

Master Plan

LAKE COUNTY MOUNTAIN BIKE TRAIL SYSTEM
LAKE COUNTY, MINNESOTA

COMPLETED JUNE 2016



Prepared for



Prepared by



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Lake County Mountain Bike Trail System Master Plan

LAKE COUNTY, MINNESOTA

2016



Prepared by

Arrowhead Regional Development Commission

221 West 1st Street

Duluth, Minnesota 55802



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ACKNOWLEDGEMENTS

The trail and master planning process was made possible through time and energy dedicated by members of the Lake County Mountain Bike Trail System Steering Committee.

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The planning process was also made possible through the following sponsor:



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SECTION 1: INTRODUCTION AND PLANNING CONTEXT

Background

In 2013, Lake County worked with the Arrowhead Regional Development Commission (ARDC) to complete a county-wide comprehensive trails plan, which addressed the potential for mountain bike trails in addition to existing ATV trails, hiking trails, cross-country ski trails, and more. Out of the Lake County Comprehensive Trails Plan, five areas were identified for potential mountain bike trails. Mainly utilizing the Lake Superior ridgeline in the southern half of Lake County, areas for mountain bike trail development include sites known as Split Rock Wilds, Alger North, Alger South, Demonstration Forest, and Reeves Road.

In 2016, Lake County consulted with ARDC to launch efforts specifically aimed at outlining the future of mountain bike facilities throughout the County. The desire to outline a master plan was conceived out of a public interest to seek funds that can aid in developing the trail system.



View of Lake Superior from
Proposed Split Rock Wilds Area

Trail System Overview

The Lake County Mountain Bike Trail System is a planned 100+ mile purpose-built mountain bike trail system connecting users of all ages and abilities to nature and physical activity in Minnesota. With five areas identified as having high potential for “destination” mountain bike trails throughout southern Lake County, over 165,000 acres of County-managed land offers an opportunity to create a public trail system geared toward unique recreational opportunities in all types of mountain biking, bikepacking, fat-biking, and more. Premier access from municipalities to other significant trail systems (i.e. Gitchi-Gami State Trail) and parks (i.e. Split Rock Lighthouse State Park) contributes to the high-quality, well-connected nature of this proposed system.

Because of the terrain, scenic views and access in the five identified areas, each site contains hundreds, if not thousands, of acres that will enable world-class, purpose-built mountain bike trails. The desired length of trails for one area would range between 10 and 50 miles, with a goal of over 25 miles to be considered a true “destination” trail at each site. Combined with trail building methods and programming (i.e. race events, youth programming, etc.) that enable riders of all ages, abilities, and styles to learn and enjoy recreation through the facilities, Lake County’s mountain bike trail system is envisioned to be noted for its international draw while filling a gap in current trail systems in Northeastern Minnesota and contributing to a strong North Shore tourism economy.



View of Split Rock Lighthouse and Lake Superior from Superior Hiking Trail near Proposed Mountain Bike Area

Classification and Regional Significance

As a high quality recreational trail system that complements regional bike facilities and offers greater opportunity for recreational connectivity, the Lake County Mountain Bike Trail System aligns with the *Regional Trail (Non-motorized) Classification* as defined in the *Greater Minnesota Regional Parks and Trails Strategic Plan*. This classification focuses on “providing high quality non-motorized recreational trail experiences that are readily accessible from an already populated or rapidly growing regional center or tourist destination,” with special priority given to trails located within a greenway, open space, park, parkway, or designated trail corridor separated from vehicular traffic. Spanning scenic natural features, the Lake County Mountain Bike Trail System will be visited by a growing potential user group and serves as a significant tourism attraction along Minnesota’s North Shore of Lake Superior.

The trail system matches up well against the criteria associated with the *Regional Trail (Non-motorized) Classification*, as the following pages summarize.

- **Criteria #1 – Provides a High-Quality “Destination” Trail Experience** – Places a priority on trails located in a highly scenic setting and exhibiting interesting natural, cultural, and/or historic features. Trail serves as a destination unto itself, attracting regional users and (potentially) drawing tourists from outside the regional area.
- **Criteria #2 – Well-located (i.e., Convenience of Access/Adequate Length) to Serve Regional Population and/or Tourist Destination** – Places a priority on trails located close to a populated, rapidly growing, and/or an established regional center or tourist destination.
- **Criteria #3 – Enhances Connectivity to Regional Destinations** – Places a priority on making connections within a region, with an emphasis on completing missing links in established systems and enhancing use of the trail for commuting. Rating scale emphasizes the robustness of connections (more the better).
- **Criteria #4 – Fills a Gap in Recreational Opportunity within a Region** – Places a priority on regions that are lacking in regional-level trails.

Criteria #1 – Provides a High-Quality “Destination” Trail Experience

The five mountain bike trail development areas in Lake County were identified specifically for their potential in hosting a high-quality “destination” trail experience for mountain bikers. Set on the forested ridgeline above Lake Superior, many of the areas provide spectacular panoramic views of Lake Superior. An 850-foot lake-to-ridge elevation also contributes a varied terrain (including bedrock, rock outcrops, streams, etc.) that can provide a range of trail types accommodating everyone from beginners to advanced riders. Also featuring remnants of the region’s industrial past (i.e. logging) on some sites, strong ties to regional culture and history add to geological features, solidifying the area as a fascinating future recreation destination.

High-quality trail facilities will also help solidify the area’s potential. While accessible through roads and parking, most of the trails will be away from roads and designed to provide a wilderness-type experience. The trails will be built using sustainable designs that are ride-able by a wide variety of skill levels. Beginner-style trails will provide those new to mountain biking a place to learn and practice, while more advanced trails, looping off beginner trails, will draw mountain bikers from across the country and allow local residents a chance to develop their skills. These trails could also be utilized in the winter for fat-biking, a growing activity across the region.

Filling a gap between two current mountain bike systems in Duluth and Grand Marais, the Lake County system would also be contributing to a larger regional recreational network. However, with its size and quality facilities, the purpose-built singletrack trails in Lake County alone will become a primary destination within this larger system.



View of Lake Superior from
Lake Superior Ridgeline

Criteria #2 – Well-located (i.e., Convenience of Access/Adequate Length) to Serve Regional Population and/or Tourist Destination

Situated near population centers in Lake County (i.e. Two Harbors and Beaver Bay), within 30 miles of the City of Duluth, and close to or directly adjacent to regionally significant recreational facilities in state parks and trails, the areas identified for mountain bike development in Lake County are well-located to serve local and regional residents, as well as tourists, on the North Shore. Currently, local residents in Two Harbors, Silver Bay, and Beaver Bay comprise more than half the County's population. In addition, one of the development sites (Split Rock Wilds, 50 miles planned trails) abuts Split Rock Lighthouse State Park. Undoubtedly the primary recreational attractions in the County, Gooseberry Falls, Tettegouche, and Split Rock Lighthouse State Parks are among the top five most-visited of the 67 state parks in Minnesota, accounting for a total of about 1.6 million visits in 2015. In addition to camping facilities at these three state parks, Two Harbors and Silver Bay provide tourists with amenities, such as lodging and dining. Related to mountain biking, a bike shop opened in Two Harbors in 2016 and will also provide necessary supplies to bikers.

Close proximity to population centers and tourist attractions and amenities will enable trail users convenient access to a world-class mountain bike trail system planned to exceed 100 miles by its completion.



Existing Superior Hiking
Trail Wayfinding Sign

Criteria #3 – Enhances Connectivity to Regional Destinations

Lake County's regional destinations include three state parks (Gooseberry, Split Rock Lighthouse, and Tettegouche State Parks), one state trail (Gitchi-Gami State Trail), numerous hiking trails, and more. The Lake County Mountain Bike Trail System will aid in the connection of these facilities. For example, two of the mountain bike development areas, Split Rock Wilds and the Lake County Demonstration Forest, are directly linked to existing recreational facilities. First, the Split Rock Wilds area is laced with the Superior Hiking Trail and is directly adjacent the Gitchi-Gami State Trail and Split Rock Lighthouse State Park, which has opened up trails for winter fat-biking. The Lake County Demonstration Forest area is also laced with hiking trails, including the Superior Hiking Trail, and hosts land that is developable for mountain biking. It should also be noted that one feature of the proposed mountain bike trail system is the Lake County Traverse, which will enable regional connectivity as a multi-use corridor that will provide excellent "two-track" off-road access to dedicated mountain bike trails.

Trails in Lake County also help to bridge a gap between current Duluth and Cook County mountain bike trails. Right now, the drive from Duluth to Tofte (location of the closest system) takes over an hour and a half. With trail opportunities between these systems, tourists will be more likely to stay in the region longer and be drawn to another area with many high quality riding opportunities. Lake County's added trails would help make the region a world-class mountain bike destination.



