management Rule consists of two major parts: (1) Subpart A, which requires National Forests to analyze their entire road systems, identify which roads are likely needed and not needed for future use, and produce a travel analysis report by September 30, 2015; and (2) Subpart B, which requires National Forests to develop a motor vehicle use map, identifying motorized roads, trails, and areas across the forest. The MBS has completed Subpart B, the Motor Vehicle Use Map, or MVUM, and is working toward the 2015 deadline for Subpart A, the travel analysis report.

The travel analysis report—or what the MBS calls the “Sustainable Roads Strategy”—will meet the requirements of Subpart A and set the strategic direction for roads management on the forest. Before proceeding with any specific road projects, the Forest Service will conduct National Environmental Policy Act (NEPA) analyses on each project, such as road maintenance upgrades, road-to-trail conversions, or decommissioning.

Sustainable Roads Strategy: A Living Document

The Sustainable Roads Strategy (Strategy) is meant to be a living guidance document, providing critical information to inform current and future road management decisions. One unique aspect of the Strategy is that the information it contains was provided by the public through an innovative and extensive outreach and engagement process, which is described in detail in this report. On a forest so heavily used by the public, the MBS took an innovative approach to engaging local communities in a conversation about how they use and value forest roads, striving to strike a sustainable balance between what is ecologically sustainable, socially acceptable, and economically feasible. The Strategy will evolve over time as the Forest Service acquires new data about use, resources, or other critical factors.

Sustainable Roads Strategy Process Timeline

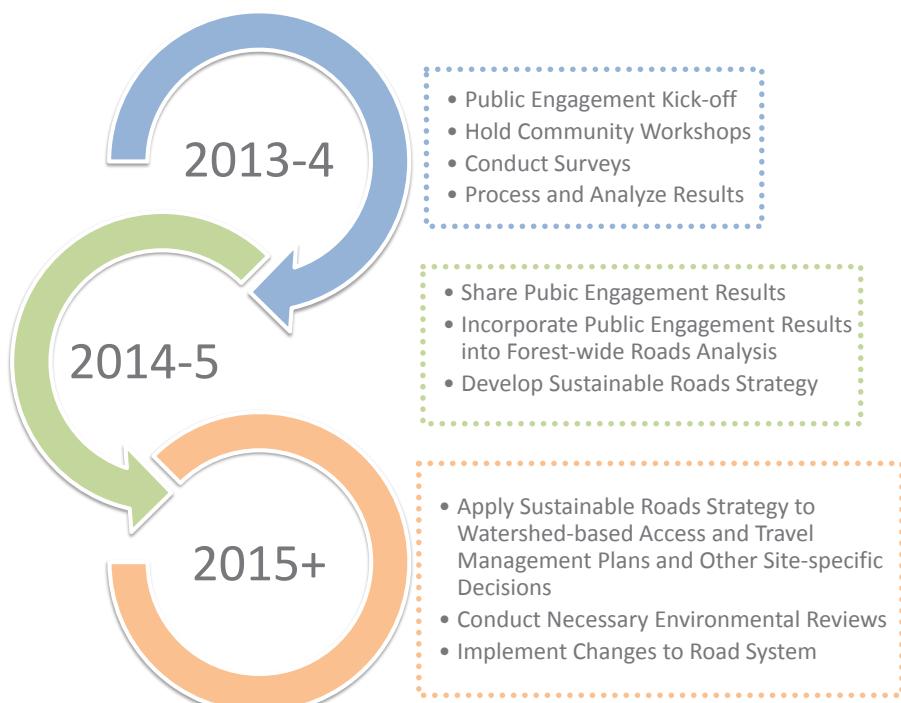


Figure 3: Sustainable Roads Strategy Process Timeline

3 | Planning for Public Engagement: A Partnership Model

Collaborative Planning Process

With a mutual interest in expanding opportunities for citizens, stakeholders, communities, tribes and other agencies to get involved in planning for public lands, the Mt. Baker-Snoqualmie National Forest, U.S. Forest Service Pacific Northwest Research Station (PNWRS), The Wilderness Society and Washington Trails Association began discussions in the winter of 2012 about the development of a comprehensive public engagement process to gather information about who uses forest roads, why, and the frequency they are used. The information would be used as a critical foundation for the Sustainable Roads Strategy developed by the Mt. Baker-Snoqualmie National Forest.

Sustainable Roads Cadre

As a way to better engage and connect with the public as part of the public engagement process, an informal Sustainable Roads Cadre formed in April 2013. The Cadre represented a variety of interest groups including conservation, motorized and non-motorized recreation, timber industry and local communities.

The primary goal of the Cadre was to help the MBS plan the public meeting approach and schedule, and recruit volunteers for the meetings. In addition, Cadre members hosted the Sustainable Roads website (mbssustainableroads.com) and an online questionnaire. During May and June 2013, the Sustainable Roads Cadre worked with the MBS and PNWRS to develop and test the public engagement process and launch the Sustainable Roads website and online questionnaire. Cadre members include:

Access Fund	Pacific Crest Trail Association
Alpine Lakes Protection Society	Pacific Northwest Four Wheel Drive Association
American Forest Resources Council	Pilchuck Audubon
American Whitewater	Premier Polaris
Around the Sound Jeep Club	Sierra Club Cascade Chapter
Back Country Horsemen of Washington	Sultan Visitor Center
Back Country Horsemen of Washington: Traildusters Chapter	The Mountaineers
Back Country Hunters and Anglers	The Wilderness Society*
Citizens for Forest Roads	Trout Unlimited
City of Darrington Mayor Dan Rankin	Washington Off Highway Vehicle Alliance
Confederated Tribes of the Colville Reservation	Washington State Department of Natural Resources
Conservation Northwest	Washington Climbers Coalition
Darrington Area Friends for Public Use	Washington Trails Association*
Evergreen Mountain Bike Alliance	Washington Watershed Restoration Initiative
Forest Fire Lookout Association	(* Cadre organizer)
Mountain Loop Tourism Bureau	
Mountains to Sound Greenway	
North Cascades Conservation Council	
Northwest Motorcycle Association	

Public Engagement Approach

Due to the high demand and public interest in the Mt. Baker-Snoqualmie National Forest's road system, the public engagement approach was designed to be robust and gather information from the public from a variety of sources. The goals of the public engagement process included:

- Inform people about the Sustainable Roads Strategy and the Travel Management Rule of 2005;
- Engage people regarding their uses of national forest roads and identify problem roads (e.g., road wash-outs), providing them the opportunity to map their use and priorities for forest roads; and
- To explore participants' perspectives on the future of the national forest road system.

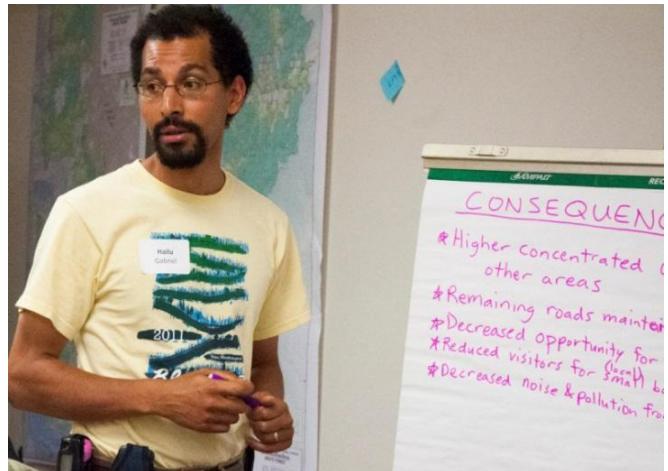


Photo courtesy of Mt. Baker-Snoqualmie National Forest

The three main components of the process included community meetings, an online questionnaire and a website. Following the close of the public outreach process and initial analyses, community forums were held to review the draft results. Additional community engagement included one field trip with Cadre members the following spring.

Community Meetings

Eight community meetings were held from May through November 2013 in communities neighboring the Mt. Baker-Snoqualmie National Forest, involving more than 285 people. At each meeting, participants completed demographic questionnaires and participated in interactive mapping exercises and small group breakout sessions. Each meeting used a consistent format developed by the Pacific Northwest Research Station (PNWRS) and explored where people go, what they do, and how the Forest Service could strategically reduce the road system.

Online Survey

In order to engage people who could not attend a community meeting and provide multiple opportunities for input, an online questionnaire was developed that mirrored the community workshops. The online questionnaire took anywhere from 20 minutes to an hour, depending on the amount of information provided by the respondent. Ultimately, from May to November 2013, more than 1,700 responses were gathered, providing the Forest Service with another rich source of information about visitor use of the road system.

Sustainable Roads Website & Blog

One of the greatest ways to keep people interested, informed and talking about the Sustainable Roads process was through the project's associated website (mbssustainableroads.com). The website provided interested citizens with information about the sustainable roads process, community meetings, the cadre, and the online survey. The website also hosted a blog where visitors could respond to blog posts that



[about](#) / [sustainable roads analysis](#) / [cadre](#) / [community meetings](#) / [results](#) / [faq](#) / [contact us](#)

asked questions such as, "How do you use forest roads?" and "Where do you go on the Mt. Baker-Snoqualmie National Forest?" From the website's launch in May 2013 until November 2013, the blog had more than 130 comments. Identified themes from blog comments can be found in Appendix B.

The Sustainable Roads website is still up and running as of the release of this report. It is anticipated that the website will provide visitors with up-to-date information on the Sustainable Roads Strategy and options for continued involvement with the Mt. Baker-Snoqualmie National Forest and Sustainable Roads Cadre.

Results Forums

Following the close of the public outreach period and processing of the meeting results, four community forums were held in Issaquah, Bellingham, Monroe, and Darrington to review the draft results and receive feedback from local communities. More than 100 individuals attended the forums. Following the forums, the Forest Service initiated a year-long internal analysis process to integrate the final results into their roads analysis.

Forest Roads Field Trip

In May 2015 eighteen members of the Sustainable Roads Cadre attended a field trip led by forest road engineers on the Mt. Baker-Snoqualmie National Forest. The field trip took participants to Forest Road 26, known as the Suiattle River Road. The site visit was designed to provide a basic overview of forest road management. It covered various aspects including: forest road maintenance levels, road decommissioning, wash-outs, culverts, fish passages and areas prone to landslides. Participants also learned about recent and future repairs scheduled for the area.



Photo courtesy of Bob Kaires

4 | Public Engagement Results: Engagement Sessions & Survey

Community Meetings

Participants

Meeting participants were predominantly male (74 percent), who have lived in Washington for an average of 36 years. The average age of meeting participants was 55 (Washington state average is 36 years). Nearly half (45 percent) participated as official agency representatives. Participants reflected a broad range of education and income levels.

Overall, participants were quite familiar with the MBS National Forest road system. More than 97 percent had driven US Forest Service (USFS) roads. When asked about frequency of use, 33 percent traveled on USFS roads once each week or more. Another 35 percent traveled on USFS roads 2-3 times each month. In addition, 70 percent of participants used forest roads to drive for pleasure, with no particular destination in mind. Of those who drive for pleasure, 18 percent visited forest roads once each week or more. Finally, 60 percent drive on USFS roads for purposes of going to work or volunteering. Among those, 24 percent did so once each week or more.

Forest Destinations and Roads Results

Destinations and Roads: Where people go, and how they get there

At the community workshops, participants were asked to identify where they go and what roads they use to get to those destinations. Ultimately, of the 2,500 miles of road on the MBS road system (Map 1-1), one or more participants mapped 1,798 miles (72 percent) and two or more participants marked 1,469 miles (59 percent) of road. Roads with a large number of overlaps¹ were concentrated in the northern part of the forest.

The eastern part of the Mountain Loop Highway and the Suiattle River Road were the most frequently mapped roads (81 to 104 overlaps). Many of the roads in the Mt. Baker and Mountain Loop area had 21 or more overlaps.

In the southern part of the MBS National Forest, Beckler Road and Greenwater Road, both of which had between 81 to 104 overlaps over certain portions, were the most frequently mapped roads. Greenwater Road provides access to a large road network that is popular for off-road vehicle use. Beckler Road provides back-country hikers access into much of the Wild Sky Wilderness Area. Other commonly marked roads in the southern MBS included the North Fork of the Skykomish River Road, the Middle Fork of the Snoqualmie/Goldmyer Road, and Hansen Creek Road west of Snoqualmie Pass.

As far as destinations, high-density destinations and roads tended to be located in the northern half of the forest, with participants most frequently mapping sites near Mt. Baker and the Mountain Loop Highway. High-density destinations included:

- Twin Lakes and Hannegan Pass northeast of Mt. Baker
- Heliotrope Ridge/Glacier View on Mt. Baker's northwestern flank
- Schreibers Meadow on Mt. Baker's southern slopes
- North Fork Sauk River (upper reaches around Sloan Creek)

¹ The number of “overlaps” refers to the number of times a road was colored on the map by a meeting participant.

Numerous sites in the northern half of the forest had moderately high-density values, including Canyon Creek, Skyline Divide, and Artist Point/Heather Meadows on the north side of Mt. Baker; access points to several smaller peaks, such as Mt. Shuksan and Mt. Pilchuck; access points to Glacier Peak Wilderness at the end of the Illabot and Cascade River Roads; several sites along the east side of the Sauk and North Fork Sauk River; and the area around Monte Cristo near Barlow Pass. In the southern part of the MBS National Forest, none of the mapped destinations had high-density values. The two most frequently mapped destinations in the south were the Hansen Creek area west of Snoqualmie Pass and the Naches Pass/Windy Gap area east of Enumclaw.

Overall, participant responses skewed toward the northern end of the forest due to a number of factors, including: (1) the majority of participants were from the north communities (Bellingham, Sedro-Woolley, Darrington, and Everett); (2) the forest lands in the north are less fragmented, creating wilderness hiking and mountaineering opportunities that aren't available in the south; and (3) the terrain in the north is much more rugged than in the south, which many forest users find aesthetically more pleasing.

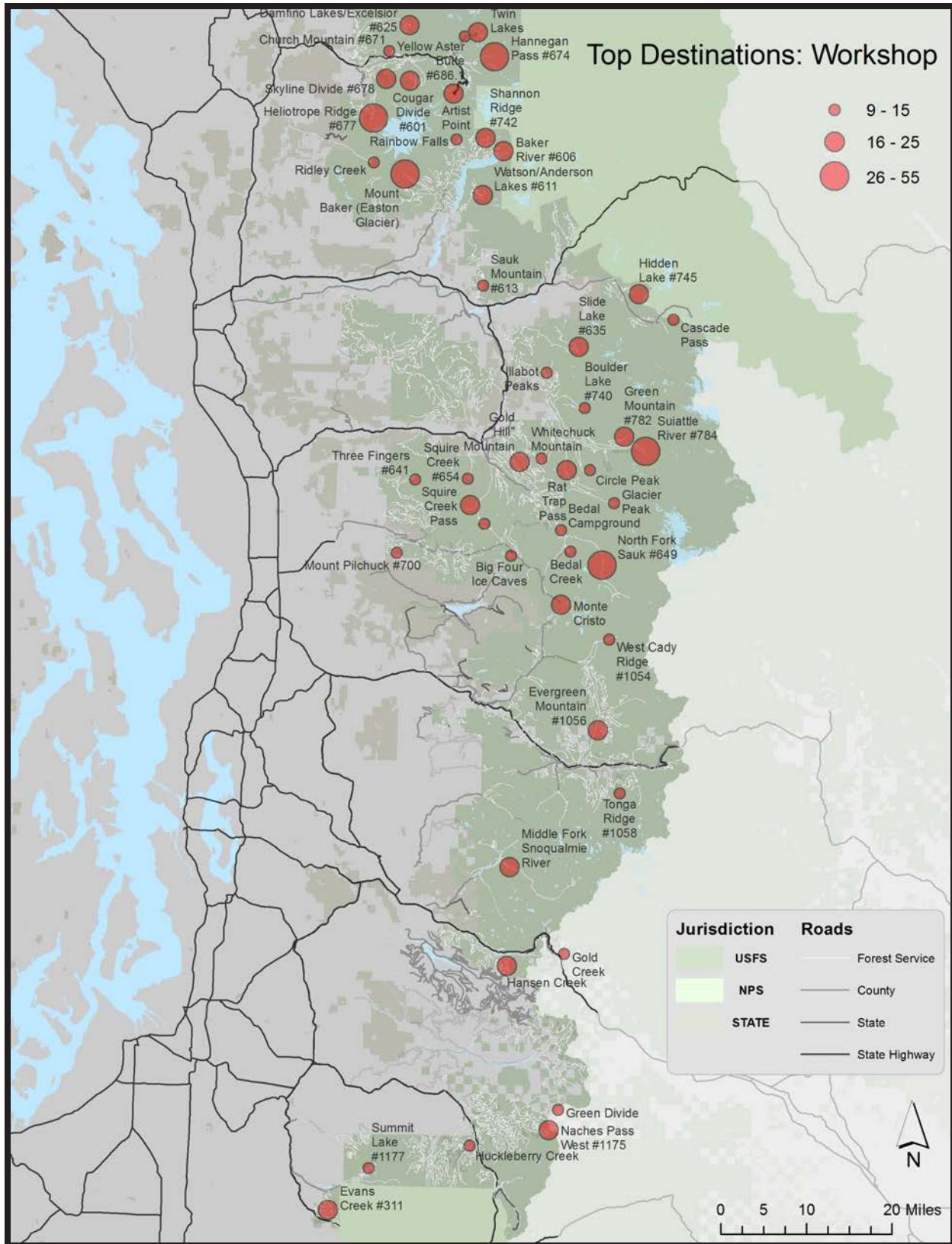


Photo courtesy of King County 4x4 Search and Rescue

Map 1-1: Destination and Road Densities - Mt. Baker-Snoqualmie National Forest

Understanding Map Road Density

- Ivory roads featured on the maps were mentioned at least once.
- Yellow roads were mapped 2 to 10 times.
- Light-orange roads were mapped 11 to 20 times.
- Medium-orange roads were mapped 21 to 50 times.
- Dark-orange roads were mapped 51-80 times.



Destinations and Roads by District

To get a better understanding of the district-level patterns, we created road and destination density maps for each of the four Ranger Districts on the MBS National Forest. We used data from all of the workshops to develop the district maps but calculated the destination and road densities separately for each district. As a result, the maps are not merely zoomed-in versions of the forest-wide map. Rather, the district-level maps show where high-density values for destinations and roads existed within each district, independently of the density values for the entire forest. This is most important for the Skykomish and Snoqualmie Ranger Districts, where fewer people mapped destinations and which therefore had a lower likelihood of having overlapping destinations or roads than the Mt. Baker and Darrington Ranger Districts.

Mt. Baker Ranger District (Map 1-2)

High destination density: Nearly all of the locations with high-density values on the MBS were concentrated around Mt. Baker (the exception is the access point to Mt. Shuksan). Heliotrope Ridge/Glacier View, Schreibers Meadows, and Hannegan Pass were most frequently mapped. Sites with moderately high values included access points to the northern part of the Mt. Baker Wilderness at the end of the Canyon Creek and Twin Lakes Roads, the area around Artist Point/Heather Meadows, and the Skyline Divide area off Deadhorse Road.

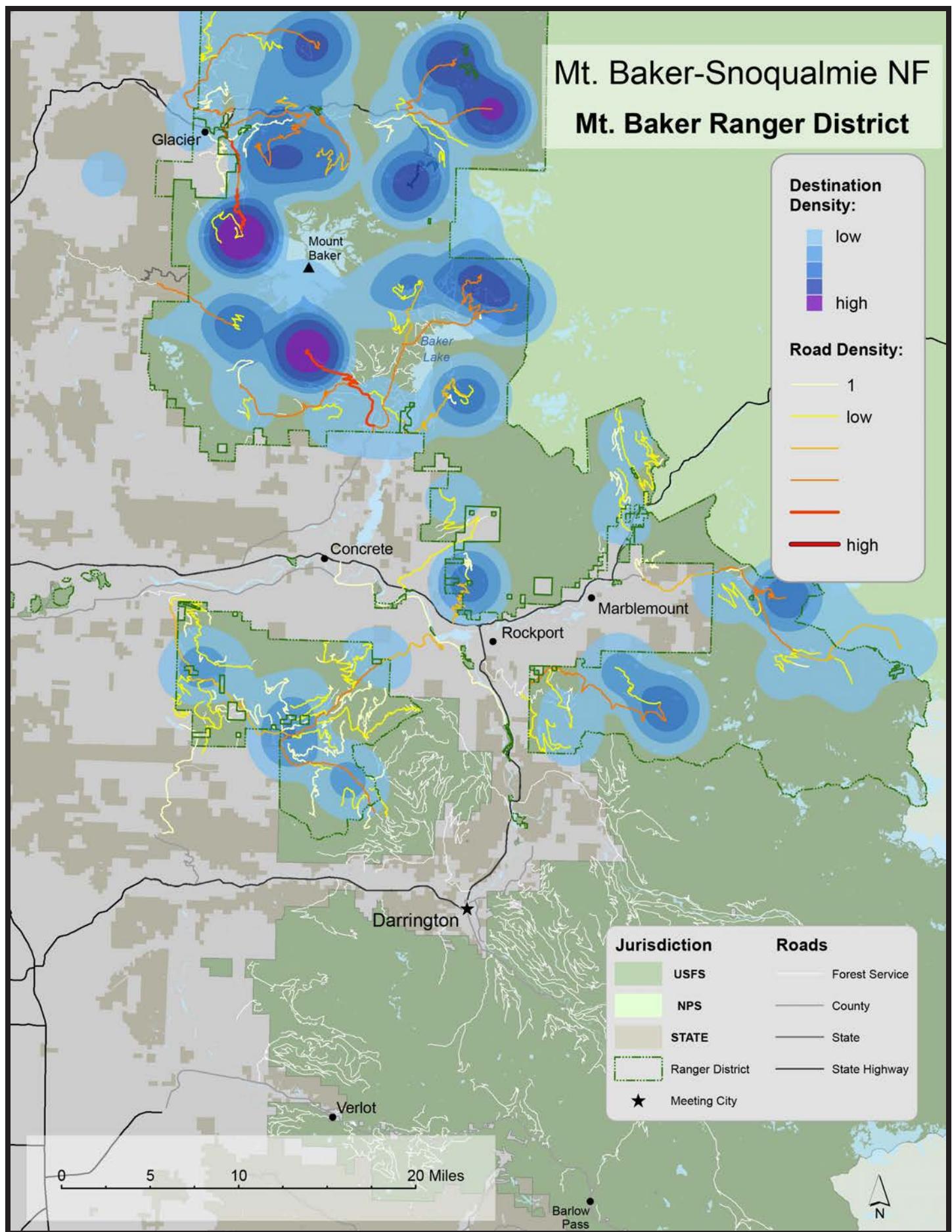
Roads with the highest number of overlaps on the Mt. Baker Ranger District include Glacier Creek Road (leading to Heliotrope Ridge and Glacier Viewpoint) and Schreibers Meadows Road, both of which had between 51 and 70 overlaps. Roads in the northern part of the district with the next most number of overlaps (21 to 50) included: Canyon Creek, Twin Lakes, Hannegan, Deadhorse (leading to Skyline Divide), Wells Creek, Loomis-Nooksack, Mid-Fork Nooksack, and Baker Lake Road. South of Highway 20, the most frequently marked roads (21-50 overlaps) were Cascade River, Sibley Creek, Illabot, Finney-Cumberland, and Segelsen Roads. The majority of the roads in the southern part of the district had densities of 10 or less. A number of smaller roads off the Baker Lake road were not mapped at all.

Darrington Ranger District (Map 1-3)

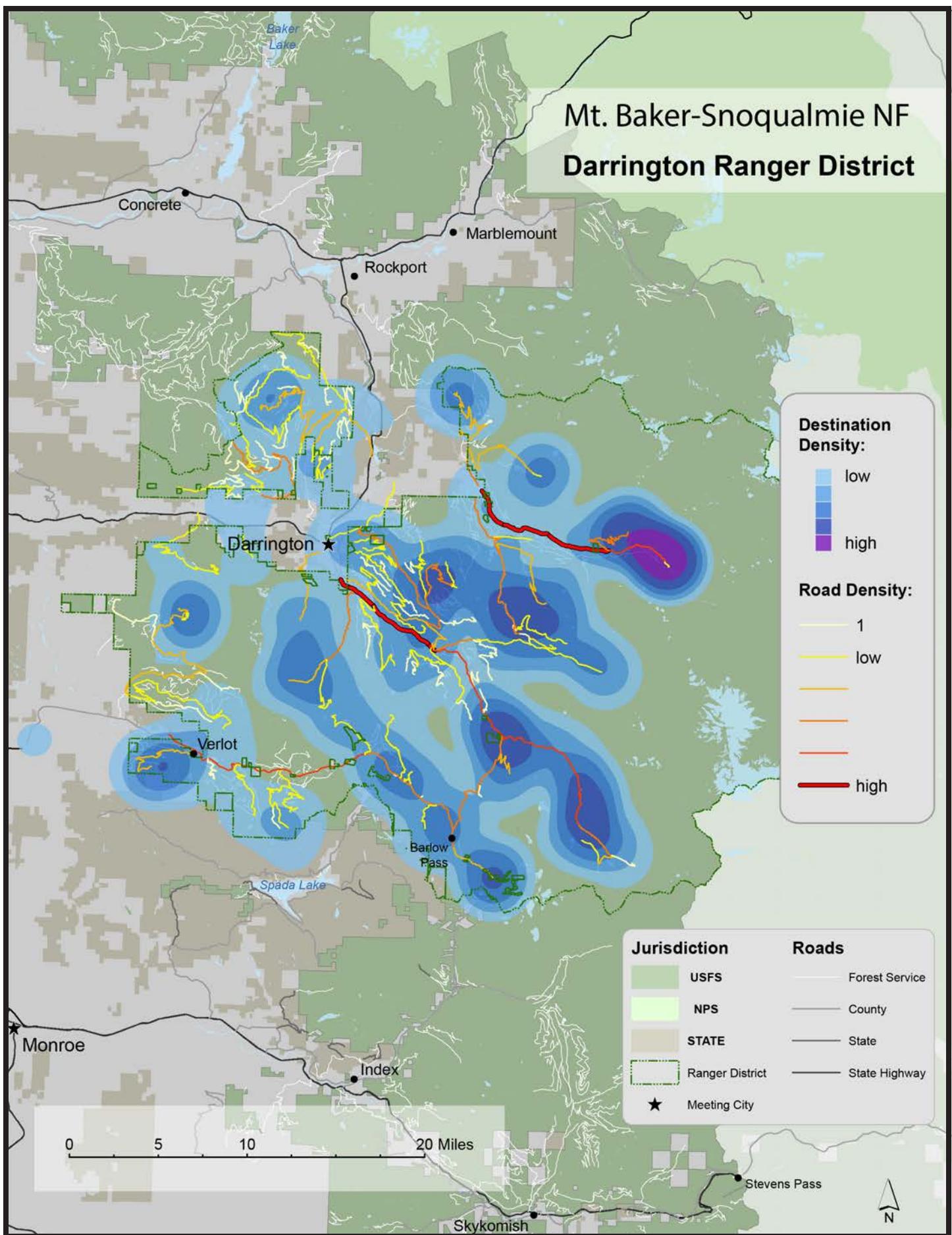
High destination density: The Darrington Ranger District's destination density map shows that people tended to go to places in the mountains southeast of Darrington. Only one destination — the upper reaches of the Suiattle River — fell into the highest density category. However, areas in the second highest density category included: Rat Trap Pass/Circle Peak, Upper Decline Creek, North Fork Sauk Falls/Bedal Peak, and the upper reaches of the North Fork Sauk River (Sloan Peak/North Fork Sauk Trailhead/Bald Eagle Curry Gap).

Road use on the Darrington Ranger District was heavily concentrated along roads to the south and east of Darrington. The Suiattle River Road, North Fork Sauk River Road, and Mountain Loop Highway, all of which had between 81-104 overlaps along major portions, were the most frequently used roads. Dan's Creek Road, the South Side Suiattle River Road, Straight Creek Road and lower portion of Segelsen Road were also popular routes, although less frequently marked (51 to 80 overlaps). Roads with low densities were located primarily in the northwestern corner of the district, north and east of Verlot, and a number of smaller roads off the Mountain Loop Highway.

Map 1-2: Destination and Road Densities - Mt. Baker Ranger District



Map 1-3: Destination and Road Densities - Darrington Ranger District



Skykomish Ranger District (Map 1-4)

High destination density: The Blanca Lake/West Cady Ridge area in the northern part of the district was the only high-density destination on the Skykomish Ranger District. Less frequently marked, but popular destinations included Beckler Peak near the town of Skykomish; the Lake Dorothy and West Fork Foss Trailheads, which provide access into the Alpine Lakes Wilderness; Tonga Ridge, and the area along the North Fork Skykomish near Galena (northeast of Index).

Beckler Road (FS 65) and the road along the North Fork of the Skykomish River (FS 63), which together form a loop connecting the towns of Index and Skykomish north of Highway 2, had the highest number of overlaps on the Skykomish Ranger District (21 to 51 overlaps). The Rapid River Road (FS 6530) and Foss River Road (FS 6820) were also popular, albeit somewhat less frequently mapped (11-20 overlaps). The majority of the remaining roads in the Skykomish District have densities of 10 overlaps or less.

Snoqualmie Ranger District (Map 1-5)

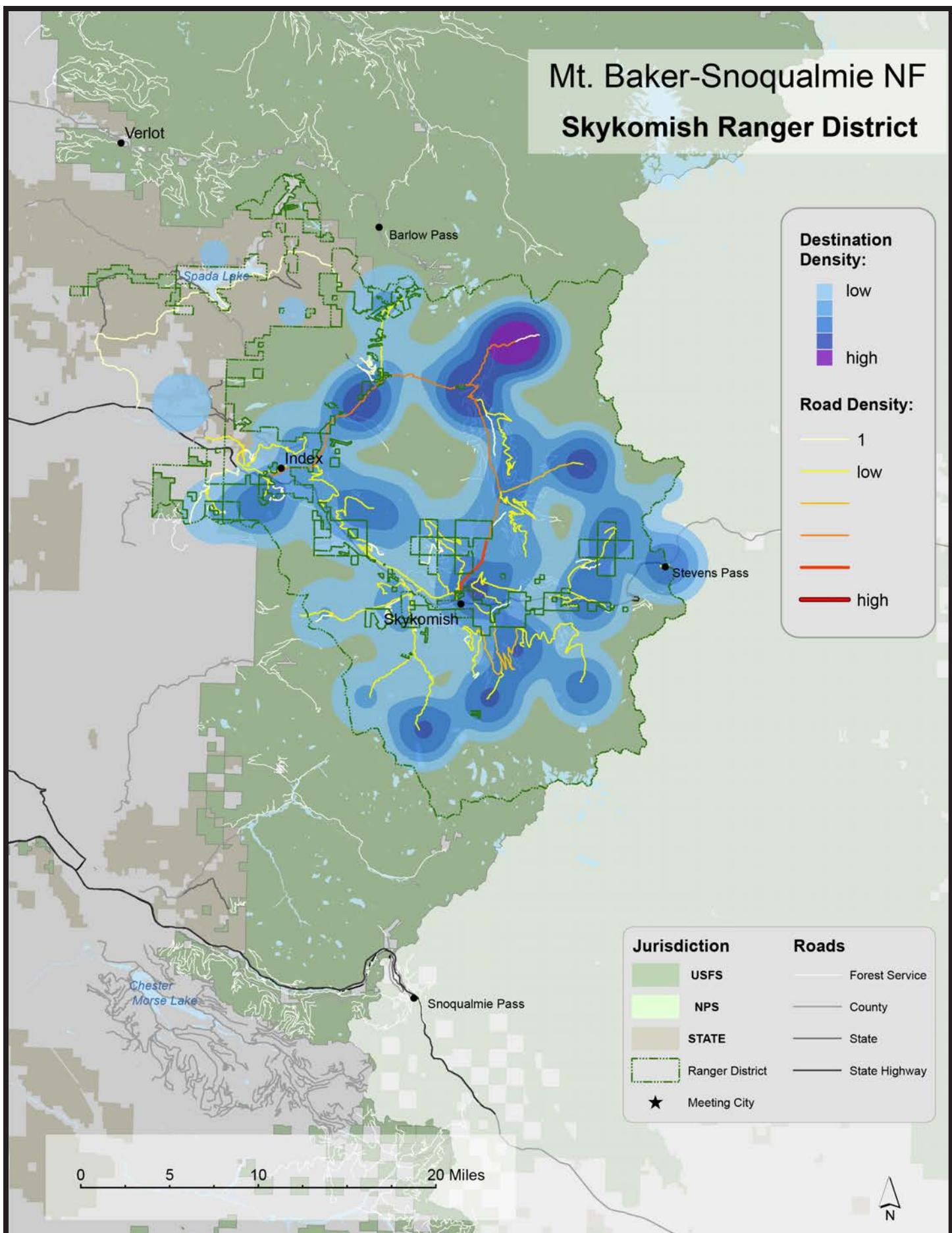
High destination density: On the Snoqualmie Ranger District, the high density destinations marked were Hansen Creek west of Snoqualmie Pass, the Naches Pass/Windy Gap area northeast of Mount Rainier, and the Evans Creek area northwest of Mount Rainier. Other popular, though less frequently mapped destinations were the upper reaches of the Middle Fork of the Snoqualmie River in the northern part of the District, Snoqualmie Pass/Snow Lake, and the Huckleberry Ridge and Coral Pass areas south of Greenwater.

Greenwater Road, with 51-69 overlaps, was the most frequently marked road on the Snoqualmie Ranger District. Other popular roads were the Middle Fork of the Snoqualmie/Goldmyer Road and Hansen Creek Road west of Snoqualmie Pass. With the exception of Hansen Creek Road, Forest Service roads near I-90 were infrequently marked. The majority of the roads in the southern tip of the MBS had densities of 10 or less.

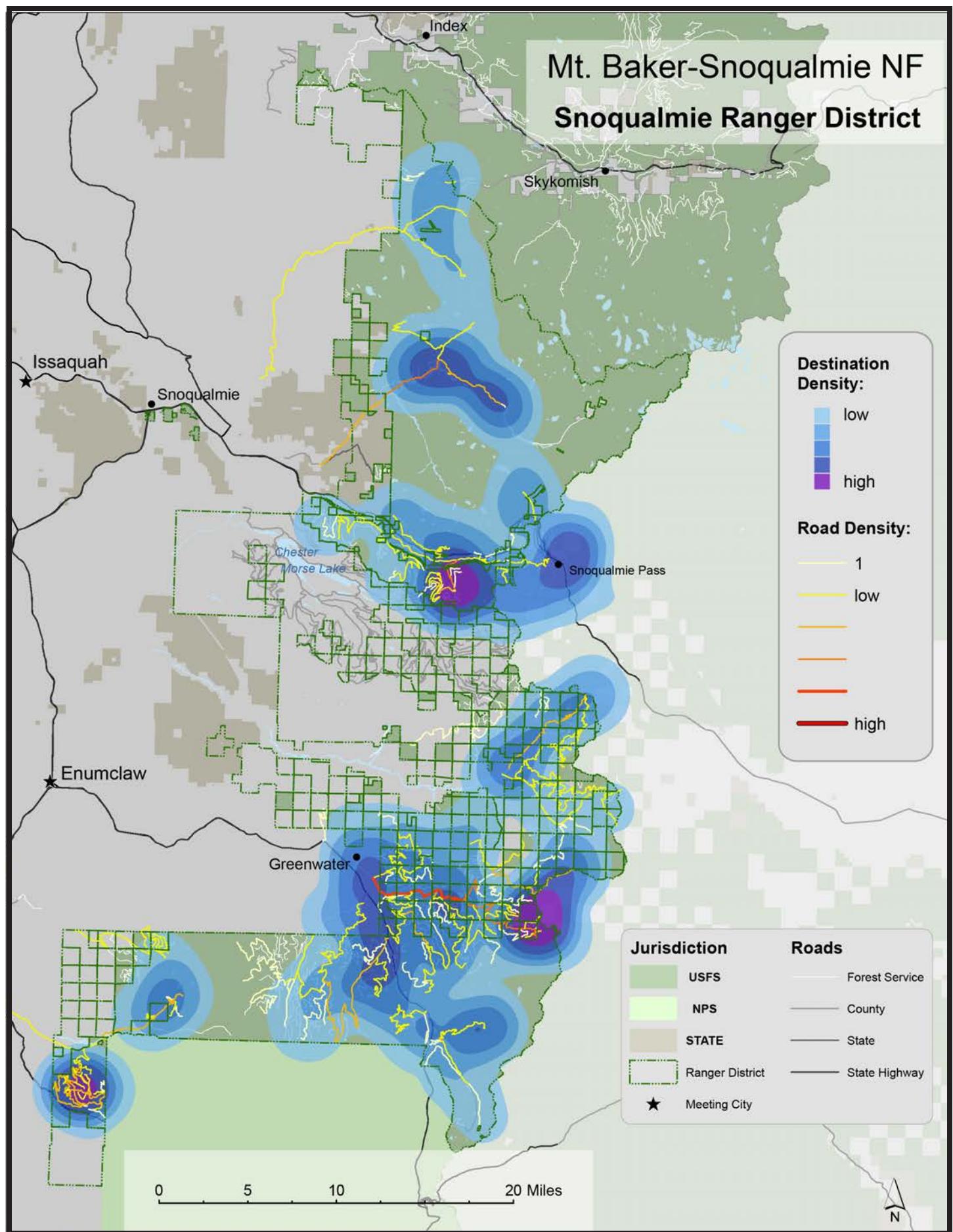


Photo courtesy of Kim Brown

Map 1-4: Destination and Road Densities - Skykomish Ranger District



Map 1-5: Destination and Road Densities - Snoqualmie Ranger District



Forest Activities: What People Do

For each destination participants identified, they were asked to indicate the particular activity they do there. Figure 4 shows eight different activity categories identified as well as the types of activity included in the category and the number of destinations associated with each category. The following activity maps show how the patterns of destinations and associated road densities differed depending on the types of activities people did in the places they mapped.

Figure 4: Activity Categories and Examples

Activity category	Destinations mapped	% of total (1733 destinations)	Examples
Hiking	913	53%	Hiking
Strenuous recreation	370	21%	Backpacking, mountaineering, rock climbing, biking, swimming, rafting
Motorized recreation	341	20%	Snowmobiling, driving, motorcycling, off-road driving, trail racing
Observation	321	19%	Photography, exploring, bird watching, wildlife viewing, sightseeing
Camping & relaxation	329	19%	Camping, visiting hot springs, picnicking, relaxing, solitude, getting away, target shooting
Sociocultural	226	13%	Trail work, research, guiding, search and rescue, fire-fighting, logging, teaching, restoration, attending festivals, spending time with family, history, tourism, riding horses
Winter recreation	208	12%	Cross-country skiing, snowshoeing, snowboarding, ice glacier skills
Collecting & Harvesting	198	11%	Hunting, fishing, berry picking, holiday tree harvesting, gathering plants, metal detecting, gold panning, rock collecting



Photo courtesy of Joe Sambataro, Access Fund

Hiking (Map 2-1)

Hiking was by far the most commonly mapped activity, so it was placed in a category by itself. Mapped hiking destinations were concentrated in the north, with sites around the Mt. Baker and the Mountain Loop areas. Although some participants hiked in the Skykomish and Snoqualmie Districts, no major concentrations were mapped south of Barlow Pass on the Mountain Loop. Road densities also reflect the northern trend in hiking destinations. Roads with most overlaps (31 to 51) included the Mountain Loop Highway, Suiattle River Road, Schreibers Meadows Road, portions of Baker Lake Road, Glacier Creek Road, and Twin Lakes Road.

Strenuous Recreation (Map 2-2)

Mapped destinations for strenuous recreation were most heavily concentrated in the northern part of the forest. The highest concentrations were around Mt. Baker, with Heliotrope Ridge/Glacier View and Schreibers Meadow as the most popular destinations. Relatively high values for active recreation also occurred in the Mountain Loop area, near the end of the Suiattle River Road and along the North Fork Sauk River Road.