Gitchi-Gami State Trail near Proposed
Mountain Bike Trail Connection

Criteria #4 – Fills a Gap in Recreational Opportunity within a Region

In the context of the Northeast Region of Minnesota, there is a definite gap of mountain bike facilities in the Lake County area. As mentioned above, Duluth, 30+ miles away, and Tofte, also 30+ miles away, are the closest mountain bike trails. This is critical for two reasons. First, local residents have to travel quite a distance to experience high-quality, purpose-built mountain bike trails; as Lake County was ranked very low, 82 of 87 counties, in the state for health (CountyHealthRankings.org), having trails for local residents to use will provide a place for excellent exercise opportunities as well. Second, hosting trails in Lake County helps further the North Shore as a world-class mountain bike destination. Having several trail options for multiple days of riding is desirable to any trail user, especially mountain bikers. While existing systems offer the opportunity for riding, Lake County trails will provide a unique, sprawling backcountry experience that is not present in neighboring systems.

All in all, Lake County's assets – the vast amount of public land, beautiful scenery, moderate temperatures, well-established tourist amenities, local mountain bike momentum, and a gap in the regional system – are all important ingredients in the creation of a “world-class” mountain bike trail system.



Hiking Trail through Pine Groves in Proposed Mountain Bike Trail Development Area

Regional Significance Statement

The Lake County Mountain Bike Trail System is a planned 100+ mile purpose-built mountain bike trail system utilizing multiple areas of County-owned land located in southern Lake County. Featuring vistas of Lake Superior and within 30 miles of five state parks, other recreational trails, and the City of Duluth, the mountain bike trail system will serve as a high-quality recreation and tourism destination expanding economic opportunity and showcasing recreational opportunities in a backcountry setting.



Panoramic Shot of Railroad Corridor from
Proposed Mountain Bike Development Area

Proposer and Project Supporters

Lake County, the proposer and implementing agency of the Lake County Mountain Bike Trail System, has been in discussions with Cyclists of Gitchee Gumee Shores (COGGS), the Duluth mountain bike club, and Superior Cycling Association (SCA), the Cook County bike club, and representatives from the International Mountain Bicycling Association (IMBA). While no formal action has been taken, all parties agree that coordinating efforts is important. A common understanding is that more area trails makes the region more attractive for cyclists at a national level.



Creek Waterfall near Split Rock
Lighthouse State Park



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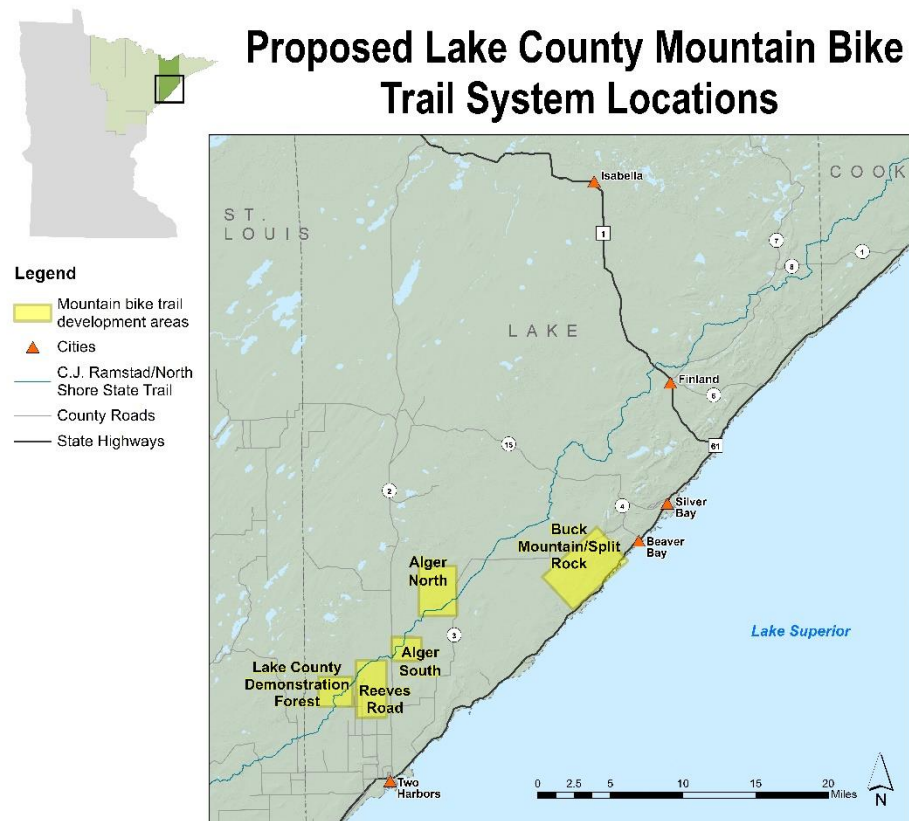
SECTION 2: EXISTING FACILITIES AND VISION

Setting and Regional Context

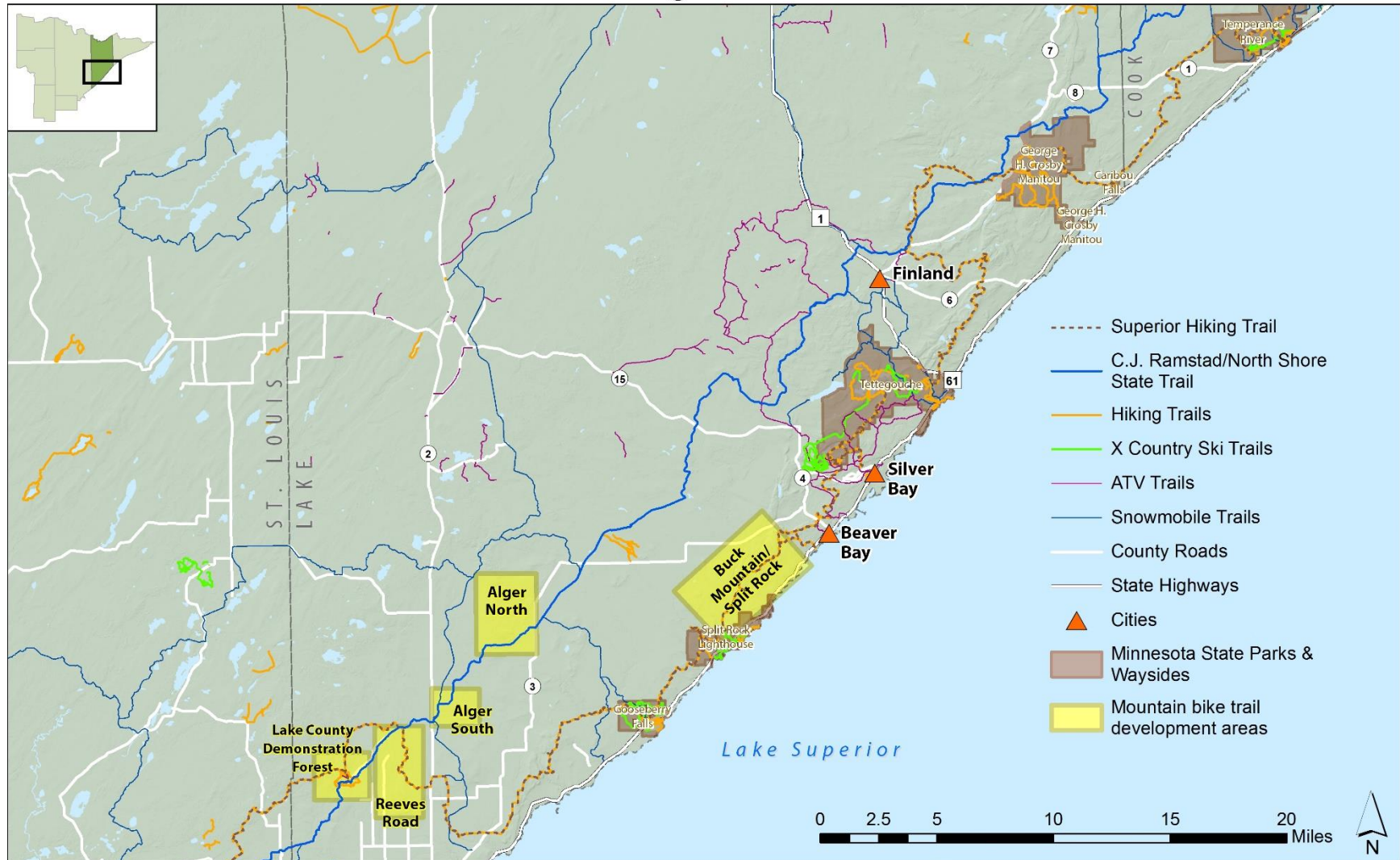
Lake County, Minnesota, is located in the heart of Minnesota's Arrowhead Region, stretching from the North Shore of Lake Superior to the international border with Canada. It is mostly a rural and relatively undeveloped area that features the Superior National Forest, which includes the Boundary Waters Canoe Area Wilderness as well as multiple State Forests, County Forests, three State Parks, and other types of public lands, parks, and facilities. Communities in the County include Two Harbors, Beaver Bay, Silver Bay, Finland, and Isabella. Most of Lake County's residents are located along the Lake Superior shoreline and the ridge that stretches above the Lake. The North Shore Ridge is the focus of this Master Plan.