Motorized Recreation (Map 2-3)

Motorized recreation was concentrated at the northern and southern ends of the forest. Two of the three high-density areas for motorized recreation – the Evans Creek area and the Naches Pass/Windy Gap area – were located on the Snoqualmie District and were popular as off-road vehicle sites. The area at the end of Canyon Creek Road north of Mt. Baker is a popular site for both off-road vehicle riders and snowmobilers.

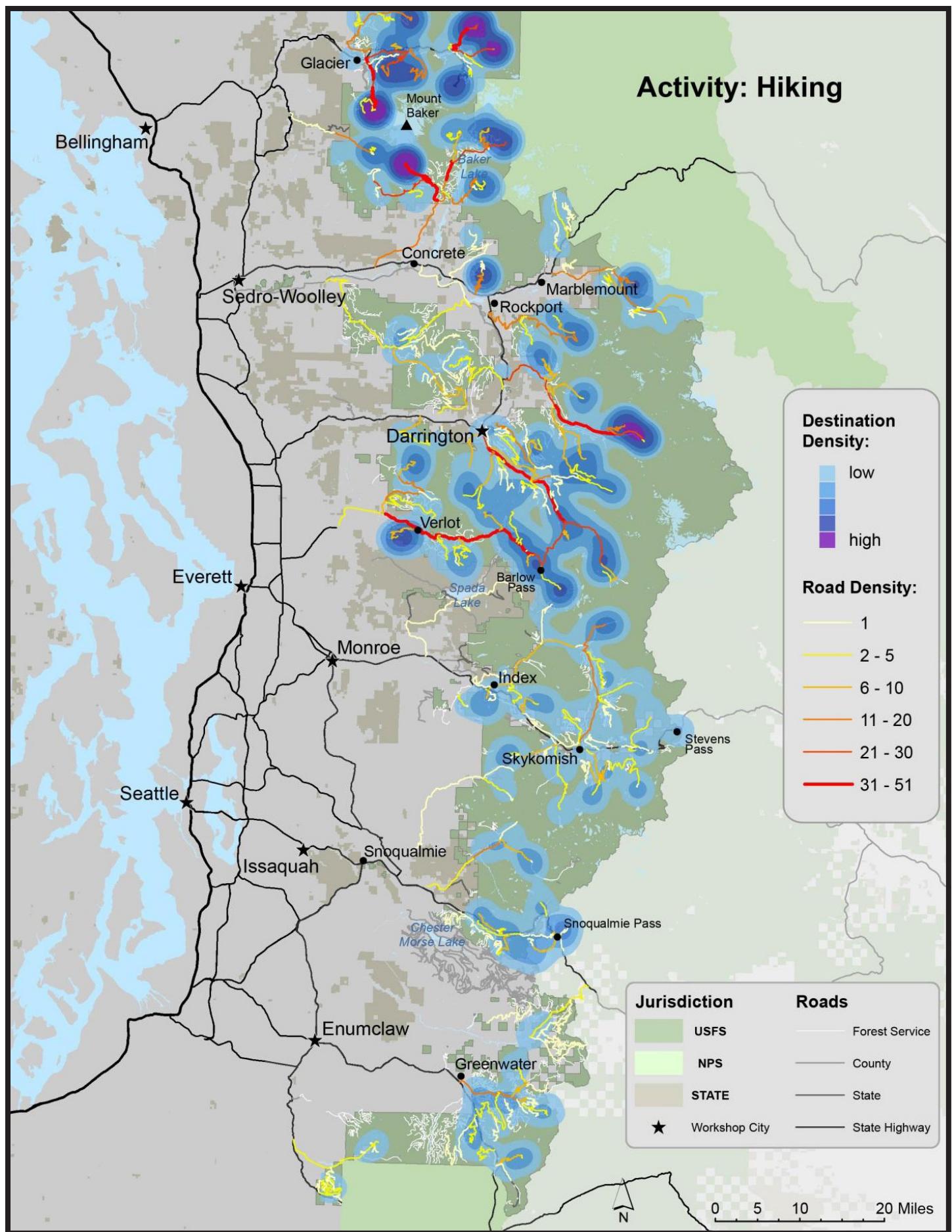
Secondary concentrations for motorized recreation are located in the Darrington Ranger District include the area northwest of Darrington, several spots along the eastern portion of the Mountain Loop Highway (Grade Creeks and North Fork Sauk Falls vicinity), and the Rat Trap Pass/Circle Peak area at the end of Straight Creek Road. The Hansen Creek area west of Snoqualmie pass is another popular site for motorized recreation.

The Greenwater Road leading into the Naches Pass/Windy Gap road network had the highest number of overlaps (31-40). Other roads frequently used by motorized recreationalists were the Evans Creek road and trail network; Beckler Road in the Skykomish District; Mountain Loop Highway, Dan Creek Road, Selegsen Road, and Finney Creek Road in the Darrington District; and Canyon Creek Road in the Mt. Baker District

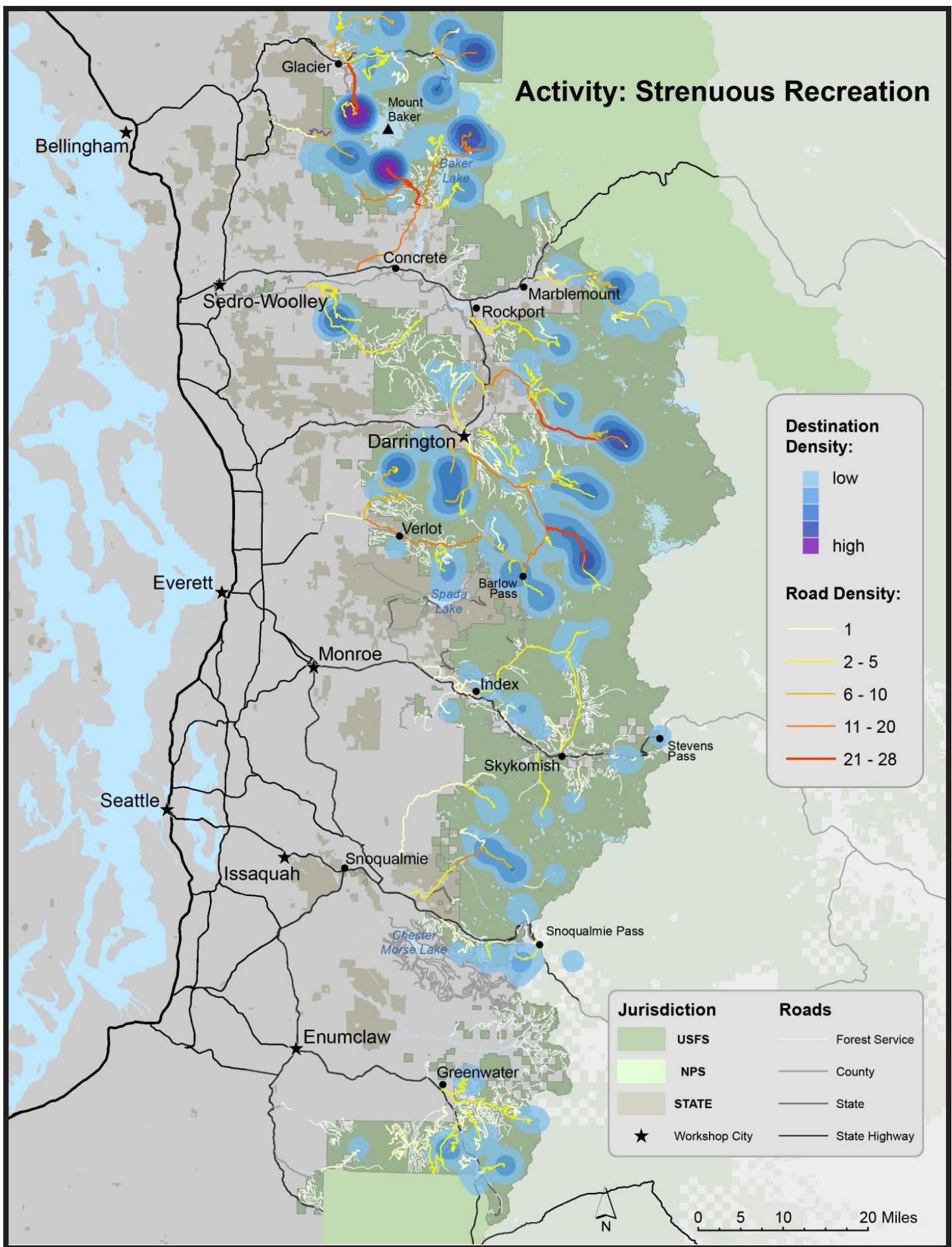
Camping/Relaxation (Map 2-4)

Camping and relaxation sites were widely dispersed. Camping was by far the most common activity in this category, accounting for roughly 90 percent of the destinations listed in the camping/relaxation category. Nine areas fell into the high-density category, including four around Mt. Baker (Twin Lakes, Hannegan Pass, Heliotrope Ridge/Glacier View, and Schreibers Meadows), two in the Darrington District (end of the Suiattle River Road, and around the North Fork Sauk Trailhead), and three in the Snoqualmie District (Snoqualmie Pass area, Evans Creek, and the Naches Pass/Windy Gap area). No high-density hot spots were located in the Skykomish Ranger District, although several moderately dense sites for hiking were located at sites adjacent to Highway 2. The high-density hot spots in the southern tip of the forest coincide with high-density areas for motorized recreation. Roads leading to camping/relaxation with the highest number of overlaps (21-25) were the Greenwater Road and the eastern portion of the Mountain Loop Highway.

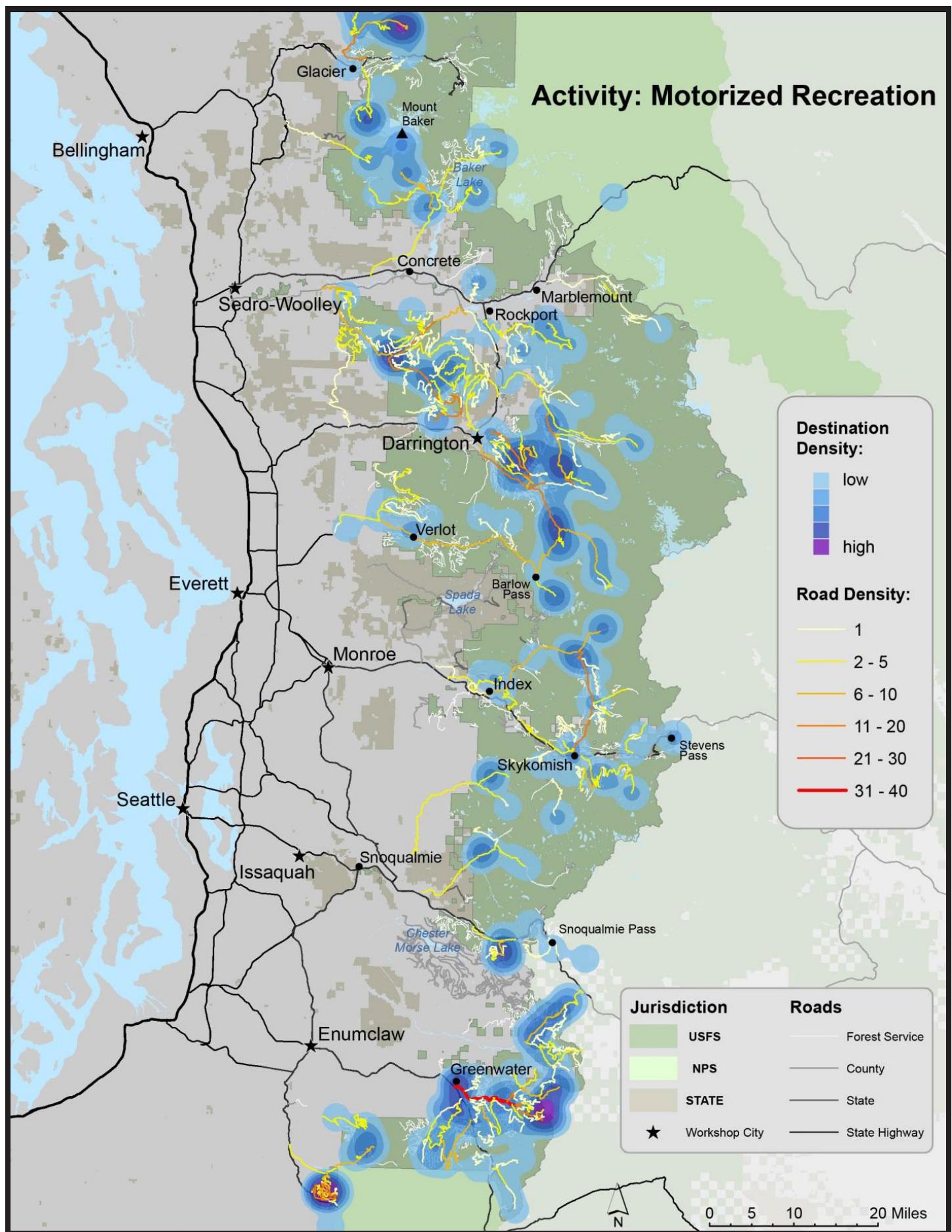
Map 2-1: Activity Map - Hiking



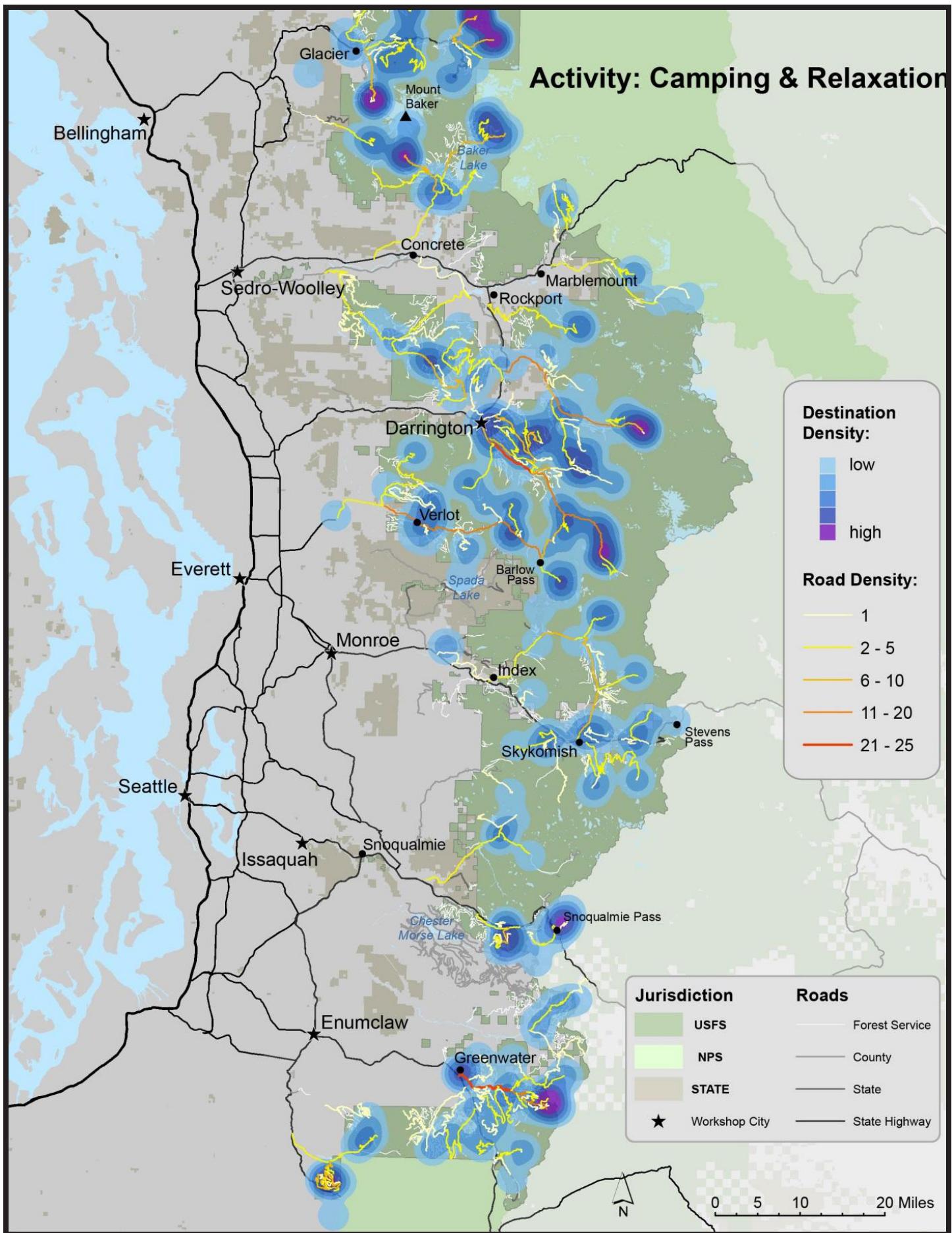
Map 2-2: Activity Map - Strenuous Recreation



Map 2-3: Activity Map - Motorized Recreation



Map 2-4: Activity Map - Camping & Relaxation



Observation (Map 2-5)

Observation destinations were heavily concentrated in the north around Mt. Baker, with Heliotrope Ridge/Glacier View and Heather Meadows/Artist Point the most frequently mapped sites. A secondary concentration is located in the Darrington District from Marblemount to Verlot. Roads with high-density values for observation included Glacier Creek Road, Schreibers Meadows Road, the South Side Suiattle River Road, Dan Creek Road, and the Mountain Loop Highway.

Sociocultural (Map 2-6)

Destinations mapped as important for sociocultural activities tended to be both numerous and dispersed. Hot spots included: West Cady Ridge off Beckler Road, the upper reaches of the Suiattle River, North Fork Sauk Falls area along the Mountain Loop Highway, the upper reaches of the North Fork Sauk, and Heliotrope Ridge/Glacier View on Mount Baker. Different activities dominated at the various hot spots: horse-riding was an important activity in the upper reaches of the Suiattle and North Fork of the Skykomish; volunteer activities were dominant in the Sloan Creek area and guiding was important in the Heliotrope Ridge/Glacier View area. Secondary concentrations occurred at Mt Pilchuck and Three Fingers in the Darrington District, and also at Schreibers Meadows on the south side of Mt. Baker. Roads with the highest number of overlaps for the sociocultural activity category included Beckler Road, the eastern portion of the Mountain Loop Highway (along the Sauk River), the North Fork Sauk River Road, and the Suiattle.

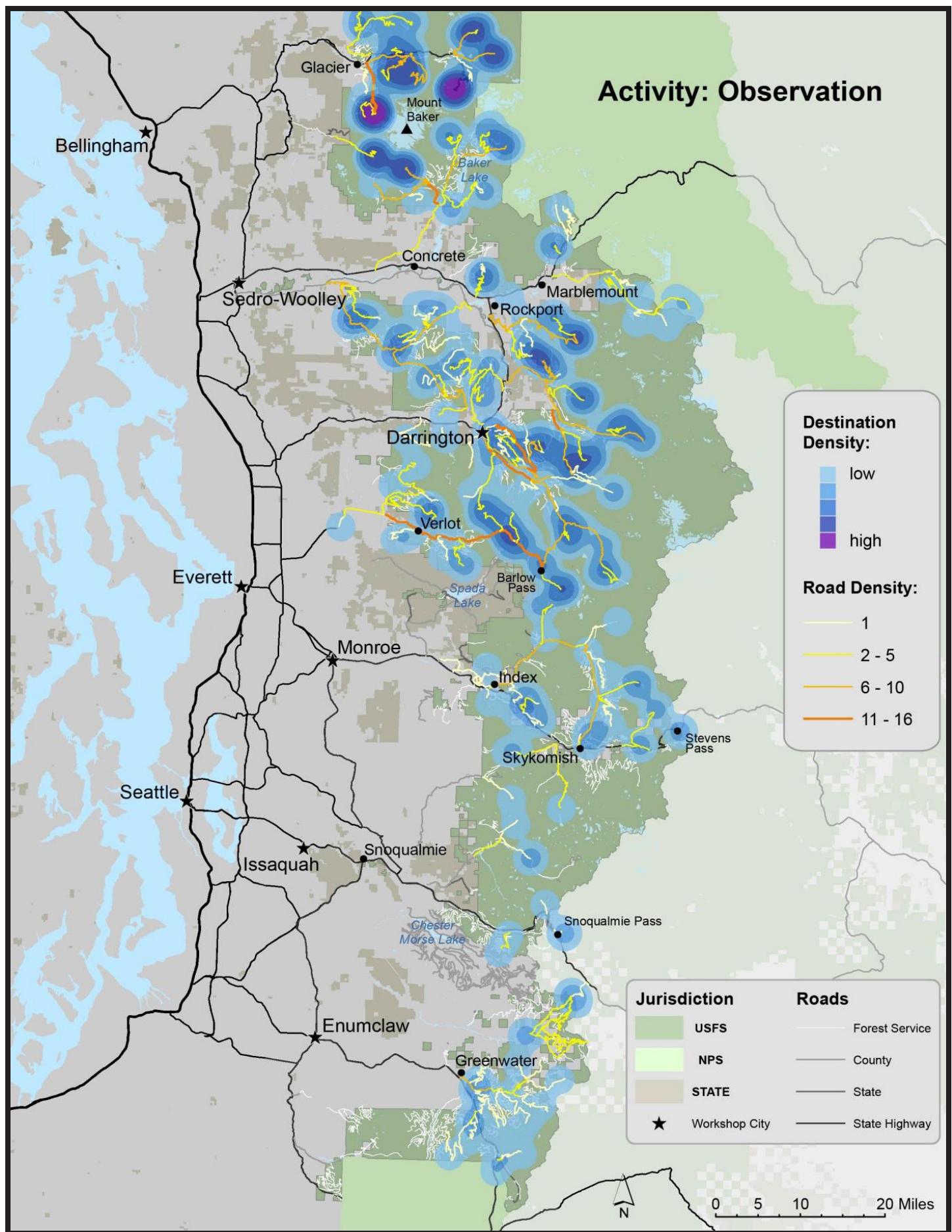
Winter Recreation (Map 2-7)

Winter recreation sites were concentrated around Mt. Baker. The highest-density areas were at Heliotrope Ridge/Glacier View and Schreibers Meadow. Analysis showed that 76 percent of the features mapped in these two hot spots were skiing (cross-country), and snow or ice climbing being the second-most common. Interestingly, the Mt. Baker Ski area, a downhill ski facility, did not show up in the highest-density category, although it did fall within the second highest-density category. Indeed, none of the area's downhill ski areas (Stevens Pass, Alpental at Snoqualmie Pass, Crystal Mountain) had high-density values. This is not as surprising as it might seem since the downhill areas are all located off major highways. Roads with high-density values for winter recreation were Schreibers Meadows Road, Loomis Nooksack Road, and Glacier Creek Road, all of which provide access to Mt. Baker.

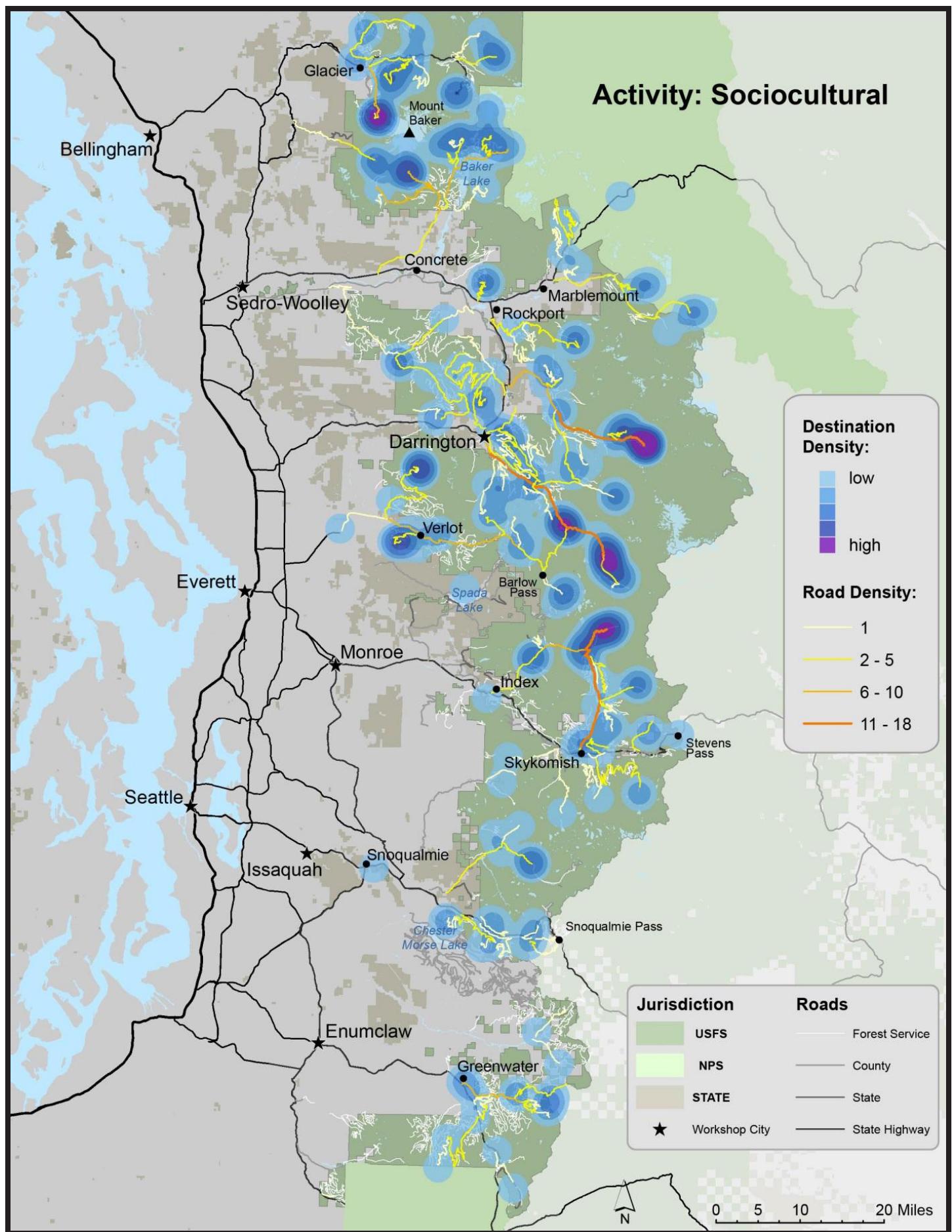
Collecting and Harvesting (Map 2-8)

Hunting and fishing were the most common activities in this category, together being associated with 73 (75 percent) of the 98 destinations in the collection and harvesting category. Gathering – especially berry picking – was the next most common activity in this category, and was associated with 28 percent of the collecting and harvesting destinations. The high-density collecting and harvesting sites were heavily concentrated in the area east and south of Darrington. The roads most frequently used to get to collecting and harvesting destinations included the Mountain Loop Highway, the Suiattle River Road, the North Fork of the Sauk River Road, and Illabot River Road. Secondary clusters for collecting and harvesting were located around Mt. Baker, around the Beckler Road Loop, in the Hansen Creek area west of Snoqualmie Pass, and around Greenwater in the White River area of the Snoqualmie Ranger District.

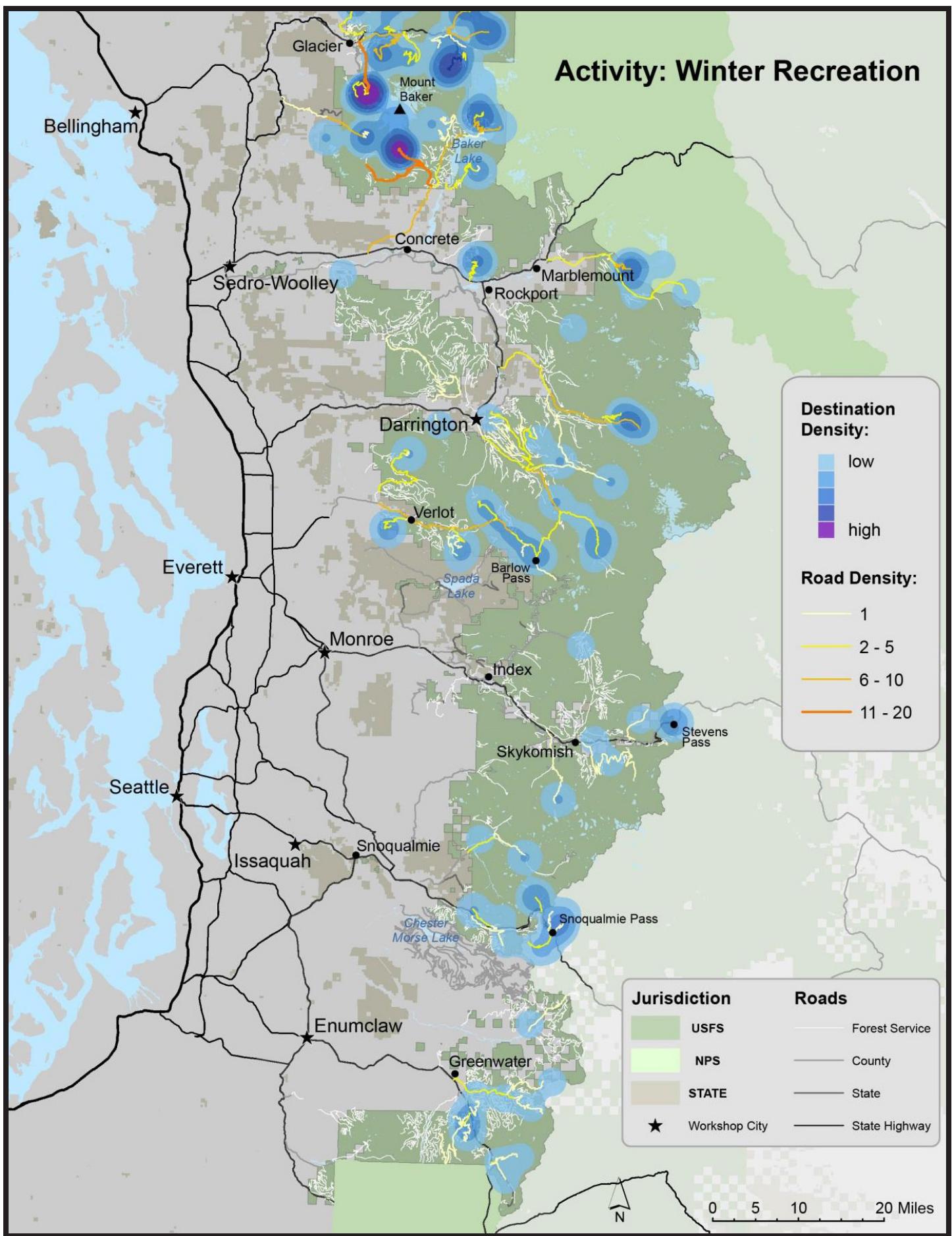
Map 2-5: Activity Map - Observation



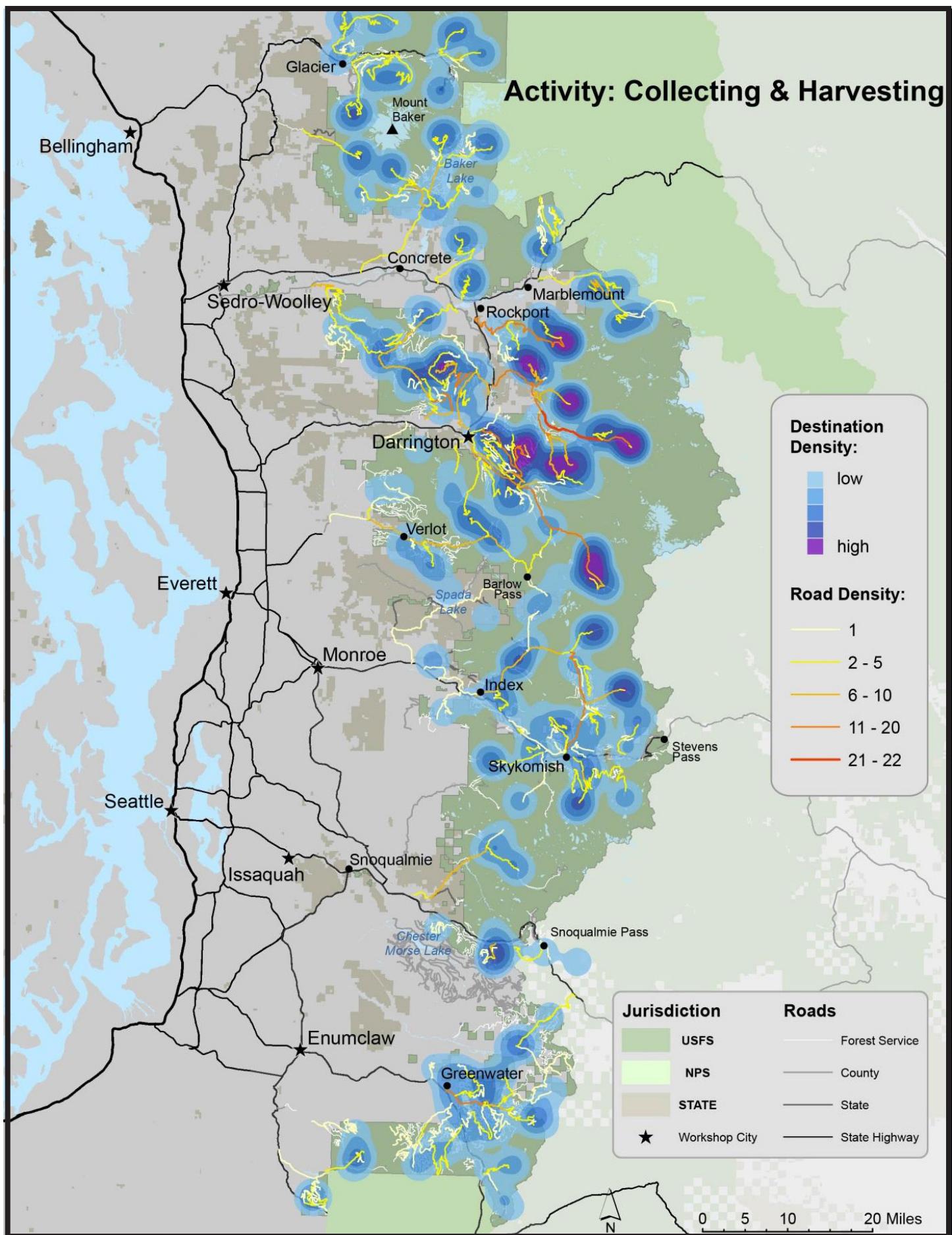
Map 2-6: Activity Map - Sociocultural



Map 2-7: Activity Map - Winter Recreation



Map 2-8: Activity Map - Collecting & Harvesting



Evaluating Diversity of Values on Forest Roads

Similar to evaluating diversity of activities on forest roads, diversity of values can also be mapped. Roads with high diversity for values were most heavily concentrated in the Darrington Ranger District, including the following roads:

- North Fork Stillaguamish Road/Crevise Creek
- Dan Creek
- Upper Divide Creek
- Upper reaches of Clear Creek
- Far upper end of North Fork Sauk River

The only other road with a high diversity for values was FS 6090, on the south slope of Mount Catherine just west of Snoqualmie Pass. The relationship between activity diversity and values diversity is complex, and only one road (Dan Creek Road southeast of Darrington) fell into the high-diversity category for both values and activities.

Many roads with low activity diversity had high values diversity, but the opposite was also true as many roads with high activity diversity had low values diversity. One possible explanation for a low activity-high values diversity combination is that people doing similar activities may do so for different reasons. Alternatively, it may be that persons engaging in the activity do so for a variety of reasons (one person may drive a road several times - to hunt, to hike, to kayak, for photography, and to camp). To identify plausible explanations for these types of relationships, however, requires delving deeper into the underlying data structure to determine which particular activities and values are associated with particular configurations of activity diversity and values diversity.

Forest Values: Why Places Matter (Maps 3-1 to 3-4)

To help determine why people care about a particular place, participants were asked why particular places (destinations) were important to them. Figure 5 lists the major values we derived from the data and the number and percent of destinations having each value. Four of the values (sociocultural, economic/work, subsistence, and recreation) closely mirror the kinds of activities people listed, corresponding to the activity categories “sociocultural” (which includes economic activities), “collecting and harvesting,” and the various “recreation” categories. Indeed, in many cases participants used the identical words or phrases to describe both the activities done at their destinations and the importance of the destination to them. The other four values (access/proximity, serenity/solitude, aesthetic, and nature/wilderness) are quite different in that they can’t be readily equated with specific activities. We developed a set of maps to show how these four values and the roads associated with sites having those values, were distributed across the Mt. Baker-Snoqualmie National Forest.



Photo courtesy of Chris Neibauer

The table (Figure 5) below lists the major values we derived from the data and the number and percent of destinations having each value. Four of the values (sociocultural, economic/work, subsistence, and recreation) closely mirror the kinds of activities people listed, corresponding to the activity categories “sociocultural” (which includes economic activities), “collecting and harvesting,” and the various “recreation” categories. Indeed, in many cases participants used the identical words or phrases to describe both the activities done at their destinations and the importance of the destination to them.

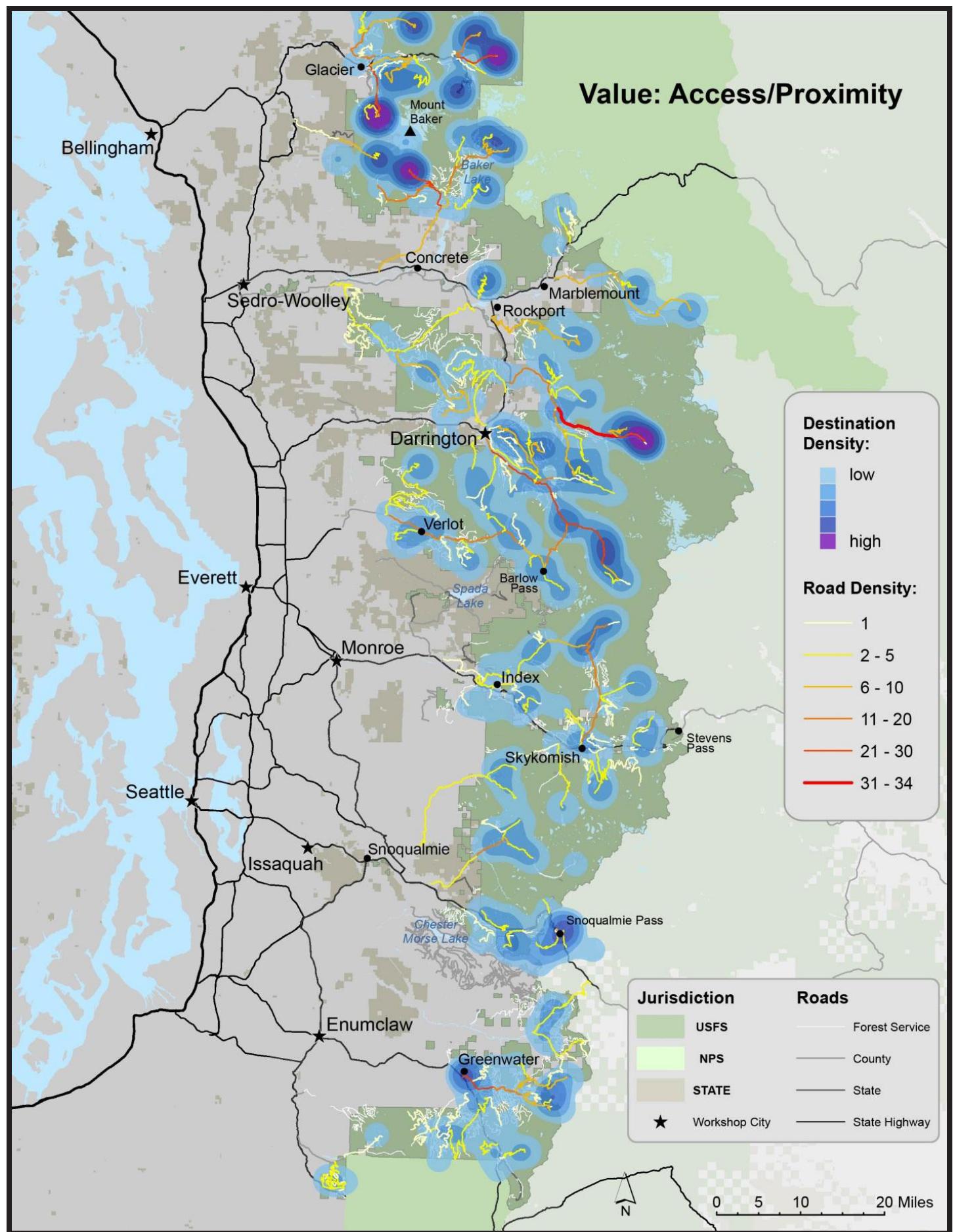
Figure 5: Values Categories and Examples