The North Shore Ridge parallels Lake Superior's shore in Lake County, rising to heights of over 1,500 feet above sea level – 900 feet above Lake Superior. The ridge is generally rugged territory with steep slopes, exposed bedrock, cliffs, talus slopes, and deep forests. This unique and special landscape lends itself well to mountain biking, and its beauty and wildness will make Lake County a true mountain biking destination.

The mountain bike trail system nodes will be near the County's cities of Two Harbors, Beaver Bay, and Silver Bay, providing close access to residents and visitors.



Surrounding Parks & Trails



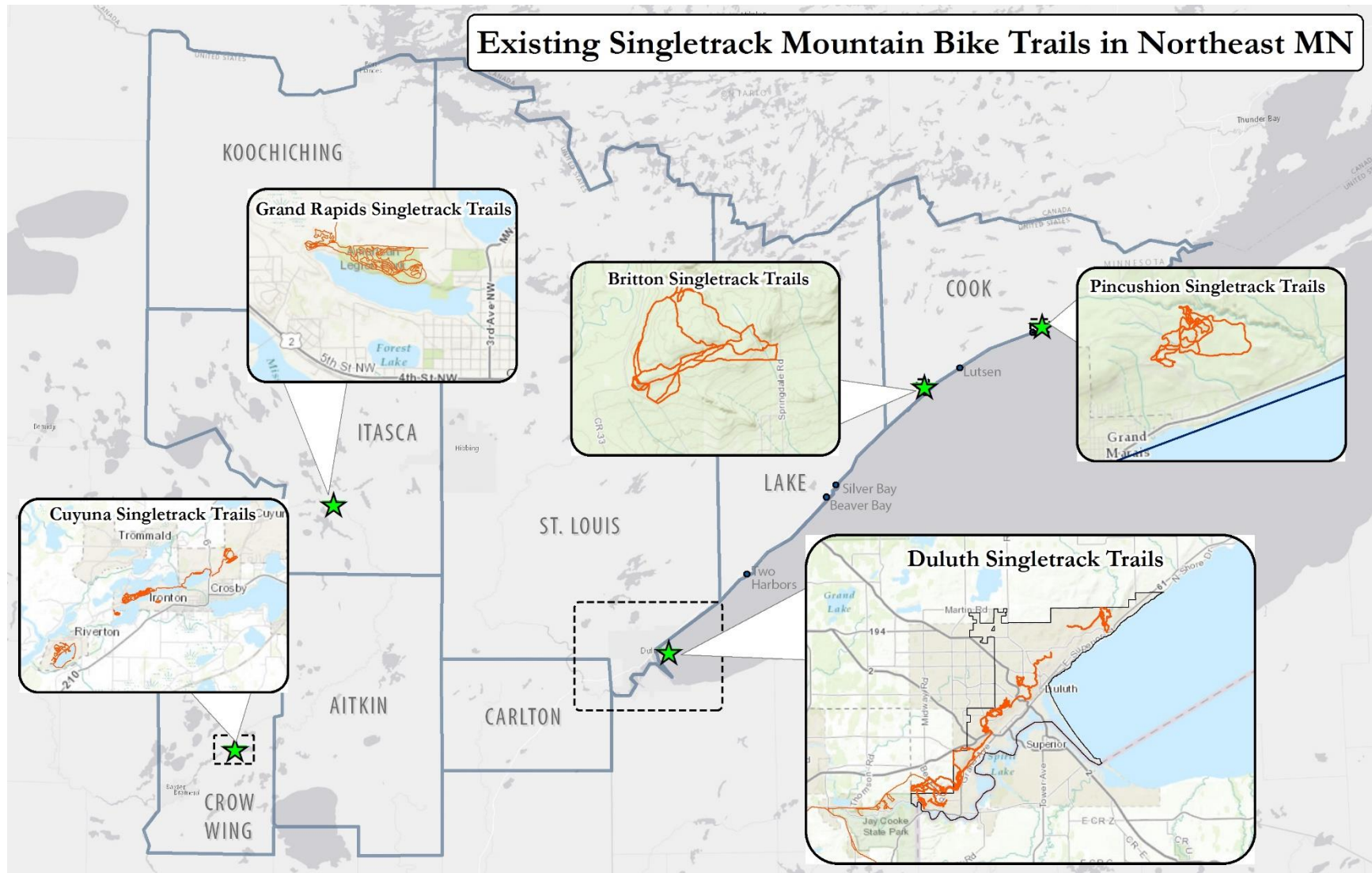
Parks and Trails within 30 Miles of the Future
Lake County Mountain Bike Trail System

Surrounding Parks and Trails

The map on the previous page identifies the trails and parks within 30 miles of the planned location of Lake County mountain bike trails. These facilities, with their proximity to the proposed Lake County Mountain Bike Trail System, are as follows:

- **Split Rock Lighthouse State Park (0 miles)** – This Park will be directly adjacent to the Split Rock Wilds node of the mountain bike trail system. It features the historic lighthouse (managed by the Minnesota Historical Society), 17 miles of different types of trails, and rustic camping. Mountain bikes are co-designated as a use on some of the Park’s trails, which are multi-use and not purpose-built for mountain biking.
- **Superior Hiking Trail (0 miles)** – The SHT, as it is also known, is a 310 mile-long purpose-built hiking facility that spans nearly the entire North Shore, from Jay Cooke State Park to 30 miles north of Hovland, Minnesota, just shy of the Canadian border. The popular trail is cooperatively managed by the Superior Hiking Trail Association and the public and private land owners it crosses. The trail passes through the entire Split Rock Wilds node of the proposed Lake County Mountain Bike Trail System. It is also slated to become a part of the North Country National Scenic Trail, a federally-designated hiking trail system that stretches between North Dakota and New York.
- **CJ Ramstad/North Shore State Trail/Wild Country ATV Trail (0 miles)** – This facility is primarily managed as a multi-use trail that spans from Duluth to Grand Marais. In Lake County primary uses of the trail are snowmobiles and ATVs, but bicycles are an allowed use. This trail passes near or through the Demonstration Forest and Alger Grade nodes of the proposed Lake County system.
- **Gitchi-Gami State Trail (0.25 miles)** – A Minnesota DNR-managed paved trail that connects Gooseberry Falls State Park and the City of Silver Bay, while passing through Split Rock Lighthouse State Park and the City of Beaver Bay, the trail will pass near the Split Rock Wilds node of the Lake County trails system, adding another facility for user connections in that area.
- **Gooseberry Falls State Park (5 miles)** – In addition to the popular waterfalls, this Park features camping, picnic areas, 20 miles of trails, and a large visitor center on its 1,687 acres. Park trails accommodate hiking and cross-country skiing.
- **Tettegouche State Park (7.5 miles)** – This Park spans 9,346 acres and is contains six inland lakes (four of which support northern pike and one supports walleye fishing), four waterfalls, and a beach on Lake Superior. The park contains 22 miles of hiking trails, 12 miles of ski trails, and access to the Superior Hiking Trail.
- **George Crosby Manitou State Park (20 miles)** – This Park spans 6,682 acres and is directly accessible from Highway 61. It features waterfalls, recreational trails, secluded campsites, and opportunities to view wildlife.
- **Temperance River State Park (29 miles)** – This Park spans 5,059 acres and features rushing waterfalls; pine, spruce, cedar and birch forests; connecting trails to Superior National Forest; and multiple recreational opportunities (camping, hiking, picnicking, cross-country skiing, snowmobiling, etc.).