Values	Number of destinations	% of destinations (of 1733 destinations)	Examples
Recreation	865	50%	Snowmobiling; camping; hiking; motorcycling; picnicking; driving; skiing; horseback riding; ATV/4x4; snowshoeing; mountaineering; climbing; biking; mining/prospecting
Access/Proximity	433	25%	Mentions: “access,” “close,” “easy,” “convenient,” or “connect”
Aesthetic	377	22%	Views; scenery; beauty; mentions a visual description (e.g. “fall color”); sightseeing; photography
Nature/Wilderness	224	13%	Wilderness; mentioned natural feature (e. g. flowers, trees, wildlife, lake); untouched, clean
Sociocultural	192	11%	Family; friends; kids; take visitors; community; cook out; history; memories; tradition; collect data; teach/learn; events; archaeology; dams
Subsistence	138	8%	Hunting; fishing; berry picking; mushroom picking
Serenity/Solitude	63	4%	Serenity; escape; peaceful; quiet; relaxation; “mental recovery;” clear head; solitude; remoteness; spiritual; joy
Economic/Work	62	4%	Economic; work; timber/logging; restoration

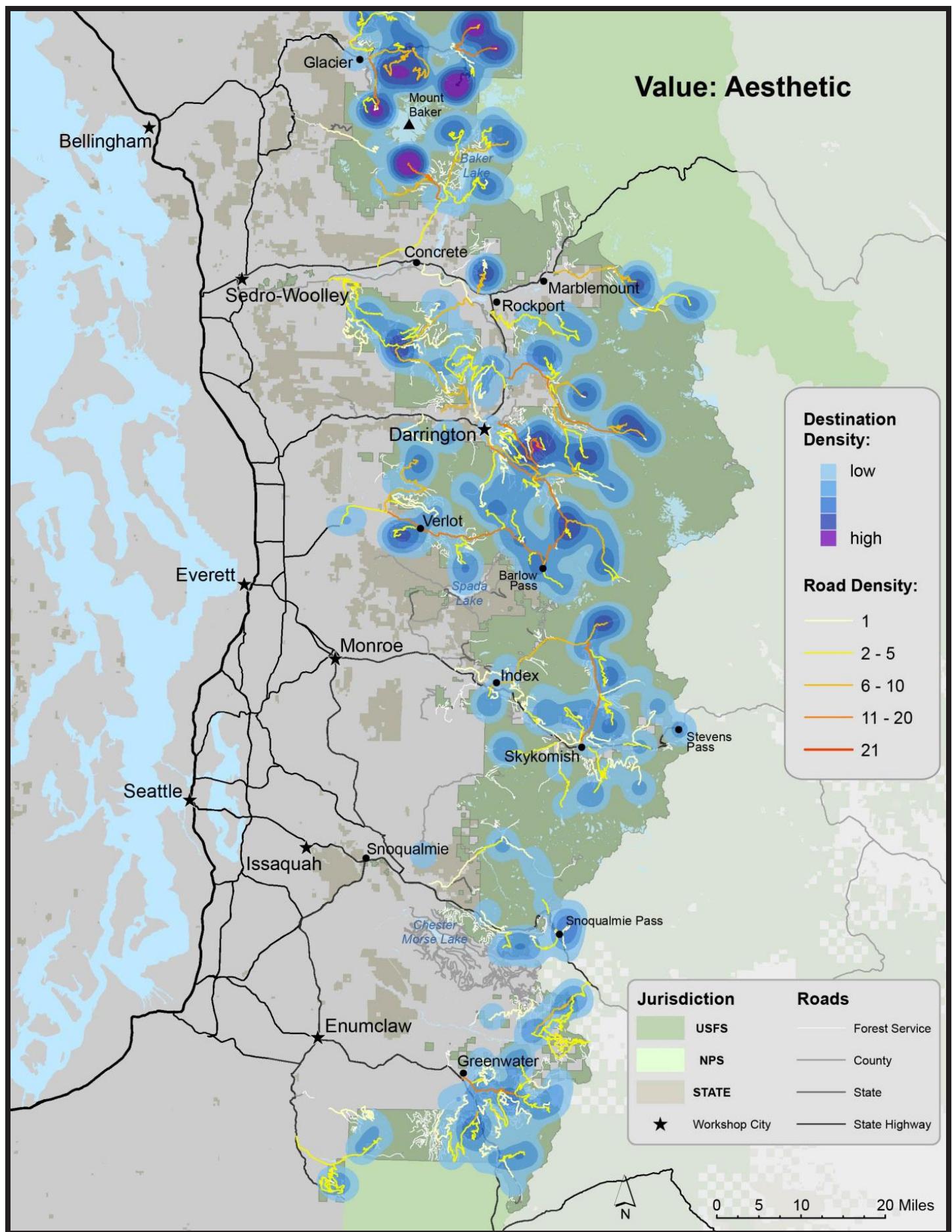


Photo courtesy of Chris Neibauer

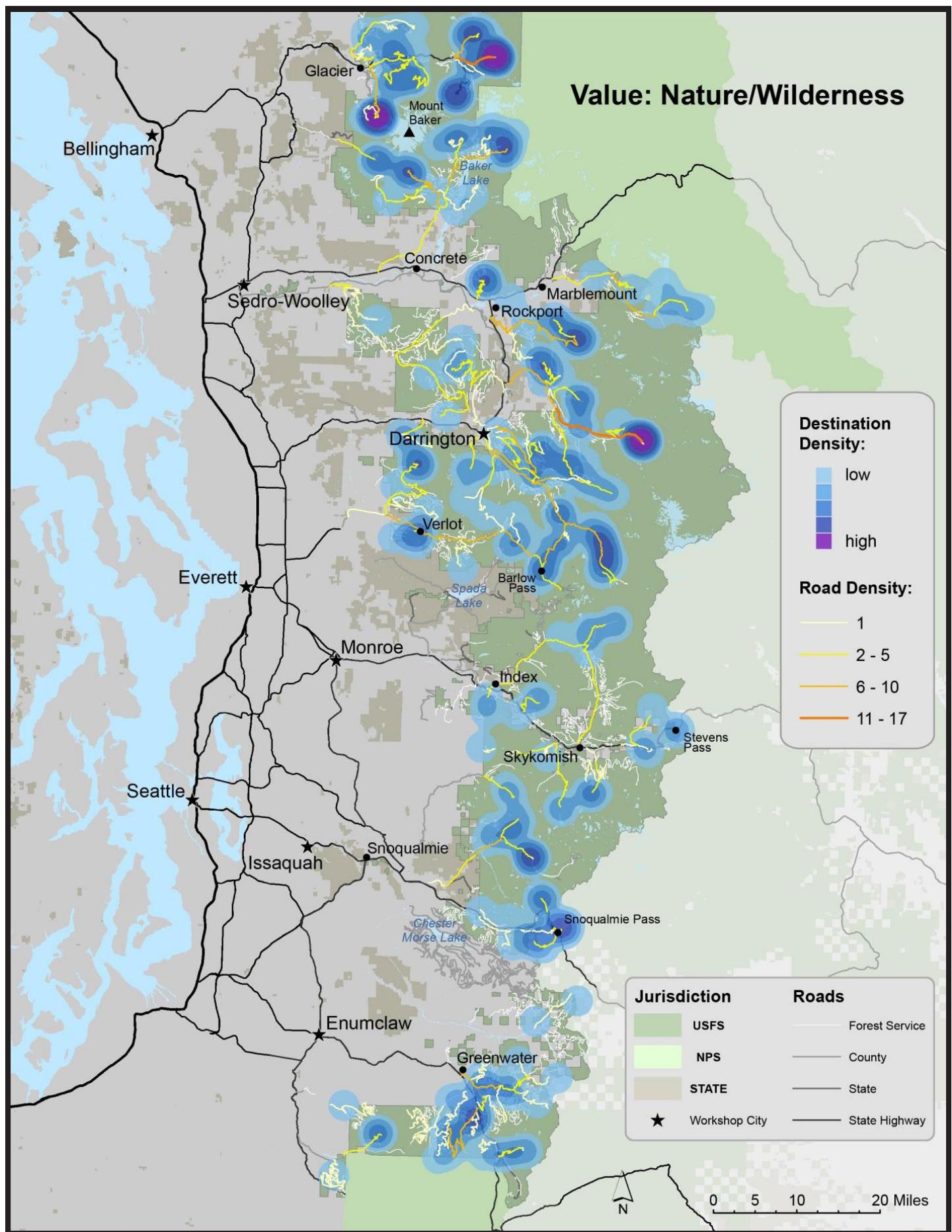
Map 3-1: Value Map - Access/Proximity



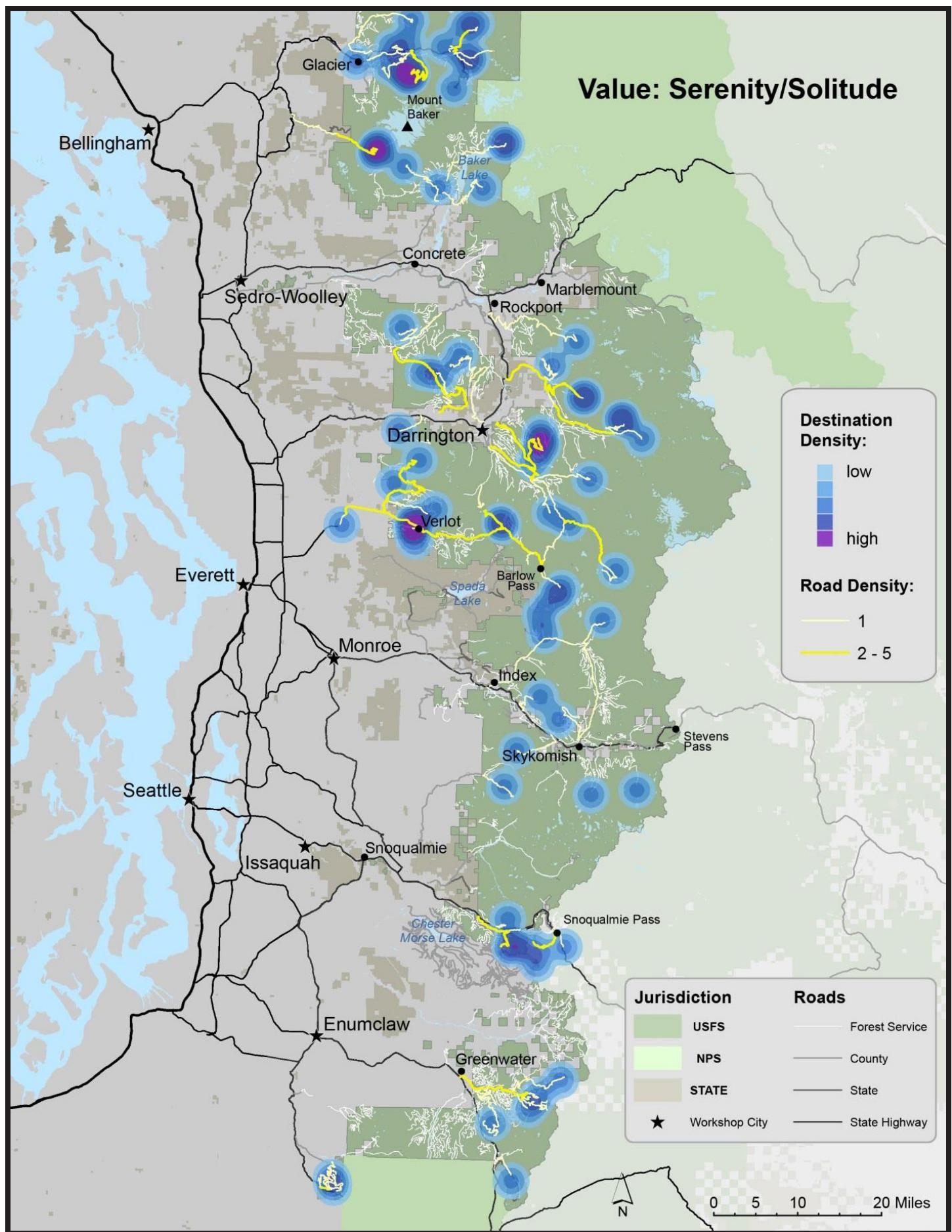
Map 3-2: Value Map - Aesthetics



Map 3-3: Value Map - Nature/Wilderness



Map 3-4: Value Map - Serenity/Solitude



Destinations by Zip Code: Connecting where people are from with where they go

To get a better understanding of the relationship between residence and destination on the forest, we mapped destinations and road densities by Zip code, grouping participants into six residential areas (Whatcom County, the Mountain Loop area, Highway 2, Everett-Skagit area, North/East King County, and Pierce/South King Counties). The residential areas were derived primarily from the Zip codes that dominated in each workshop, but also took into account the need to have groups of roughly the same size for our analyses.

The Whatcom residential area encompasses Zip codes in and around Bellingham, the Mountain Loop area includes Zip codes in and around Darrington, and the Highway 2 area includes Zip codes around Monroe and east to Stevens Pass. Because the number of participants from eastern Skagit County (many of whom had Sedro-Woolley Zip codes) was so small, we grouped them with the Everett area residents. Likewise we grouped North and East King County residents together, and South King County residents with Pierce County residents.

A common feature of all six residential area maps is that participants tended to go to places and use roads close to home. However, this pattern was most pronounced for Whatcom County, the Mountain Loop area, and Pierce/South King County residents, where destinations and roads with high-density values were very tightly grouped in or close to the residential area. Although the highest-density locations for North/East King, Skagit/Everett and Highway 2 residents were in areas close to their homes, overall their destinations were scattered over much larger areas.

Whatcom (Map 4-2)

Mt. Baker was the major attraction on the MBS National Forest for participants who lived in the Whatcom residential area. Heliotrope Ridge/Glacier View and Schreibers Meadow were the most frequently mapped locations, and the next most popular sites were the areas around Skyline Divide, Damfino Lake, Twin Lakes, and Hannegan Pass. Participants from the Whatcom residential area mapped Very few sites south of Highway 20; those mapped south of Highway 20 were in the Mountain Loop area of the Darrington Ranger District. No one from Whatcom marked destinations in the Snoqualmie and Skykomish Ranger Districts.

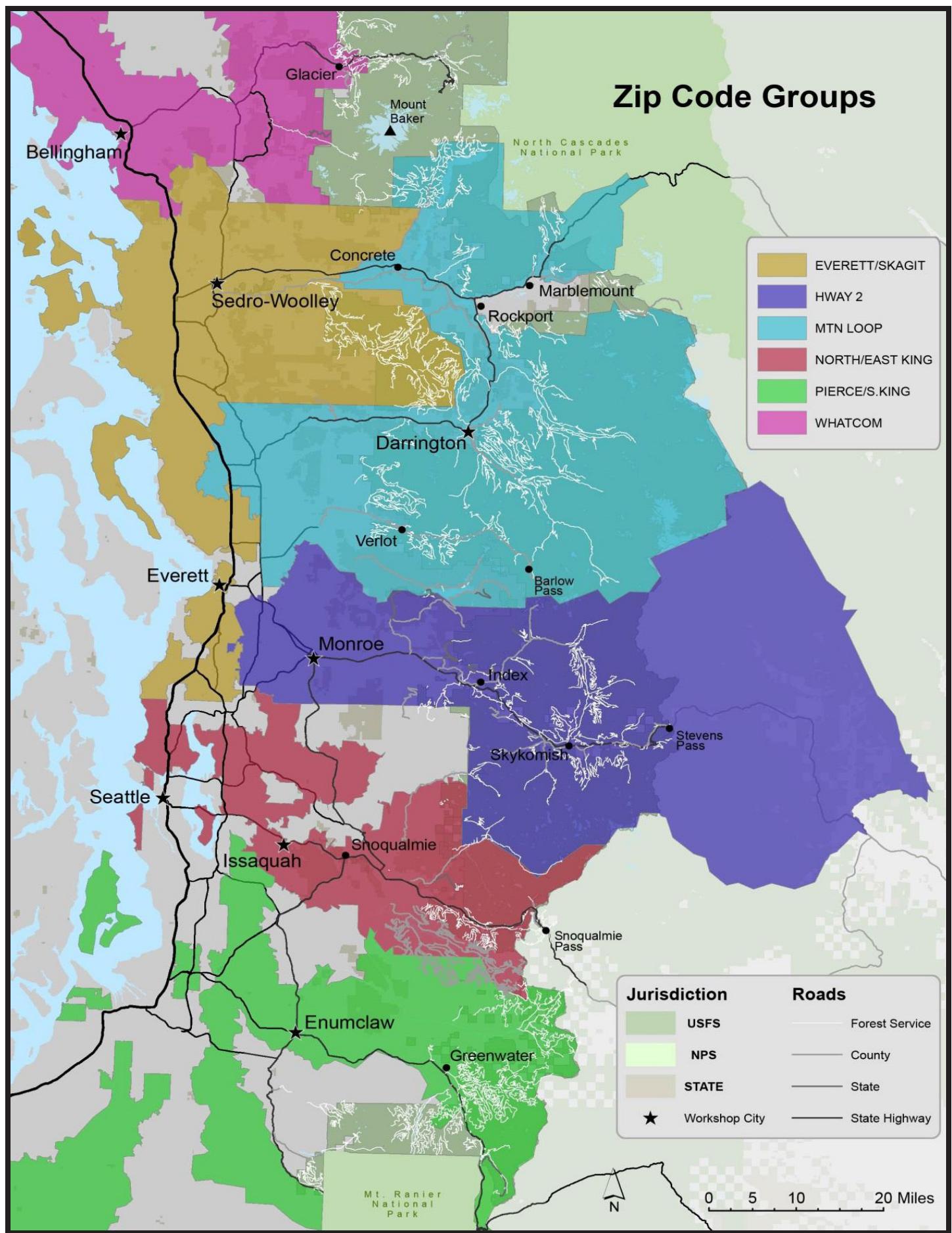
Roads most frequently used by Whatcom residents (31 to 39 overlaps) were clustered around Mount Baker, and included Glacier Creek, Schreibers Meadows, Loomis Nooksack, and Hannegan Pass Roads. The next most frequently mapped roads around Mt. Baker (21 to 30 overlaps), were Deadhorse, Canyon Creek, Twin Lakes, and the upper part of Baker Lake Road. Participants from the Whatcom residential area mapped almost no roads in the southern half of the forest.

Mountain Loop (Map 4-3)

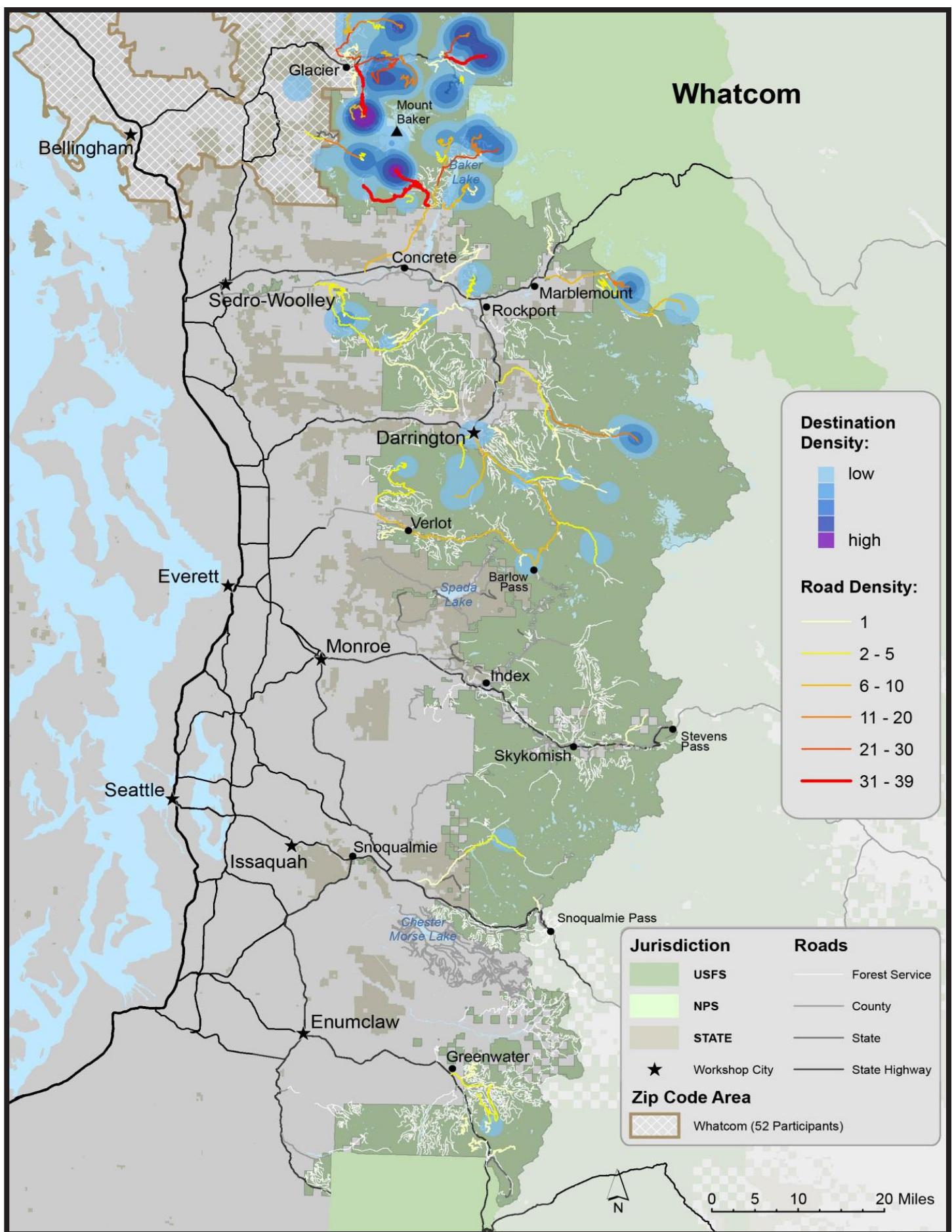
Mountain Loop residents tended to go to places along the eastern portion of the Mountain Loop Highway or in sites located in or reachable through trailheads in the North Fork of the Sauk and Suiattle drainages. High-density destinations included Grade Creek, Tenas Creek, Suiattle Trailhead area, the Upper Decline area, Rat Trap Pass/Circle Peak, North Fork Sauk Falls, and Sloan Creek area. Although Mountain Loop residents mapped a number of destinations around Mt. Baker, the densities for those sites were much lower than in the mountains east of Darrington.

The Mountain Loop residents' map showed high road densities only in the Mountain Loop area. The Mountain Loop Highway out of Darrington was the most frequently mapped (31 to 48), followed by the North Fork of the Sauk, Suiattle River, and Whitechuck Roads (21 to 30 overlaps). None of the roads mapped outside the Mountain Loop area had high densities, and the majority of roads in the southern half of the forest were not marked at all.

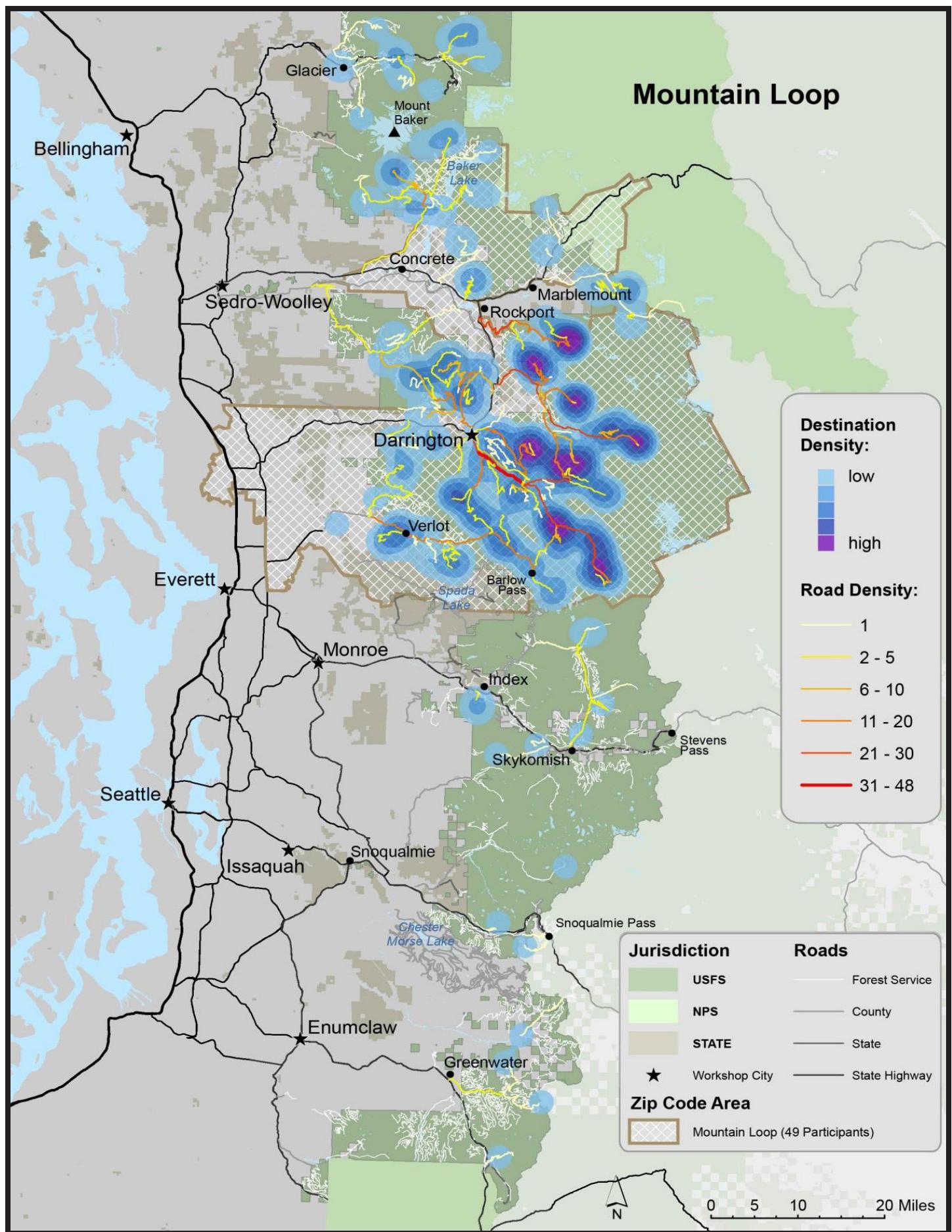
Map 4-1: Zip Code Groups



Map 4-2: Zip Code - Whatcom



Map 4-3: Zip Code - Mountain Loop



Highway 2 (Map 4-4)

The Highway 2 map had a somewhat more dispersed pattern than others. High densities for destinations were located on the Skykomish Ranger District (around West Cady Ridge/Rapid River, and along the North Fork of the Skykomish near Galena) and the Darrington Ranger District (Suiattle Trailhead area in the upper reaches of the Suiattle River and White Chuck/Meadow Mountain). Also popular were areas around Mt. Baker (Heliotrope Ridge/Glacier View and Schreibers Meadow), south and west of Darrington (Three Fingers, Bald Mountain, Coal Lake), and around Skykomish (Barclay Lake, Lake Serene, Marten Creek, Stevens Pass, West Fork Foss, Lake Dorothy, and Lake Elizabeth/Money Creek).

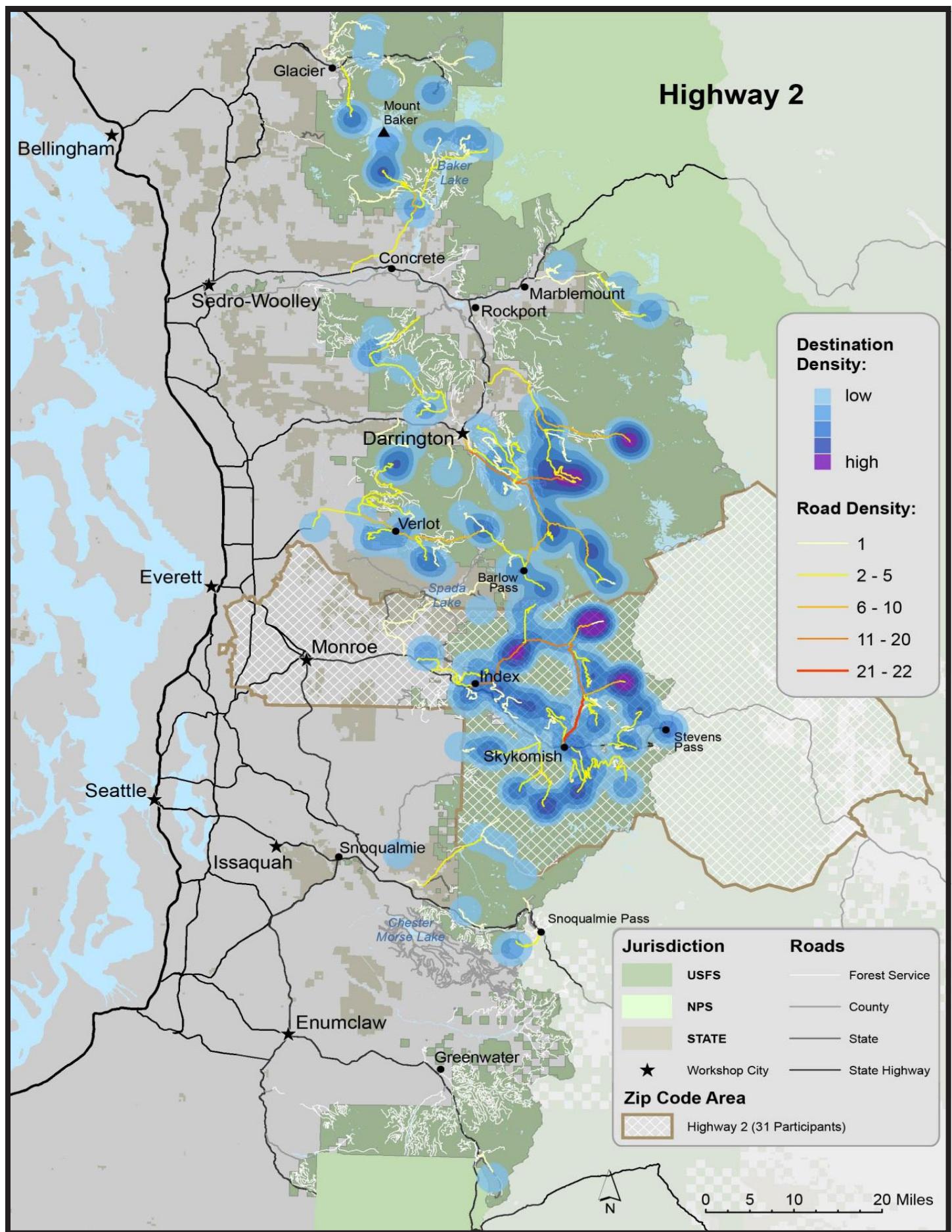
The majority of roads mapped by Highway 2 residents had relatively low-density values, with 22 being the highest number of overlaps on any road segment. The lower part of Beckler Road was the most frequently mapped (21-22 overlaps), followed by the North Fork of the Skykomish River Road, the Sauk River portion of the Mountain Loop Highway, and Whitechuck Road, all of which had between 11 and 20 overlaps.

Everett/Skagit (Map 4-5)

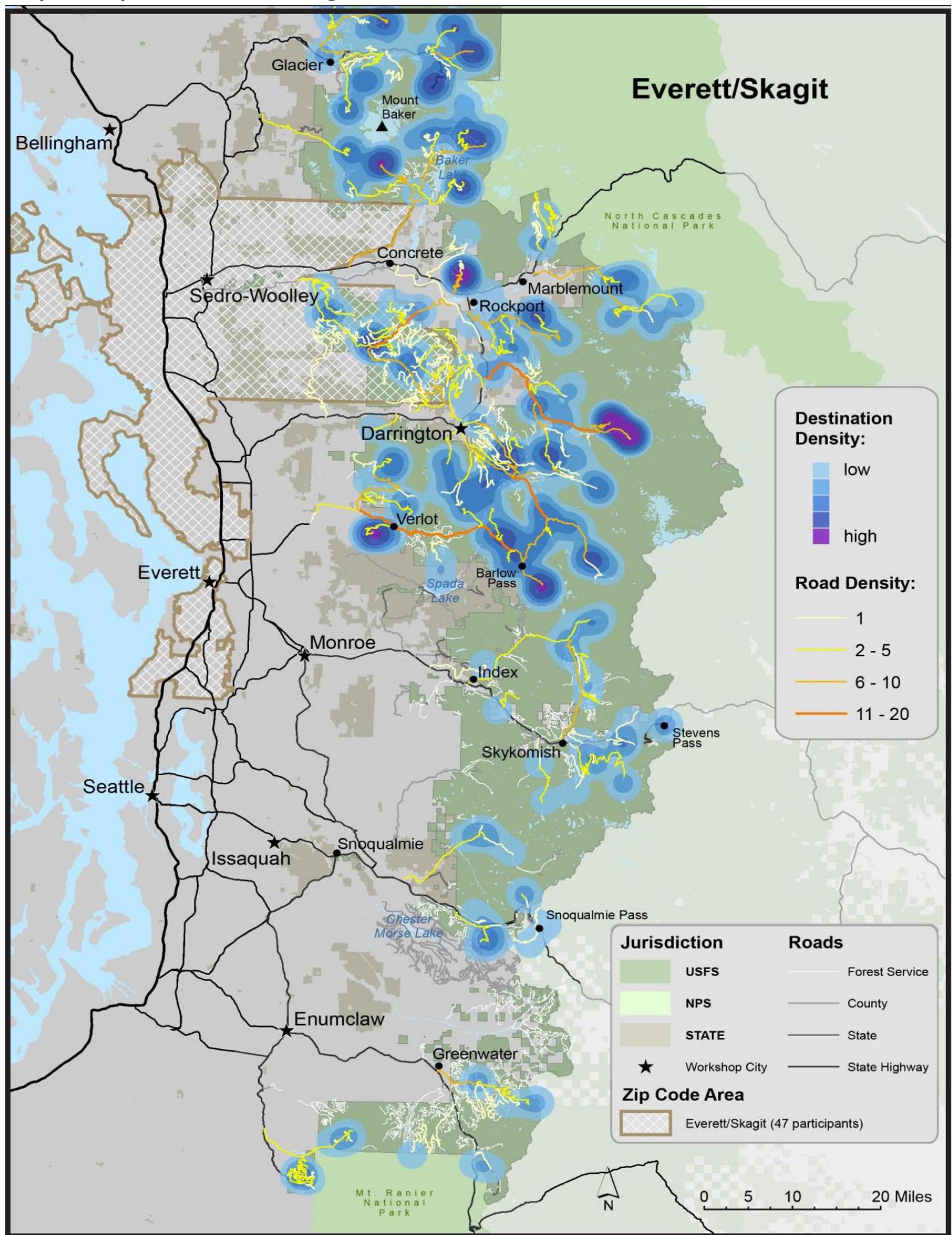
The map for Everett/Skagit residents also had a relatively dispersed pattern for destinations in the northern half of the MBS National Forest. Everett/Skagit residents mapped five high-density areas: three in the Darrington District (upper reaches of the Suiattle River, Monte Cristo, Mount Pilchuck) and two in the Mt. Baker District (Schreibers Meadow and Sauk Mountain). Additionally, relatively dense concentrations of sites were distributed fairly evenly from the Canadian border to Barlow Pass.

Everett/Skagit residents mapped a much larger number of roads than their counterparts in the Whatcom, Mountain Loop, and Highway 2 residential areas. However, the densities for most roads were relatively low, with only 11 to 20 overlaps being the highest road density category. Roads with higher densities were concentrated in the northern part of the forest, primarily south and east of Darrington (e.g., Suiattle River Road, Mountain Loop Highway, the lower portion of the North Fork of the Sauk River Road) and around Mt. Baker (e.g., Baker Lake Road, Schreibers Meadow Road and the lower part of Canyon Creek Road).

Map 4-4: Zip Code - Highway 2



Map 4-5: Zip Code - Everett/Skagit



North/East King County (4-6)

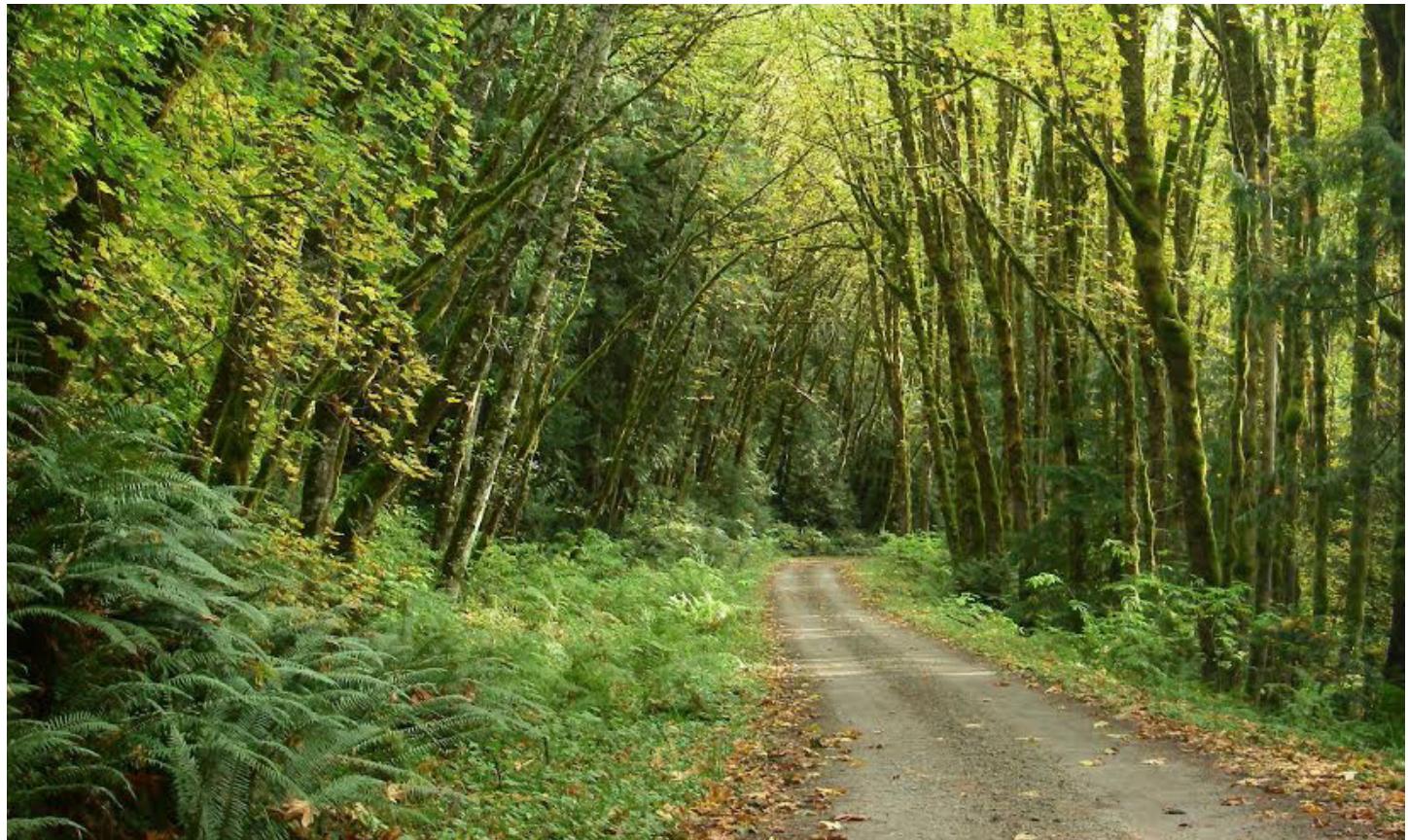
Destinations for North/East King residents were the most widely and evenly dispersed across the MBS National Forest. Only two destinations — the Hansen Creek area and the vicinity of Snoqualmie Pass (including Alpental Ski Area and Snow Lake) — fell into the highest-density category. Areas in the north (around Mt. Baker), the center (sites near the Mountain Loop Highway, the Suiattle River Road, and Beckler Road), and the south (Evans Creek and the Naches Pass/Windy Gap area were also popular.