Existing Singletrack Mountain Bike Trails in Northeast MN



Mountain Bike Facilities within the
Northeast Region of Minnesota

Surrounding Mountain Bike Facilities

The map on the previous page identifies facilities surrounding the planned location of the Lake County Mountain Bike Trail System that are designated solely for mountain bike use. These facilities (with their proximities to the proposed Lake County Mountain Bike Trail System) are as follows:

- **Duluth Singletrack Trails (30 miles)** – Collectively known as the Duluth Traverse, mountain bike trails within the City of Duluth create an International Mountain Bicycling Association (IMBA) Gold Level Ride Center that includes facilities at Mission Creek, Hartley Park, Lester Park, Mont du Lac, Piedmont, and Spirit Mountain. Summing nearly 40 miles, these trails accommodate for a wide range of skill levels over a diverse topography, but may include multiple uses in some facilities.
- **Britton Peak Mountain Bike Trails (30 miles)** – Located northwest of Tofte just off the Sawbill Trail, this trail system currently hosts 5.5 miles of singletrack trails. Located on USDA Forest Service land, the facility was started in 2011 by the Sugarbush Trail Association, in partnership with the Superior Cycling Association, the USDA Forest Service, Visit Cook County, and the Town of Tofte. It also currently shares parking facilities with the Superior Hiking Trail.
- **Pincushion Mountain's Mountain Bike Trails (60 miles)** – Sharing access facilities with the Pincushion Mountain ski trail system, this facility is located on the Gunflint Trail just north of Grand Marais and hosts about 10 miles of singletrack trails. The area surrounding Pincushion Mountain is slated for development of a recreation area called “Sawtooth Bluff.”
- **Grand Rapids Mountain Bike Trail System (90 miles)** – Known as the Legion Trail System and located just outside downtown Grand Rapids, this 5.9-mile singletrack trail system incorporates expert bench-cut trails that accommodate for a diverse range of trail riders and abilities.
- **Cuyuna Lakes Mountain Bike Trails (120 miles)** – Located within the Cuyuna Country State Recreational Area and accessible via bike from the cities of Crosby and Ironton, Cuyuna Lakes Mountain Bike Trails is an International Mountain Bicycling Association (IMBA) Silver Level Ride Center consisting of 28 miles of singletrack and 8 miles of doubletrack. Trails include beginner, intermediate, and advanced skill level trails, and one of the trails (Sandhog Mountain) is an IMBA-designated Flow Country Trail.

Site Information

The Lake County Mountain Bike Trail System has five distinct nodes - Split Rock Wilds, Alger North, Alger South, Demonstration Forest, and Reeves Road. All of these sites are predominately owned by Lake County, have landscapes that are conducive to trail building, and will be interesting and scenic for riders. General characteristics at each of these sites are detailed below.

Split Rock Wilds – At about 6,270 acres, this largely Lake County-owned site is the largest node in the proposed Lake County mountain bike system. Split Rock Wilds is the County's first priority for trail development, due to its size, unique steep ridgeline landscape, accessibility from the City of Beaver Bay and Split Rock Lighthouse State Park, and its relatively small value as a timber resource (due to steep terrain and shallow soils). Adjacent to the County land at the Split Rock Wilds site are State of Minnesota-owned parcels, including a full section (660 acres) of land that is part of the State of Minnesota's School Trust, which could be a part of the trail system if agreements are made with State. 15 miles of the Superior Hiking Trail and three Superior Hiking Trail backcountry campsites are located in the area. Split Rock Wilds could be accessed from County Highway 4 near Beaver Bay to the east,

from County Highway 3 to the north, and Split Rock Lighthouse State Park to the South. An initial review of the property shows the potential for at least 43 miles of purpose-built mountain bike trails on the County property alone. It is possible that these trails could directly connect to trails and camping facilities in Split Rock Lighthouse State Park. Another key feature of this location is that it is parallel to the Gitchi-Gami State Trail, a paved, non-motorized trail that will provide additional connections for Split Rock Wilds users, including Gooseberry Falls State Park, the City of Silver Bay, and area businesses (i.e. lodging and restaurants).

Alger North – This location is quite large (about 4,290 acres) and features a significant amount of relatively steep hills with dispersed wetlands. Adjacent to County Highway 3, the site offers easy access from Two Harbors, Beaver Bay, and Gooseberry Falls State Park. Owned by Lake County, the site is crossed by the CJ Ramstad/North Shore State Trail, which could serve as a mountain bike connection between this site and Alger South.

(Cont'd on next page)

Site Information (Cont'd)

Alger South – Located directly off of County Highway 2 about eight miles north of Two Harbors, this site consists of about 1,070 acres. It is nearly all County owned and has some relatively high hills that overlook adjacent wetlands. The CJ Ramstad/North Shore State Trail crosses the site, but no other formal facilities exist as of yet. The site is home to two former gravel pits that could be integrated into the trail system as “skills areas” – small sites that offer designed challenges for mountain bikers, such as jumps. It also hosts a parking lot and outhouse.

Lake County Demonstration Forest – This 480-acre parcel owned by Lake County includes four small hiking loops, 8.1 miles of the Superior Hiking Trail, and two Superior Hiking Trail backcountry campsites. Visitors can take a self-guided tour to 23 points of interest -- from rivers and wildlife openings to the remains of the Pepperlin homestead. The CJ Ramstad/North Shore State Trail (allowing snowmobiles, ATVs, and

mountain bikes) runs through the site, and parts of the hiking trails can be used for skiing in the winter. Lake County’s existing trails on the site allow mountain biking, but they are not purpose-built for cycling. The Demonstration Forest has parking and restrooms. It is located about nine miles from the lodging facilities, restaurants, service businesses, and residences of Two Harbors.

Reeves Road – This primarily Lake County-owned parcel of forest land is located near the Demonstration Forest, about seven miles north of Two Harbors. It is a large parcel – about 2,280 acres. 7.9 miles of the Superior Hiking Trail and two of its backcountry campsites are located on the site, which also features the Silver Creek Valley and generally rolling hills. Traces of former logging roads are evident on the site, yet no other formal trails, parking, or access points exist. The site would be constrained by the CN Railway corridor to its west.

Vision, Trends, and Public Value

Demographic Information: The Northeast Region, as defined within the Northeast Region Profile of Minnesota's Network of Parks and Trails, consists of nine counties: Aitkin, Carlton, Cook, Crow Wing, Itasca, Koochiching, Lake, Pine and St. Louis. As of the 2010 Census, the population density of the Northeast Region (20.2 persons per square mile) is less than that of the state overall (66.6 persons per square mile). Lake County's population density is even considerably less than that of the state and region, with 5.2 persons per square mile.

In general, the population of the Northeast Region is older than that of Minnesota as a whole, and as of 2014 the Northeast Region had a smaller proportion of younger residents (residents under 18 years of age, 19.7%) than Minnesota overall (23.5%). Nineteen percent of Lake County's residents are younger than 18 years of age. According to the 2014 American Community Survey, the median income in the Northeast Region is significantly less than the median household income in Minnesota overall (\$59,836). Lake County has a median income of \$46,850. The following are the top highest income bracket groups in the County:

1. \$50,000 to \$74,999 (17.5% of population)
2. \$35,000 to \$49,999 (15.3% of population)
3. \$15,000 to \$24,999 (13.6% of population)
4. \$75,000 to \$99,999 (12.5% of population)

As of 2014, nine of ten (85.2%) Minnesotans are Caucasian. Similarly, the percentage of Caucasian residents in the Northeast Region is equal to or exceeds overall Minnesota percentages in all nine counties. In Lake County, 97.7% of the total population identify as Caucasian, while the next largest racial groups are people who identify as two or more races (1.3%) and American Indian and Alaska Native (0.5%).

Recreational Trends Information: The Northeast Region of Minnesota serves as home to superior recreational facilities that reflect the natural beauty of the region and the activity of the people who live there. These facilities include a national park, a national monument, two national forests, 22 state parks, and 8 state trails. According to the most recent state-wide recreation participation study conducted in 2005, the recreation activities Northeast Region residents most frequently participate in are walking or hiking, boating, swimming, and driving for pleasure, which parallel state-wide participation figures. This accompanies a host of other recreational activities, including berry-picking and growing interest in all forms of cycling.

The Northeast Region also serves as an important nature-based tourist destination for people across the state, and notably those from the Twin Cities. A 2008 nature-based tourism study indicated the tendencies of the 5.8 million people who visited the Northeast Region from June 2007 to May 2008 (Davidson-Peterson, 2008). This study found that one of three (33%) visitors attended a state or national park, and one of ten (10%) overnight visitors stayed at campgrounds. Two-thirds (66%) of visitors indicated participating in one or more recreation activities, indicating that recreational opportunities and recreational facilities are an important draw for those looking to visit the region.