Road densities on the North/East King residential area map were very low, reflecting the extremely dispersed pattern of destinations. No roads had more than 16 overlaps. The most frequently mapped roads (11 to 16 overlaps) were the Suiattle River Road and Mountain Loop Highway in the Darrington District, Beckler Road in the Skykomish District, and the Middle Fork of the Snoqualmie/Goldmyer Road, Hansen Creek Road, and Greenwater Road in the Snoqualmie District.

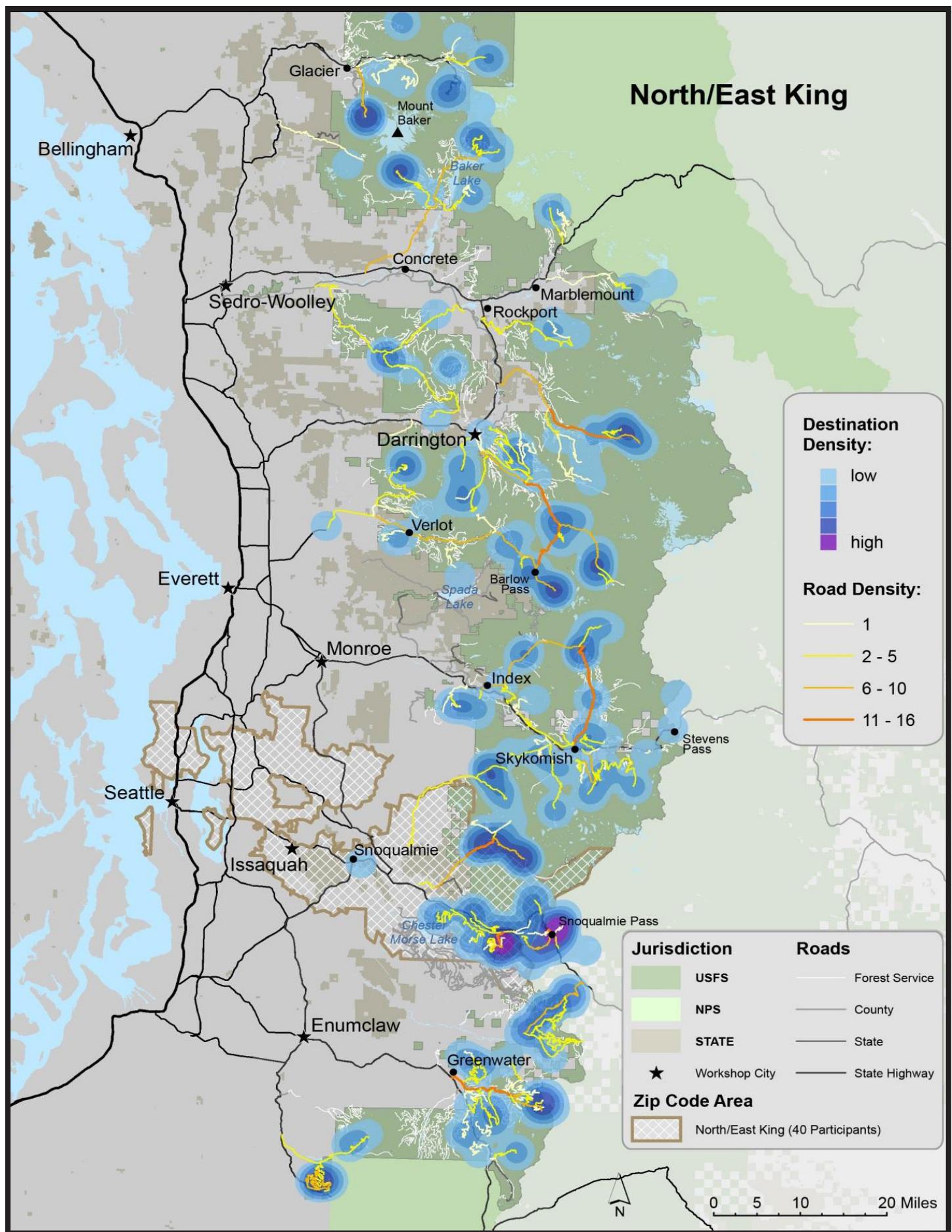
Pierce/South King Counties (Map 4-7)

The White River area of the MBS National Forest northwest of Mount Rainier was the most popular destination for Pierce/South King county residents. Activities were highly concentrated in two dense road networks (Huckleberry Creek and Green Divide/Naches Pass). Pierce/South King county residents also mapped a number of sites dispersed across the rest of the MBS National Forest, but no high density sites were located outside the White River area.

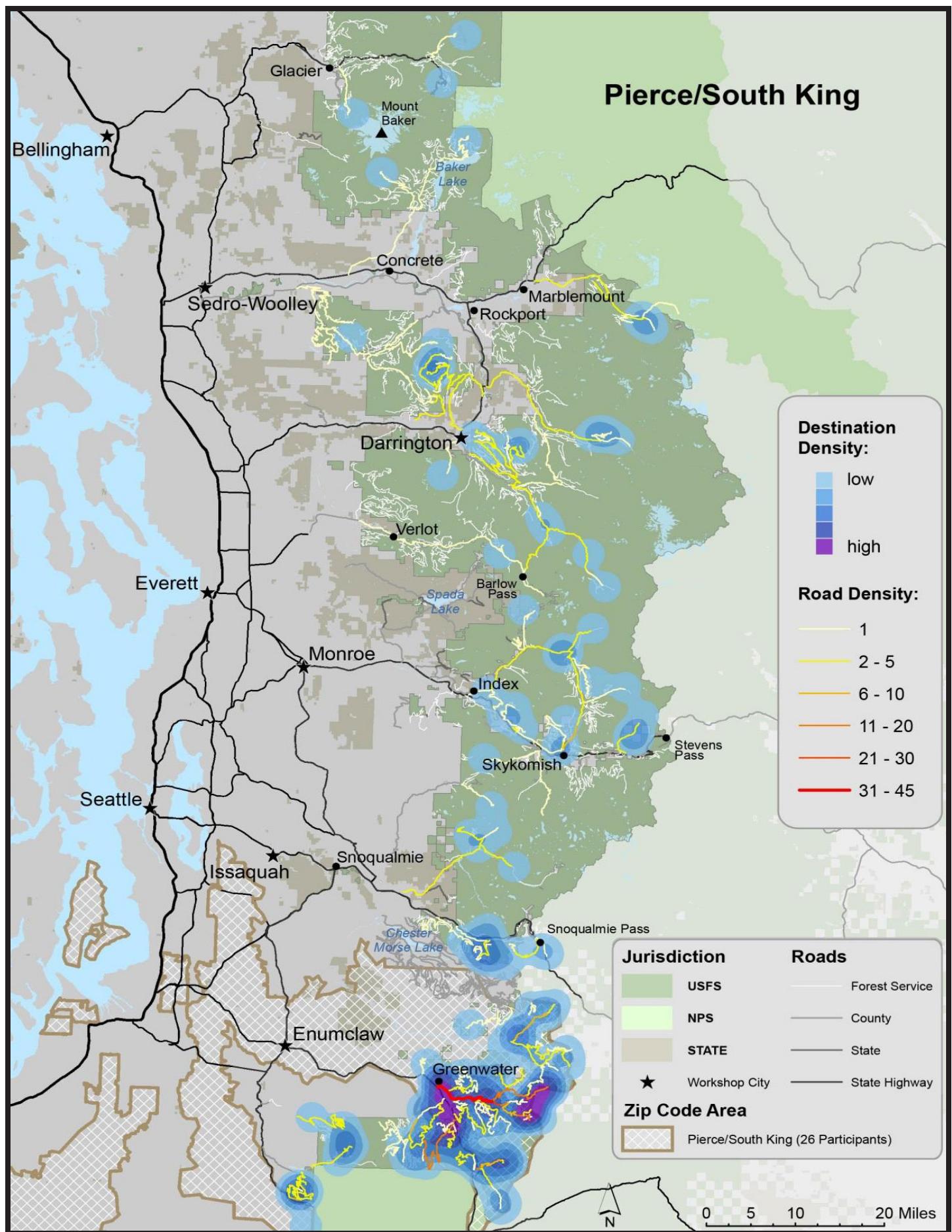
The only road mapped by Pierce/South King county residents with a high density (31 to 45 overlaps) was the Greenwater Road (FS 70), which provides access to a large network of smaller roads heavily used by off road vehicles. The Huckleberry Creek Road and the Green Divide spur off the Greenwater Road were the next most frequently marked routes (21 to 30).



Map 4-6: Zip Code - North/East King County



Map 4-7: Zip Code - Pierce/South King Counties



Breakout Session Discussions

To explore participants' perspectives on the future of the national forest road system, each community workshop dedicated time for breakout sessions where questions (below) were discussed and then answers were prioritized. Key questions included:

- What are the consequences of a reduced road system?
- What criteria should the US Forest Service use to prioritize roads?
- What strategies, ideas, or opportunities could help adapt to changes?

Consequences

Groups discussed the implications of a reduced road system on the natural environment and on communities, livelihoods, and personal use of the national forest. The most common response was a concern about reduced maintenance and road closures resulting in limited forest access. For some it meant reduced access to the backcountry and wilderness. The public also was concerned about access to remote locations for emergency services and fire management. Others mentioned access for seniors and special needs populations.

Participants also discussed potential economic impacts to local communities, including tourism and forest products. Others noted the potential for crowding and over-use of accessible roads and trails. Also listed was the potential ecological benefits for fish and wildlife habitat associated with a smaller road system. The ability to access the forest having implications for public support for national forests was also discussed.

Prioritization Criteria

Group members also were asked what criteria they think would be important to consider when deciding how to prioritize roads to maintain at current levels. Meeting participants wanted the MBS to think about not only which roads receive the highest volume of use, but also the roads that support the greatest diversity of human activities. Participants were keen for the MBS to consider how changes in road prioritization might affect local communities, businesses, and access to places used by local residents for gathering forest products for household use (firewood, berries, etc.).

Top Criteria

- Diversity of activities a road may support
- Volume of public use
- Cost to maintain road
- Effect on local industries and residents
- Ecological health
- Potential for connectivity and loops

Other criteria suggested were maintenance costs, ecological factors (protecting habitat), and the potential for roads to be used to create loops and enhance connectivity for both standard and high-clearance vehicles.

Strategies, Ideas & Opportunities

The most commonly mentioned strategy among all of the public engagement sessions involved a volunteer program whereby groups of citizens or organizations could work together to maintain road segments with training and guidance from Forest Service officials. These “adopt-a-road” programs could take many forms and be developed strategically so that connecting segments could be maintained. Others preferred a user-fee format, where individual users pay for road maintenance as part of a pass program and commercial users also pay for maintenance of road segments used.

Some shared a desire to convert roads to trails or to allow roads to remain open at lower maintenance levels for off-highway vehicle and other use. Participants also had an interest in developing a collaborative effort to manage a designated road system near their community to allow local forest access for hunting, fishing, firewood, and other public uses. Finally, many participants urged the agency and partners to look for sources of funding to maintain forest roads at or near current levels.

Top Strategies

- Volunteer brigades for road maintenance (“adopt-a-road” programs)
- Charge fee for forest road use (i.e., Northwest Forest “Road Pass” Program)
- Require commercial users to pay for roads (e.g., timber companies, outfitter-guides)
- Convert roads to trails or reduce maintenance levels
- Develop local collaborative groups to maintain road segments
- Work with partners to search for grants and available transportation funds



Photo courtesy of Friends for Public Use

Online Survey Results

An online questionnaire was provided to engage people who could not attend a community meeting and to allow multiple opportunities for input to the Sustainable Roads planning process. The questionnaire was designed to mirror the public engagement sessions and was active from May to November 2013.

Online Respondents

There were 1,543 actual respondents to the questionnaire, although 1,776 initially logged on. The questionnaire could be accessed by an IP address multiple times. (We estimate 90 duplicates.) Among those who responded, 37 had also attended a community meeting. No data were excluded from this analysis.

The online form elicited information from residents of 20 states. Many respondents were from King County (42 percent) and Snohomish County (22 percent). They were predominantly male (71 percent), with an average age of 51 years and had spent 32 years living in the area. Just 4 percent of respondents officially represented an organization or agency.

Online respondents were experienced with the MBS road system. Nearly 96 percent had driven US Forest Service roads. When asked about frequency of use, 17 percent traveled on FS roads once each week or more. Another 35 percent traveled on FS roads 2-3 times each month. More than 38 percent reported use of forest roads for travel to work or a volunteer site. In addition, 55 percent used forest roads to drive for pleasure. Of those, 10 percent visited at least once weekly.

Priority Forest Destinations and Roads

Questionnaire respondents listed up to eight destinations that were important to them. For each destination, they described the activities they took part in, the importance or value of that destination, the frequency of visitation, and the means of transportation. Next, respondents were asked to identify roads used to get to the destination. A total of 898 respondents identified at least one forest destination and 457 described at least five destinations. Only 170 respondents actually filled in all eight destinations. In total, nearly 4,000 destination entries were entered by 898 individuals, or about 4.4 destinations per respondent.

While the questions were similar to the community meetings, the data cannot be considered equal. With the community meetings, participants linked their worksheet data to places on maps and facilitators helped them to navigate the maps – linking destinations with roads. With the online tool, respondents provided road names or numbers associated with destinations. There were many challenges with this online information. The spatial analysis team could not locate all of the destinations listed due to use of idiosyncratic names or non-specific locations (e.g., “Skykomish River” or “Alpine Lakes Wilderness”) Thus, many “orphan” destinations remained unmapped. In addition, the road names and numbers entered often did not match the destinations they were presumed to access. While these were included in the tally for the density maps, it is not verifiable that the roads named were the actual roads the respondent wished to indicate.

Destination Density

Two maps were created based on analysis of the online data. Map 5-1 shows the top destinations mentioned in the online questionnaire, with the size of the dot indicating the higher density of mentions. A review of the map shows that the high-density destinations (177 or more) tend to be in the Mt. Baker Ranger District. Medium-density destinations (48-177) were found primarily in the Mt. Baker and Darrington Ranger Districts. Destinations mentioned 26-48 times were found throughout forest, but especially in the Skykomish and Snoqualmie Ranger Districts. Also featured on the map are the top destinations mentioned in the public engagement sessions, which may be viewed for comparison. There were many overlaps of the popular areas, including Snoqualmie Pass, Mt. Pilchuck, Schreiber's Meadow, and Sauk Mountain.

Road Density

Map 5-2 shows frequently-mentioned roads from the questionnaire (in red). Roads in blue were mentioned in the community meetings, while purple roads were identified in both. Again, we use caution in making comparisons because of problems with the validity of the online roads data. Many of the same road segments were identified by both groups. It is interesting to note that the community meeting participants identified several longer segments of roads while online questionnaire respondents noted shorter spurs or road segments. Again, this was largely due to the way these data were collected.