North Shore communities, specifically those in Lake and Cook Counties, are particularly dependent on recreation tourism in their economies. In Lake County, 30 percent of employed people work in the tourism sector ("Tourism and Minnesota's Economy," 2013). Adding new recreation facilities and keeping up with changes in types of activities desired, such as mountain biking, is critical to Lake County's continued economic success.

Vision, Trends, and Public Value (Cont'd)

Public Health Value: Northeast Minnesota is, as is the rest of the nation, experiencing increased levels of obesity and other health issues related to a lack of exercise (see www.healthynorthland.org). A key component to encouraging people to be more active is to eliminate barriers to non-motorized movements. Providing recreational options that are of high quality and well-connected is one way to eliminate those barriers and encourage active living. Having mountain bike trails in Lake County that are easily accessed from populations centers will serve as encouragement for residents to get out and be more active.

Economic Development/Tourism Opportunities: Mountain biking is a notably growing recreation choice in Minnesota and the Nation, even the world. Northeast Minnesota, in particular, is helping to enhance that choice by creating and maintaining more mountain bike trails. With significant trail systems existing in Crow Wing County (Cuyuna Mountain Bike Trails), Itasca County (Legion Trail System), St. Louis County (Duluth), and Cook County (Britton Peak and Pincushion Mountain), and new systems in development (Cloquet, Chisholm, Grand Rapids), Lake County's mountain bike trail system will be a key cog in what is becoming an international mountain biking destination. Lake County feels that Split Rock Wilds in particular, due to its boreal forest and scenic Lake Superior ridgeline setting, will be the crown jewel of the Northeast Minnesota mountain bike trails.

Studies show that mountain bikers spend an average of \$80 to \$95 per day when traveling to enjoy their sport (Lau, 2014) (2014 Cuyuna Cyclist Survey, 2014). Lake County's existing tourism infrastructure of motels, resorts, restaurants, and other service businesses will benefit from those additional dollars. Business openings and expansions will likely happen as well. Two Harbors is now home to a full service bicycle shop, and bike rental will likely be added to the services that businesses surrounding the trail system will offer. Communities such as Lanesboro, Minnesota, and those surrounding the Little Miami Trail in Ohio have demonstrated this "bicycle economy" possibility ("Economic Benefit," 2015).

The *Economic Impact Of Mountain Bicycle Events In Oregon* states, "We tend to envision mountain bikers as young punks, but most visitors at these events were older adults with disposable incomes, almost three-quarters of the participants had household incomes of \$100,000 or higher, with 30 percent of all visitors with household incomes of more than \$200,000" (McNamee et al., 2013).

The *Jackson Hole Trails Project Economic Impact Study* concluded that the trails in Teton County generated over \$18 million in economic activity in 2010, with \$16 million being generated by non-local trail users. Employment and wages related to trails was \$3.6 million in 2010 (Kaliszewski, 2011).

Vision, Trends, and Public Value *(Cont'd)*

Public Input/Participation: A committee was formed to assist Lake County in developing its vision for a mountain bike trail system. Members of the committee included representatives from the Lake County Board, the International Mountain Bicycling Association (IMBA), the Minnesota Department of Natural Resources, State Parks, area tourism entities, mountain biking enthusiasts, bicycle-related businesses, neighboring bike clubs, and Lake County's cities and townships. The committee met four times between February and June in 2016 to guide the research, mapping, and writing of this document.

This document was made available in draft form for public comment in late May/early June of 2016. Press releases announced that comments were being sought and public input was desired in conjunction with a public open house to introduce the plan and collect public comment. Along with the document and presentation, a pamphlet providing an overview of the proposed system and comment forms were made available for people to learn and provide feedback about the project. Received comments were presented to the committee, and the document was finalized in mid-June 2016.

One important collaborator during the planning process was the Superior Hiking Trail Association (SHTA), which has interest in these mountain bike trail development efforts due to the Superior Hiking Trail lacing through proposed mountain bike trail development areas at the Split Rock Wilds, Demonstration Forest, and Reeves Road sites. In turn, both through this process and into the future, Lake County staff (and any hired consultants) have agreed to work cooperatively on designing and constructing the mountain bike system in cooperation with the SHTA at these sites. Further information on this relationship is outlined in Appendix B: Current Usage of the Lake County-Owned Property above Split Rock, and in the Implementation Plan.

Vision Statement

The vision statement developed by the mountain bike trail committee is as follows:


The Lake County Mountain Bike Trail System will be an international destination that features over 100 miles of purpose-built, user-maintained backcountry mountain bike trails in an interconnected trail cluster network that are used in all seasons by people of all skill levels.

The results of achieving the above vision include:

- Being designated as an International Mountain Bicycling Association (IMBA) Ride Center
- Having new and expanded businesses, including bicycle shops, rentals, lodging, and eateries as well as shuttle services
- Hosting major events and multi-day bicycling festivals
- Participating in a larger northeast Minnesota network of mountain bike trail systems
- Having youth biking programs, including high school mountain biking teams
- Being a key part of a “bike packing” network of routes and campsites
- Being a destination that includes trails that are appropriate for beginners and trails that will challenge the most skilled mountain bicyclists in the world
- Being a winter biking destination



View of Split Rock Lighthouse from Proposed Mountain Bike Development Area



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SECTION 3: MASTER PLAN

Development Master Plan

Development Plan

Development of the Lake County Mountain Bike Trail System includes the creation of 100+ miles of purpose-built mountain bike trails at five different County-owned sites throughout southern Lake County. The primary site, known as Split Rock Wilds, exists adjacent to the Split Rock Lighthouse State Park and is planned to host approximately 50 miles of singletrack trails. Secondary sites, known as Alger North, Alger South, Lake County Demonstration Forest, and Reeves Road, are located southwest of the Split Rock Wilds site and are planned to host approximately 10 miles of singletrack trail each. A doubletrack trail, known as the Lake County Traverse, will connect these five singletrack trail clusters. Trails throughout the system will largely be cross-country mountain bike trails, but a mix of gravity trails, flow trails, boardwalk, and more will be integrated into the system where the land accommodates such elements. In addition, specific trail clusters or loops may be oriented to specific skill levels or uses, with special considerations or features for experts, beginners, wet weather riding, handbikes, or winter fat-biking. Overall, the system will be open for use year-round, maintained in the summer and groomed in selected segments for fat-biking in the winter.

A variety of features will be interspersed throughout this trail system. A significant consideration throughout the system will be accommodations for use by all riders, from novice to professional mountain bikers. Including trails of varying degrees of difficulty that are rated by skill levels, the system will empower all users to advance their abilities by riding the system, no matter their starting point. Accommodations for

hand pedal bicycles may be included as well. Another significant feature will be trailhead facilities. Ranging from rustic with a simple trail map and parking at some trailheads to all-inclusive with trail maps, parking, kiosks, changing rooms, restrooms, picnic facilities, bike racks, and bike repair stations at others, these trailhead facilities will usher users into a notable system. A third feature will be trailside campsites. As the sport of mountain biking has progressed, gear for bikepacking, essentially backpacking on a bike, has enabled mountain bikers to haul camping gear with them while riding a trail system. Potential trail users hope to develop campsites that encourage overnight use of Lake County's expansive system. And finally, signage that creates a sense of Lake County's rugged backcountry mountain bike trails will be found throughout the system. Whether featuring system maps at trailhead kiosks, wayfinding information within the system, difficulty at the head of trail loops, or even interpretation of natural or historical features, these signs will help create an on-site design that is striking and uniquely recognizable as Lake County's system to visitors. In addition, all proposed features will meet regional design and accessibility standards, where applicable.

Acquisition Plan

Developing mountain bike trails in Lake County is directly connected to the availability of County-owned land for use. 95% of the land being considered for development is already owned and maintained by the County. The remaining land includes 640 acres of School Trust Land and small segments in private parcels that could enhance access or, in one case, make a trail connection. Easements or acquisition will be sought for land use, but the trail system is not dependent on use of these parcels.

Trail Features

Split Rock Wilds

As the primary site for Lake County mountain bike trail development with a planned 50 miles of singletrack trail along the ridgeline above Lake Superior, the Split Rock Wilds site could become the crown jewel of mountain biking, not just in Lake County, but in all of northeast Minnesota. This site could be a key component in driving northeast Minnesota to become an international mountain biking destination.

- The site offers:
 - About 6,270 acres providing room for more than 50 miles of purpose built, back country mountain bike trails with a variety of skill levels in a wilderness setting
 - A variety of landscapes, including rocky hills, steep cliffs, stream valleys, dense forests, and sweeping Lake Superior views
 - Good locations for associated trail facilities, including parking, information kiosks, bike repair stations, and possibly even campsites
 - Close proximity to the City of Beaver Bay and its hospitality businesses, trailhead facility, and other services
 - Close proximity to Split Rock Lighthouse State Park and its trails and campsites
 - Close proximity to the Gitchi-Gami State Trail and its connections to Silver Bay and Gooseberry Falls State Park
 - 15 miles of the Superior Hiking Trail and three backcountry Superior Hiking Trail campsites
 - Expansion possibilities to adjacent State-owned parcels
 - Opportunities for some trails to be groomed for winter “Fat-Biking”
 - An opportunity to construct a wider trail that accesses dispersed, rustic campsites for bikepacking and would allow ATV access for emergency responders
 - Flat land providing the opportunity to develop a winter-only fat-biking trail

In turn, the attached map outlines preliminary trail lines, which are subject to change based on the determination of professional trail designers and constructors.

Alger North

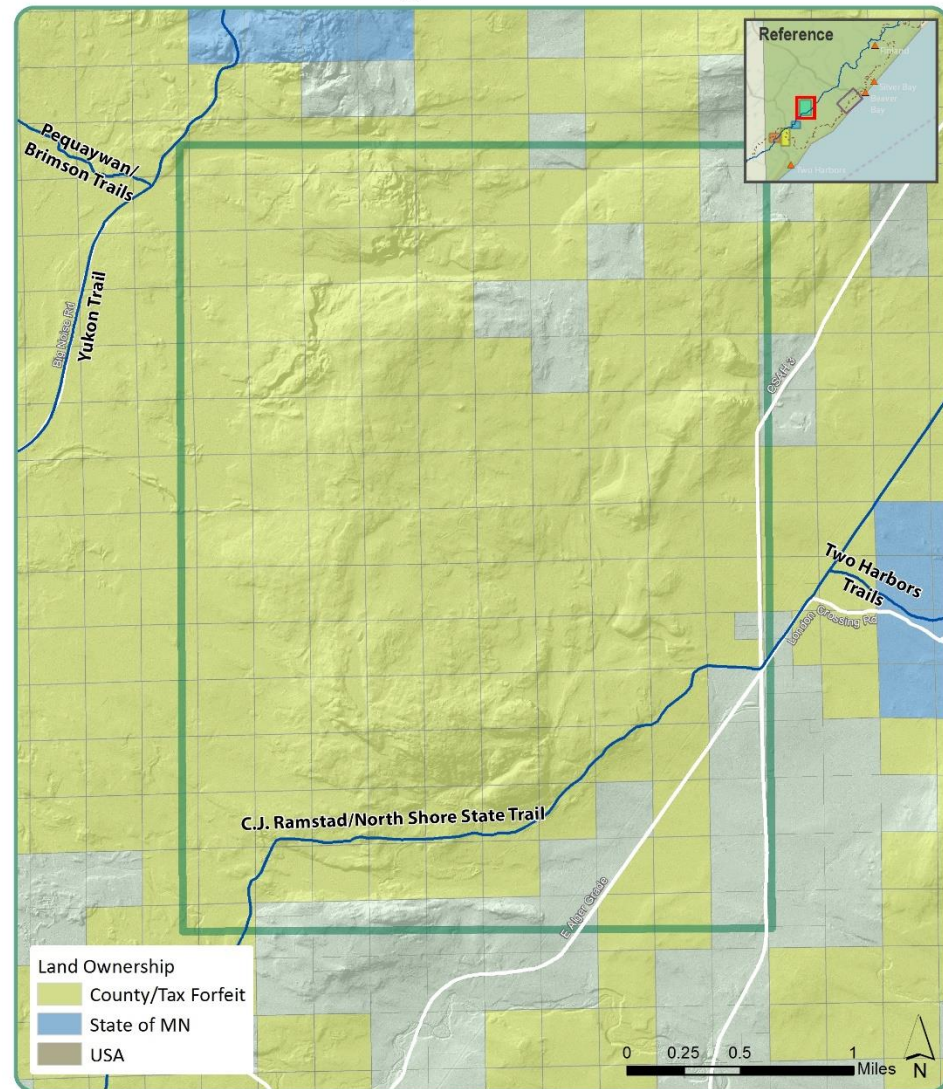
Alger North

Located northwest of Castle Danger (unincorporated community), the Alger North site will tentatively include 10 miles of mountain bike trails and may be oriented toward a specific skill level or use.

The site offers:

- About 4,290 acres with some steeper hills and dispersed wetlands off of County Highway 3
- C.J. Ramstad/North Shore State Trail crosses site – connects to Alger South

The attached map outlines the site, demonstrating the varied topography and potential connection to the Ramstad State Trail.



Alger South

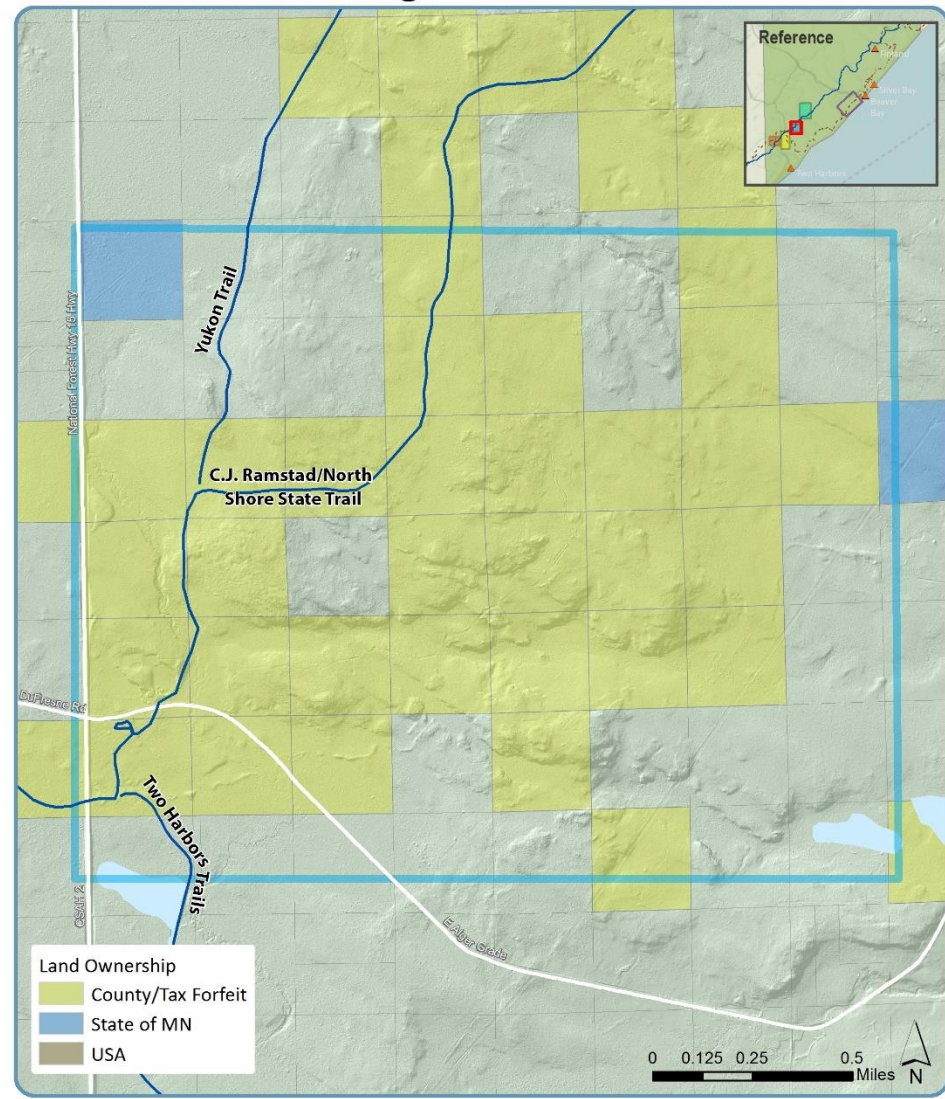
Alger South

Located just northwest of Silver Creek (unincorporated community), the Alger South site will tentatively include 10 miles of mountain bike trails and may be oriented toward a specific skill level or use.

This site offers:

- About 1,070 acres off the Alger Grade near Highway 2
- C.J. Ramstad/North Shore State Trail crosses site
- Hills and small wetlands
- Gravel pits that could potentially be utilized for a mountain bike skills park

The attached map outlines the site, demonstrating the County-owned land for use.