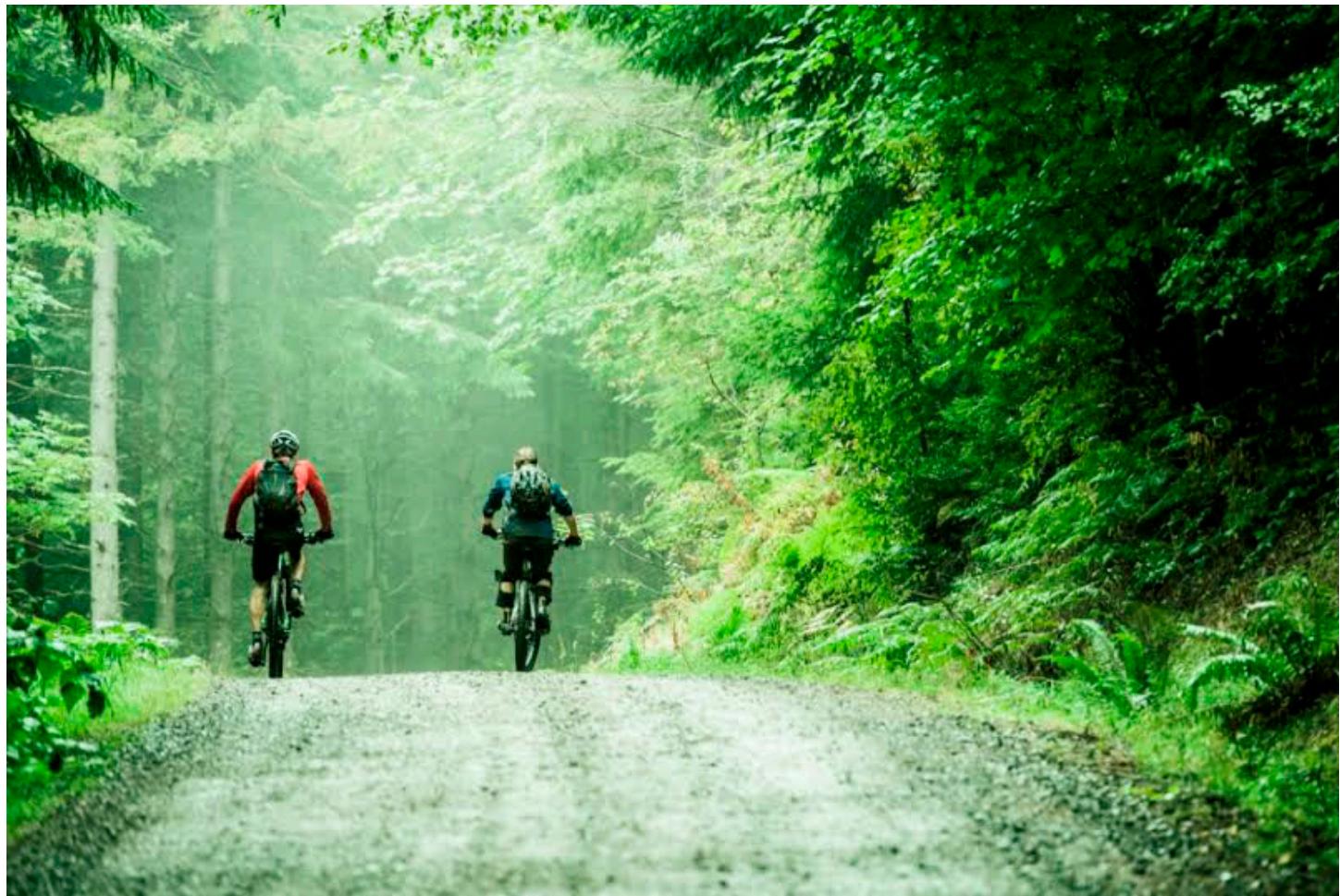
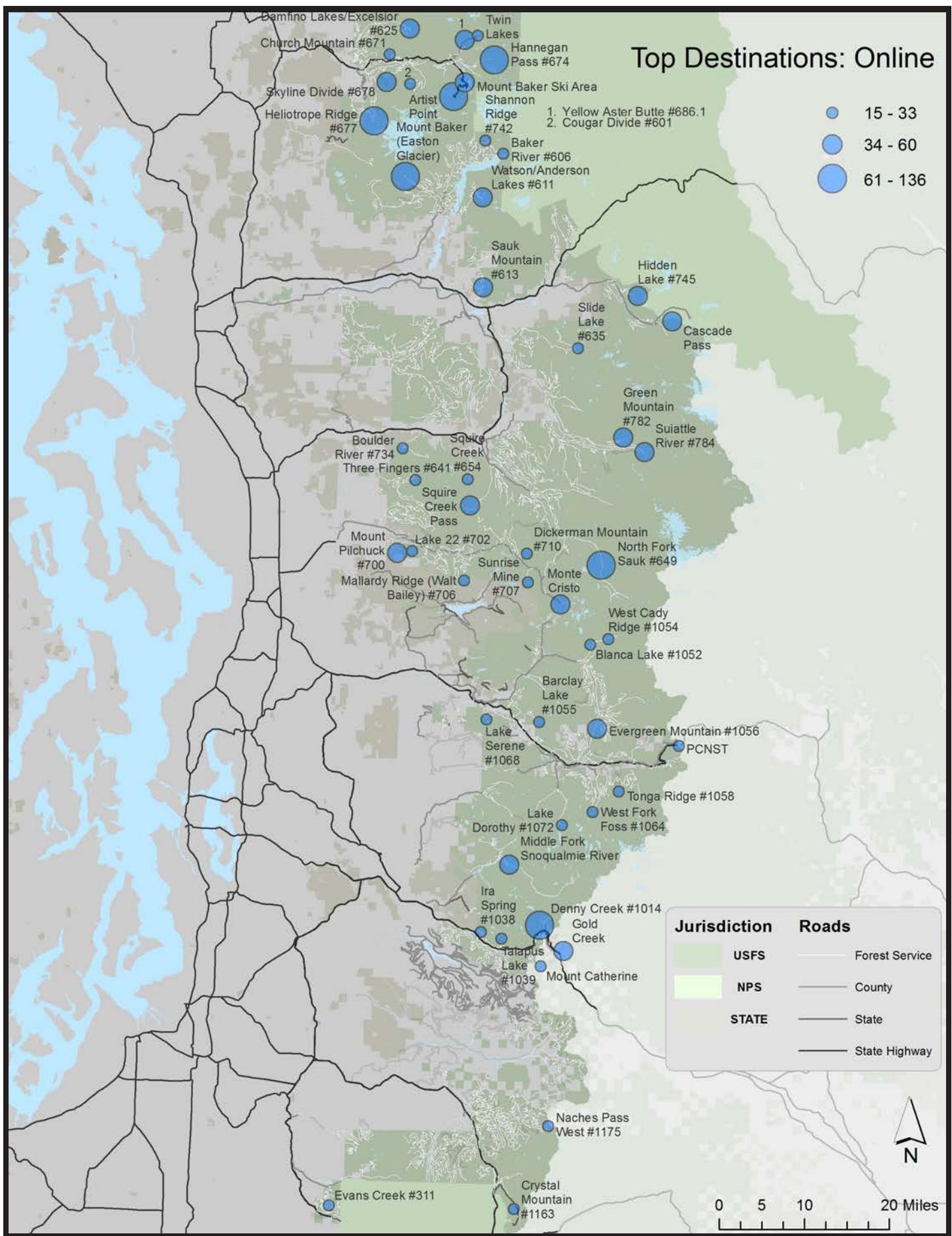
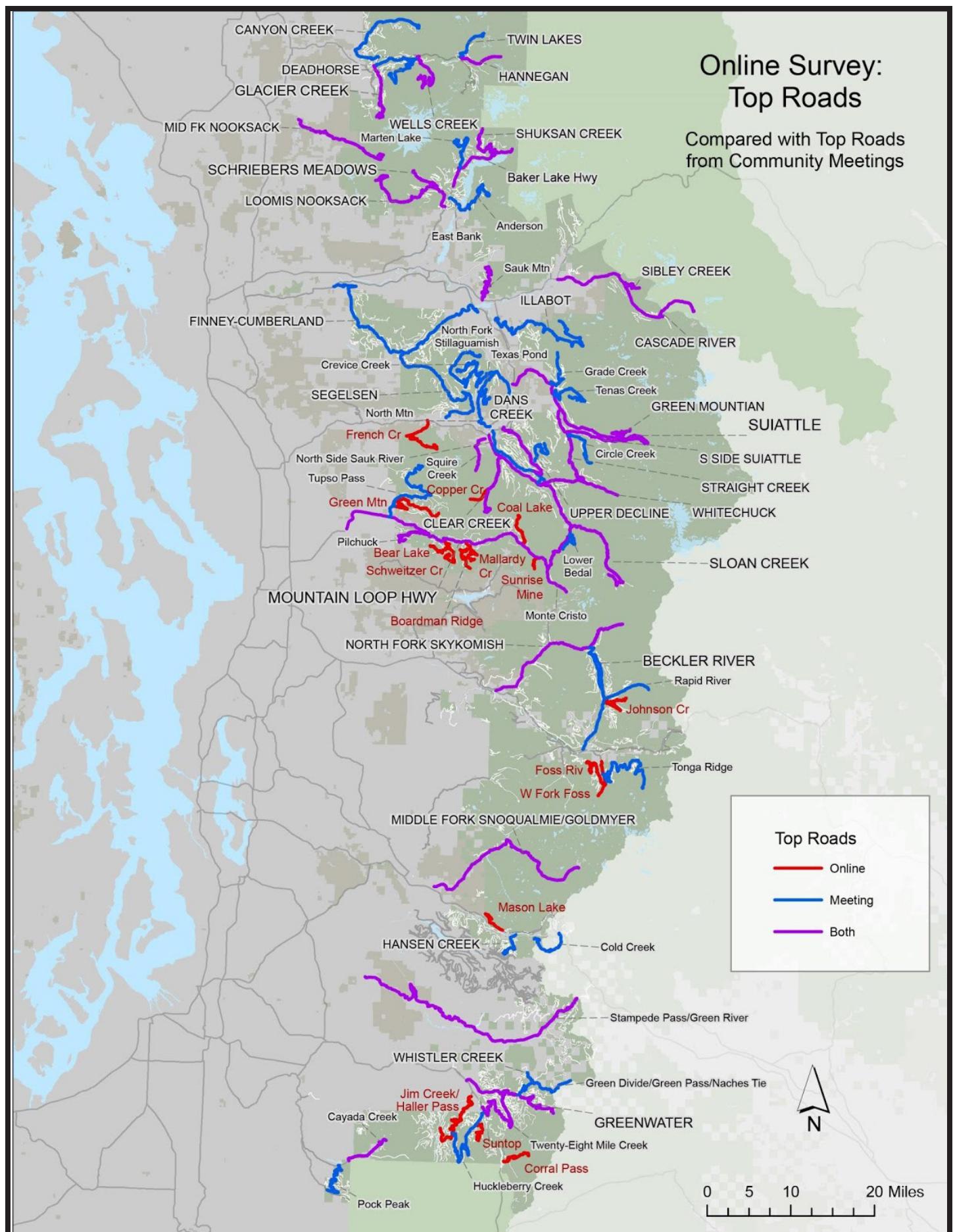


Photo courtesy of Glenn Glover

Map 5-1: Online Survey - Top Destinations



Map 5-2: Online Survey - Top Roads



5 | Conclusion

As this report captures, the Sustainable Roads public engagement process represents a new, innovative approach to involving the public in national forest management issues. The Mt. Baker-Snoqualmie National Forest recognized the unique role of public lands in our quickly urbanizing region, and seized the opportunity to do something different. No other National Forest has taken such an extensive approach to involving the public in the travel analysis process. The MBS is now looking at ways it can employ variations on this approach to other analyses and decision-making processes, realizing the value of engaging the public in different ways and at different points in the planning process.

The Sustainable Road public engagement process affirmed the variety of ways the public uses and values the road systems—from recreational pursuits to simply enjoying the natural environment and the solitude and peace the forest provides. The process also revealed how passionate the public is about access to National Forest lands and day-lighted many concerns about how a reduced road system would impact recreational opportunities and management needs. Finally, one of the most exciting elements of the process was the convening of the Sustainable Roads Cadre—a passionate and committed group of citizens, organizations, and agencies who helped make the planning process possible, and stand ready to help the Forest Service maintain its road system and participate in restoration efforts into the future. One strong lesson from this process is that many stand ready to help.

Moving forward, the Mt. Baker-Snoqualmie National Forest will fold the findings presented in this report into the Sustainable Roads System analysis process. The Sustainable Roads Strategy, which will be complete by the end of 2015, will ultimately provide guidance for how to reduce the road network across the forest based on the rigorous evaluation of these data as well as other studies. Ultimately, the implementation of the Sustainable Roads Strategy will happen through future watershed-based Access and Travel Management Plans.

The Mt. Baker-Snoqualmie National Forest is committed to a future road system that is ecologically sustainable, economically feasible and socially acceptable.

6 | Appendices

A. Sustainable Roads Data Analysis Overview

B. Blog Themes & Selected Comments

C. Problem Roads Identified at Community Meetings

A. Sustainable Roads Data Analysis Overview

Workshop Data

The spatial analysis team at Portland State University entered the worksheet data for the destination and road mapping exercises into an Excel spreadsheet. All data were checked for quality and reliability by an independent reviewer. ArcGIS 10.1 software was used for the spatial analyses.

Summary: Of the 262 participants in the Sustainable Roads workshops, 252 provided useable data for destinations and 246 provided useable data for roads. The dataset used in the spatial analysis contained a total of 1,733 records for destinations and a total of 1,609 records for roads. The number of distinct destinations and roads mapped is smaller, because they were mapped by multiple participants.

Activities: The activities associated with each destination were grouped into eight categories: camping/relaxation, collecting/harvesting, hiking, motorized recreation, observation, sociocultural, strenuous recreation, and winter recreation. Most listed no more than two activities per location; some listed up to six different activities.

Values: The description of why a participant visited a particular location was classified by the study team as one of eight values: recreation, access/proximity, aesthetic, nature/wilderness, sociocultural, subsistence, serenity/solitude, and economic/work.

Sub-regional Analysis: Participants were grouped into six residential areas by zip-code: Whatcom, Mountain Loop, Highway 2, Everett-Skagit, North/East King, and Pierce/South King.

Destination Density: A “kernel density” calculation was used to show the concentration of destination points. The kernel density analysis results in a map that shows how densely destinations are spread out over an area. The higher the density, the more times the location was mapped. Destinations were weighted based on the frequency of use marked on the worksheets. Destinations used “several times a week” or “several times a month” were given a weight of 2; those used “several times a year” or “about once or twice a year or less” were given a weight of 1. Each kernel density calculation is symbolized with the same color palette ranging from least to greatest density, regardless of the absolute value of that density.

Roads Analysis: Mapped data was created from a roads dataset provided by the Mt. Baker- Snoqualmie National Forest. The routes in the dataset were converted to distinct ‘lines’ that were broken at every intersection. Since the lines marked on the maps did not always begin or end at intersections, the digitized lines were broken at the beginning and ending vertices for analysis. Segments of state and federal highways (SR 542, 20, 2, I-5) were removed from the dataset prior to analysis. Marked county roads were retained for analysis to provide context for routes taken to certain popular destinations (e.g., Cascade River Road).

Road Density: The road segments were combined using the dissolve function to calculate the number of overlapping segments. This number is the road density value, with more overlaps yielding a higher density. This density calculation was performed on all data. Data on the maps are classified using the same value ranges for each dataset so that the same values in each subset are represented by the same colors on each map. That means that each map may not show the full range of colors if there were not a large number of overlaps for the dataset being mapped. The highest number of overlaps for a road segment was 104.

Qualitative Analysis: Table participants provided responses to the questions posed by table facilitators. Each table gathered this information and the facilitator summarized results on flip-charts. The analysis team transcribed each flip chart and combined responses from all eight workshops. The responses were coded, tallied, and summarized by the study team.

For a complete description of analytical techniques utilized for this study, please refer to the final report prepared by Portland State University: mbssustainableroads.files.wordpress.com/2013/05/mbs-psu-report-053114-final-revision.pdf.

B. Blog Themes & Selected Comments

The Sustainable Roads website (mbssustainableroads.com) was blog-based to increase the number of opportunities for visitors of the Mt. Baker-Snoqualmie National Forest to provide their thoughts on the forest roads system. From May through November 2013 questions were regularly asked including:

- If you could fast forward 20 years, what would you see when visiting the Mt. Baker-Snoqualmie National Forest? What is your vision for the future?
- What are your favorite places to visit on the national forest?
- How do you use forest roads? We're also curious how you access them — by passenger vehicle? 4x4s and jeeps?

More than 130 comments were logged during the 7-month timespan. The following are themes identified from the comments posted in response to the questions listed above and a few additional comments left on other blogs such as community meeting reminders.

Accessing Public Lands

While the way people want to access the Mt. Baker-Snoqualmie National Forest spans the spectrum of responses, there was agreement among the majority of commenters that having access to our public lands is important, especially to access lands for recreation, tourism and timber harvest.

A number of commenters would like to keep all roads open, while a similar number of commenters want to see unused roads be decommissioned or left closed for nature to take over. Some commenters want to see a balanced road system and are okay with a reduced road system, while others believe that public lands should be accessible for everyone and all roads should be left open for use.

Some people would find it acceptable to close roads to trailheads and believe that a longer hike only improves the experience, while others want access retained for a diverse number of people, including people who have limited mobility and feel that closing roads and creating longer trails negatively impacts ease of access.

Select Representative Overall Comments

"I think the Ice Caves trail is a good model for a well-maintained trail accessible from a paved road with good parking and restroom facilities at the trailhead. I'm perfectly OK with decommissioning 75% of the unpaved roads and letting large areas revert to wilderness for the benefit of wildlife."

"I see the existing access remaining and improving some of the rustic amenities that are present. Maintaining near-free easy access is a vital part of the way of life for locals and visitors to Mt. Baker Snoqualmie Forest."

"Preserve the road access to all established recreation sites. Make sure that all unauthorized recreation sites either become sanctioned or are blocked off for access. Stop funding and maintaining roads used for logging purposes as this should be paid for by the logging company, not the tax payer. Decommission any roads that do not contribute to recreation, habitat restoration, or active and future logging uses."

"I see it as unnecessary for the Forest service to close a great deal of roads leading to hiking destinations due to the amount of already closed or not maintained roads and due hiking destinations with 2 or more access roads that could afford to lose at least one of these roads."

Closing and Decommissioning Roads

As noted above, there is little consensus around road decommissioning. A number of commenters do not want to see road decommissioning on the Mt. Baker-Snoqualmie National Forest:

"My opinion? If multiple use of our forests is the goal, then we need to keep all the roads open. How can there be multiple use if there is limited access. Budget the money, spread out the users, keep the roads open."

A few commenters expressed concern with closing and/or decommissioning roads when it comes to maintaining access for wildfire suppression and search and rescue operations:

"Closing roads into areas only makes it harder for Search and Rescue and puts the lives of not only rescuers but the subject as well."

Others felt that closing and decommissioning roads limited user groups to a confined area and were concerned with potential negative impacts to the land:

"I drove up to the end of Illabot creek road for years after the forest service quit maintaining past the slide lake trail. Upper Falls lake had the best fishing and little people traffic, we need more roads open to spread the hikers out. There is no use visiting the forest if the entire city will be there!"

Yet others felt that decommissioning is a reality that must be faced:

"We need to make tough choices. This can't be an all or nothing thing. The days of the timber highways and giveaways to build the roads are over. Places like Darrington and Skykomish need critical core forest and even community access roads restored. But total road miles must be reduced – from an ecological and financial reality standpoint."

Some thought that if roads are slated to be closed or decommissioned, the Forest Service should consider road-to-trail conversions and/or make the roads closed to motor vehicles, but allow off-road vehicles (ORVs) and utility terrain vehicles (UTV) to use the roads:

"Leave all roads that are to be decommissioned open to ALL ORV type of recreation. I'm disabled and this is how I like to spend my time riding my UTV."

"Turning more roads into trails (i.e. stabilizing them hydrologically and preventing vehicle access) will spread the hikers out far better than increasing road miles! Many of the roads we now drive would make excellent trails—or new trails could be constructed from trunk roads to connect to current trailheads that are on roads in need of closure, for far less money than it costs to maintain an unstable road."

While a few commenters mentioned that the cost of maintaining trails is equally difficult:

"If you turn roads into trails they will still require funding for maintenance. Not only are roads budget being cut so are the trails. Roads do not make good trails because they are constructed differently."

Paying for the Maintenance of Roads

Blog commenters had a lot to say around the topic of how and who should pay for road maintenance. Many commenters felt that sustainable timber harvesting could and should help provide funds for road maintenance:

"Sustainable timber management and harvesting occurs in second growth to support communities and pay for roads and trails maintenance as Congress intended (1913). Abundant opportunities for public recreation and enjoyment of the national forests co-exist with good economic opportunities, provision of essential wood supplies and well funded rural schools and county services. A diverse and resilient landscape brought about by proper forest management provides for more and diverse wildlife."

Others voiced support for paying a toll or fee to keep roads maintained:

"As a somewhat disabled older person I rely on the roads to get me places I could not hike to. I can hike a short way but I would never get out of the flat lands if I could not drive to higher points...The Alpine lakes is such a great place, everyone should be able to enjoy at least a little piece of it, even if they are disabled. Why should only the fit be able to access? I would even pay a toll if I had to, to maintain the road."

A few commenters suggested that increasing seasonal road closures might help reduce maintenance costs:

"Some seasonal road closures would allow for hiking roads when high country is under snow and save wear and tear on wet road surfacing. Wise use, not single use."

Stewardship of Public Lands and Roads

The idea of using volunteer road maintenance was expressed by a number of commenters.

"For the Darrington District a lot of road work is done by FFPU [Friends For Public Use] volunteers helping to stretch the budget. Instead of closing our public access I would suggest we encourage more volunteer partnership contributions with the USFS."

"There will be a stronger sense of partnership with the Forest Service, tribes and the public all working toward road stewardship and there will be an expanding network of volunteers working with all government agencies to keep roads healthy, maintained and clean."

Activities Done on the Mt. Baker-Snoqualmie National Forest

There were a number of activities that commenters reported taking part in on the MBS including:

- Hiking
- Biking
- Camping
- Hunting
- Jeeping
- Walking
- Volunteerism
- Motor biking
- Sightseeing by car
- Climbing (rock and mountaineering)
- Spending time with family
- Mushroom and firewood gathering
- Skiing

Appendix C. Problem Roads Identified at Public Meetings

The following are verbatim comments identified at community meetings during the public engagement process.

USFS Road	Describe Situation or Problem	Location
Pinnacle Lake Rd	Road thinned out near parking.	Mountain Loop
USFS 4110 road	Wash out at creek.	
Rd. 23	Washed out / closed. No access. Workable tread – not maintained. [NOTE: This is a decommissioned road.]	Darrington
FS 4832, bridge	High-use bridge past life expectancy.	
FS 2060	Potholes, aging culverts, lack of rock surfacing.	
FS 1855	Very steep segment after 1835-013, eroded, washboard.	
FS 49 (N Fk Sauk)	Avalanche chutes. Slide, rock in road and eroding culverts.	Darrington
FS 6514	Boulders in road.	
FS 7174	Dirt and pot holes.	
SR 165 (Mowich)	Lake Mowich, washboard, dirt road.	Pierce/S. King
6530 (N Fk Sky, West Cady trailhead)	Quartz Creek Trailhead Road.	Skykomish
4020	Brush & trees growing on cedar log stringer bridge / culverts plugged.	
41 (Green Mtn Road to 3 Fingers)	Log jam upstream of South Fork Canyon Creek bridge.	Mountain Loop
1260	Bridge over S Fork Nooksack not drivable.	Everett/Skagit
3085 (Twin Lakes Rd to Tomyhoi Lake trailhead)	General poor maintenance, very large potholes.	Whatcom
12 Extension	Brand new bridge over Bell Creek but gate closed. Adds 2+ miles to Hike Bell Pass Trail. Open it!!	Whatcom
3085	Twin Lakes Road needs to be maintained. Whose responsibility: private, county, Forest Service?	Whatcom
31 (Canyon Creek)	Canyon Creek Road offers access to multiple trail heads - often closed.	Whatcom
34	Nooksack Cirque Rd. Close and move trailhead to Goat Mt. Trailhead.	NF Nooksack
33	Wells Creek Road should be closed. Seldom used.	NF Nooksack
	Anderson Road near Silver Fir. CLOSE. Seldom used.	NF Nooksack
23	Downslope edge of road eroding, high exposure.	Wells Creek Road 33
65-63	Beckler River Road over Jack Pass to Cady Trailhead needs leveling badly.	Skykomish
41 (Green Mountain Rd to Three Fingers)	Prone to washouts, huge water-quality liability, should be closed and fully decommissioned.	Mountain Loop