Lake County Demonstration Forest

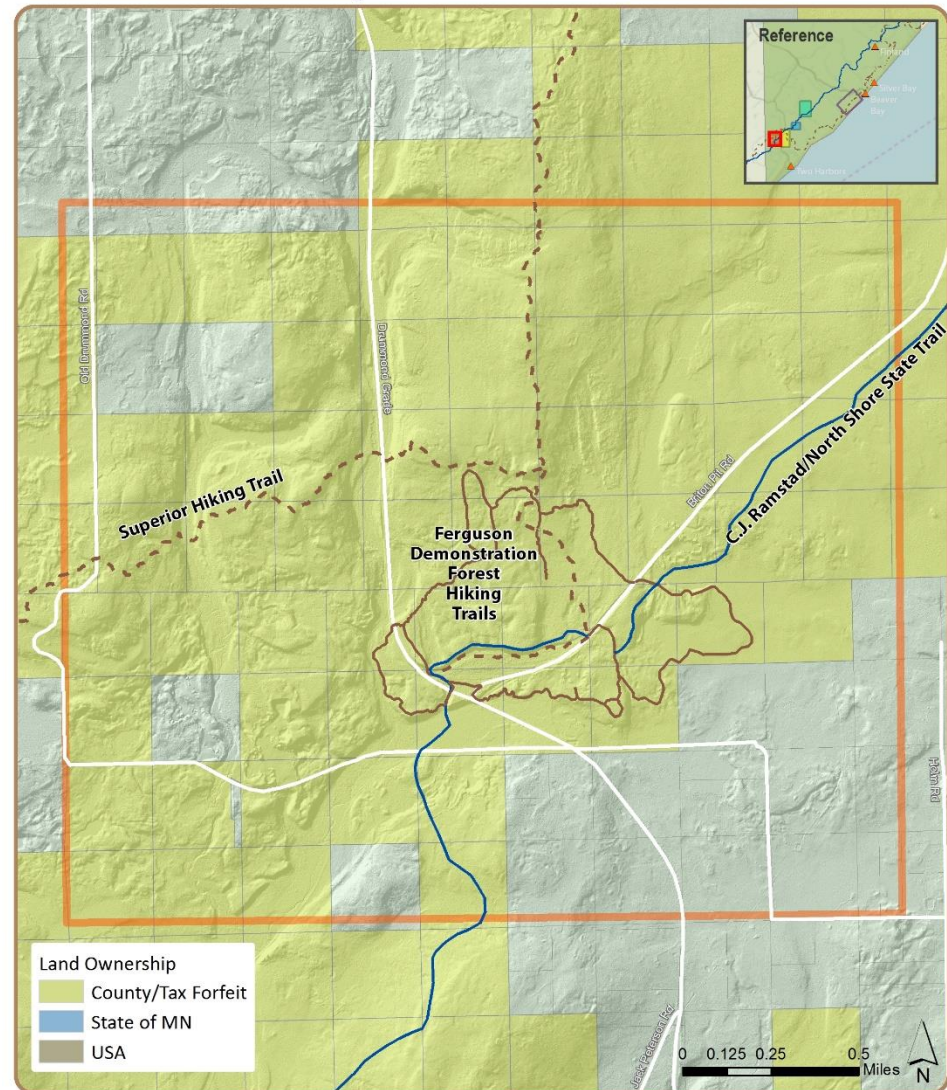
Lake County Demonstration Forest

Located northwest of the City of Two Harbors, the Lake County Demonstration Forest site will tentatively include 10 miles of mountain bike trails and may be oriented toward a specific skill level or use.

This site offers:

- 480 acres that currently are home to four hiking trail loops, 8.1 miles of the Superior Hiking Trail, two Superior Hiking Trail backcountry campsites, parking and restrooms
- Potential for interesting forest interpretation

The attached map outlines the site, demonstrating the County-owned land for use and potential trail connections.



Reeves Road

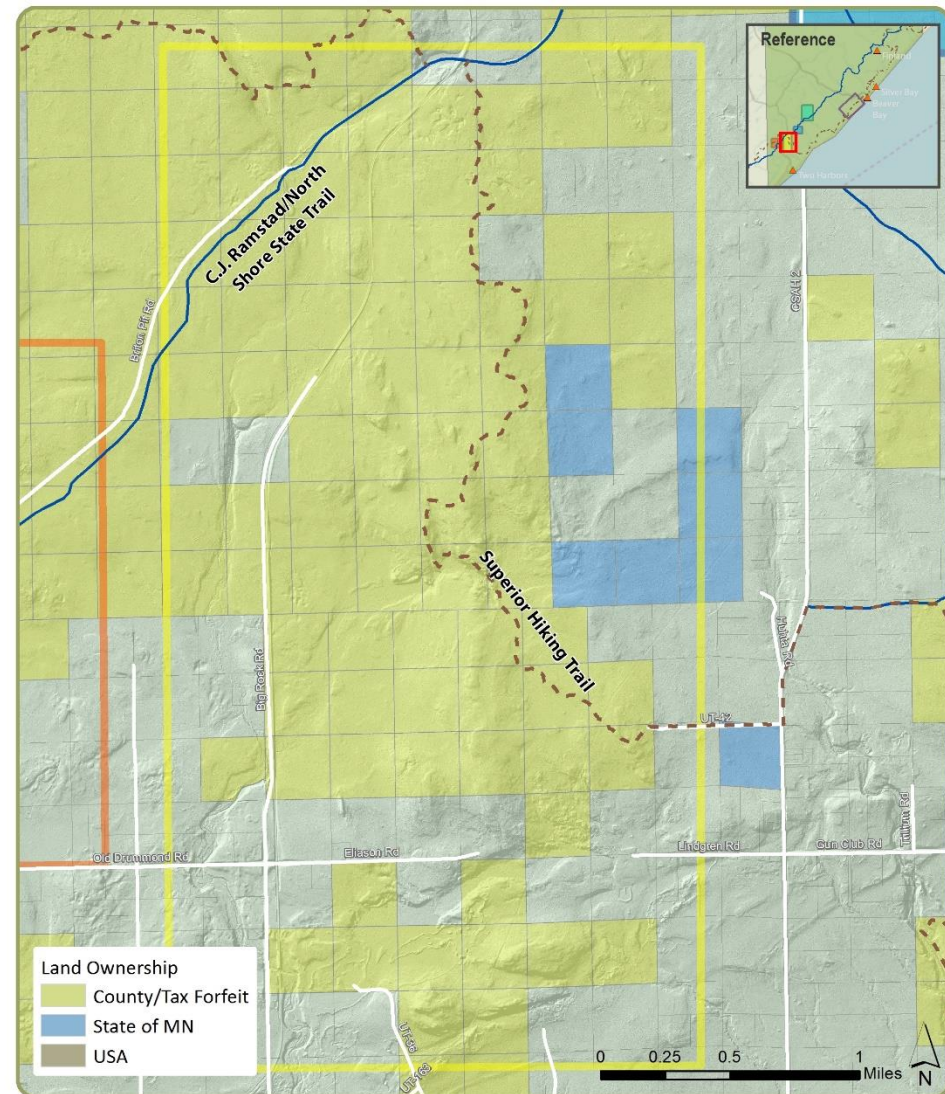
Reeves Road

Located north of the City of Two Harbors, the Lake County Demonstration Forest site will tentatively include 10 miles of mountain bike trails and may be oriented toward a specific skill level or use.

The site offers:

- About 2,280 acres off of County Highway 2
- 7.9 miles of the Superior Hiking Trail and two Superior Hiking Trail Campsites
- Silver Creek Valley and Rolling Hills
- Bordered on the west by the CN Railway

The attached map outlines the site, demonstrating the County-owned land for use and potential trail connections.



Lake County Traverse

Lake County envisions a doubletrack “spine” connecting all five mountain bike trail development areas. In addition to a connection, this trail would also serve bikepacking needs and access trailside campsites on public land. In addition to Lake County mountain bike trail sites, places that could be connected to the Lake County Traverse include:

- The City of Silver Bay and Black Beach
- The City of Beaver Bay
- Split Rock Lighthouse State Park
- Gooseberry Falls State Park
- The City of Two Harbors
- The community of Finland and the Finland Transportation Center
- Tettegouche State Park
- Cook County’s mountain bike trail system
- The City of Duluth (St. Louis County) mountain bike trails



Example of Area that Could Be Developed into Doubletrack Trail

Trailhead Facilities

Ranging from rustic with a simple trail map and parking at some trailheads to all-inclusive with trail maps, parking, kiosks, changing rooms, restrooms, picnic facilities, bike racks, and bike repair stations at others, these trailhead facilities will usher users into the trail system at locations to be determined.



An Example of Trailhead Facilities
at Cuyuna Lakes Recreation Area

Trailside Campsites

Trailside campsites for bikepackers will include a range of amenities, with special considerations for bicyclists. Potential amenities at any given campsite will include a fire ring, a pit toilet, tent pads, and potential access to water. These campsites will be strategically located along singletrack trail loops or the doubletrack Lake County Traverse to enable return trips back to a bikepacker's base, but also to accommodate point-to-point camping within the large trail system.



Superior Hiking Trail
Backcountry Campsite

Trail Signage

Signage that contributes to the rugged feel of Lake County's backcountry mountain bike trails will be found throughout the system. These signs will convey general rules for trail use, wayfinding, trail skill ratings, and interpretation. They will also help create an on-site design that is striking and uniquely recognizable as Lake County's system to visitors. This may include the use of locally sourced materials to evoke the Northwoods feel of the trail system as a whole. In addition to being consistent with trail system marketing, trail system signage will also adhere to Lake County signage standards.

An additional consideration for signage is emergency response, especially in connection with a sport like mountain biking. Fortunately, Lake County has taken part in a pilot project for developing emergency locator signs. In turn, the mountain bike trail system has experience in such efforts and will include the U.S. National Grid system coordinates on system signage, helping emergency personnel to respond more efficiently to trail users in need.



Ecological/Land Resources Plan

Land Cover: Natural, Historical, and Cultural Features

Prior to European settlement, the land cover throughout southern Lake County largely consisted of Great Lakes Pine Forest and Boreal Hardwood-Conifer Forest. These land covers collectively include aspen, birch, balsam fir, paper birch, red pine, white cedar, white pine, and white spruce. During this time, the area was inhabited by Native American groups, notably the Dakota (Sioux) and Ojibwe (Anishinabe or Chippewa). In the late 1600s, the French became the first Europeans to explore the area, but Swedish and Norwegian Immigrants in the mid- to late-1800s established the first formal settlements. These communities were developed in conjunction with commercial fishing, logging, mining, and shipping, especially after the opening of the Vermilion Range in 1868. In addition to historical ties to these activities, Lake County now is known for its tourism and recreational opportunity tied to the natural beauty of Lake Superior's North Shore. Considering such places as Split Rock Lighthouse State Park, Lake County is one of the few places where culture, history, and natural features are seamlessly interconnected.



Beaver River Valley near
Beaver Bay

Natural Resources Management Plan

Efforts along trails within the Lake County Mountain Bike Trail System will prioritize maintaining the integrity of natural land as well as minimizing construction and user impacts throughout its system. In turn, ecological impact will be mitigated by building trails intentionally for mountain biking (utilizing IMBA resources and standards) and introducing trail signage to manage ecological preservation of natural features near trails in Lake County.

Intentionally designing trails for mountain bike use is one of the best strategies to mitigate ecological impacts of this recreation type. Second-hand or poorly-designed mountain bike trails can lead to significant trail erosion, root exposure, and vegetation and soil damage, all of which degrades both rider experience and the environment. Hiring a qualified trail building contractor to design and construct purpose-built trails will ensure that a quality, environmentally-sensitive trail system is built and that construction funds are applied in areas that most need it, especially in places of high incidence such as the tops of grades. A quality purpose-built trail system may also include features that mitigate system-wide impact even when weather conditions normally do not support riding (i.e. after a rain event); in turn, design considerations may also include “wet weather” loops with quick trail drainage and drying elements, such as armoring techniques, to accommodate riding after rain, when other trails may be too wet to ride without damaging them.

The International Mountain Bicycling Association (IMBA) has extensive experience and resources in building quality trail systems that preserve natural resources and mitigate trail system impacts. In tailoring trails specifically for mountain bikes, Lake County and its qualified consultants can utilize IMBA’s resources and, in turn, build trails that support natural resources near trails. Some examples of building trails by IMBA standards include adhering to the “Half Rule” (trail grade, or steepness, shouldn't exceed half the grade, or steepness, of the hillside) and the “10 Percent Rule” (overall trail grade should be 10 percent or less). In combination with IMBA’s vast library of resources, IMBA’s tips for trail building will enable the creation of a trail system that mitigates erosion and protects natural resources in conjunction with ecologically sustainable trails.

Management of trail systems through signage also protects natural resources that the Lake County Mountain Bike Trail System seeks to preserve for its overall scenic, historical, and cultural values. Signage can warn riders about trail use in open areas, the level of experience best suited for each trail, and interaction with natural features such as streambanks. This signage is important in minimizing damage to natural resources throughout the trail system area.

Programming Plan

The following list outlines future programming efforts by Lake County agencies, businesses, and non-profits, who will work together to populate a calendar of year-round active programming.

- **Mountain Bike Events** – Potential trail users have voiced the desire to host premier mountain bike festivals and races within the future Lake County Mountain Bike Trail System. Emerging or existing local cycling clubs will likely coordinate these efforts with support by the Two Harbors Area Chamber of Commerce and local businesses supported by mountain bike-related tourism. The dates of other regional mountain biking events would be considered in this planning.
- **Trailside Camping** – A unique feature that potential trail users felt strongly about including in the trail system is that of integrated trailside camping for bikepacking. Utilizing the small sites described in the Development Plan, these bikepacking sites would enable trail users to partake in a unique experience in tandem with backcountry cycling opportunities and would be utilized free of charge. Development of these sites would be the responsibility of Lake County, and management of camping accommodations would be the responsibility of bikepacking campers.
- **High School Programming** – An important mountain bike trail user group are teenagers, as they set a precedence for future trail use, maintenance, and more. Identified initiatives related to high school or community education programming includes establishing local mountain bike teams, hosting races on the Lake County trail system, and opening up the trail system and its trailside camping for high school team retreats. A partnership between the school district, community education, the County, and local bike clubs could be responsible for these programs.
- **Mountain Bike and Safety Education** – The presence of the mountain bike trails will offer a chance for recreationists to learn the sport of mountain biking while also learning about bicycle and safety education in general. With special classes, signage along trails, and hands-on activities, Lake County could partner with other bike clubs, community education programs, and more to develop and introduce such programs.
- **Interpretive Signage** – Including natural vistas and notable ties to area history, sites identified for development of mountain bike trails throughout Lake County provide an exciting opportunity for interpretation of certain sites throughout the trail system. Particularly exciting opportunities are available at the Split Rock Wilds and Lake County Demonstration Forest sites, which respectively have ties to Split Rock Lumber Co. and the Duluth and Iron Range Railroad. Lake County would partner with the Lake County Historical Society to implement interpretative signage programs.
- **I Can Mountain Bike!** – Adjacent to state park facilities, an opportunity to participate in the Minnesota State Parks's I Can! Program may be an option for introducing many individuals to mountain biking in Lake County and beyond. This program would be implemented by Minnesota State Parks with support by Lake County.
- **Winter Fat-Biking** – Opportunity for winter use of the trail system will be created through grooming of selected trail segments and loops during the winter. Grooming and maintenance of these trails for winter use will be the responsibility of volunteers, likely affiliated with an existing or emerging local bike club.

Outreach and Marketing Plan

Outreach efforts for the Lake County Mountain Bike Trail System incorporate a mix of tactics. The most important outreach and marketing tactic would be in building a network of trail system support through local and bike industry partnerships, which will develop lasting support for the trail and extend outreach through word of mouth. This network would potentially include county and city governments, businesses, and non-profits, in addition to other interested agencies (i.e. Two Harbors Area Chamber of Commerce, Gitchi-Gami Trail Association, North Shore Scenic Drive Council, Minnesota Department of Natural Resources, other mountain bike clubs in NE Minnesota, etc.). To supplement word of mouth, the trail system would also build a multimedia-friendly brand, working with agencies like Explore Minnesota to develop trail names and features that evoke the backcountry flavor of the trail system. The brand would then be widely distributed. Hard copy materials for trail system annual openings and events will be printed in local papers, presented on kiosks at wayside rests, and targeted at audiences already coming to Two Harbors for large events (Grandma's Marathon, NorthShore Inline Marathon, Two Harbors Kayak Festival, Silver Bay ATV Parade, etc.). Electronic and social media will be utilized to bring a consistent and ever-present voice to the trail system. Up-to-date information regarding the trail system will be added to mountain bike-related websites, and opportunities for promotional tie-ins will also be sought to best bolster awareness of the trail system.

Accurate and readily-available mapping of the trail system will also create awareness of the trail system. Not only physical copies of trail maps will be present with on-site trail signage, but both static and interactive mapping materials will be readily available online for recreationists to easily access. Existing platforms or apps for mountain biking maps (i.e. MTB Project) will especially be targeted for inclusion of Lake County trails in their databases.



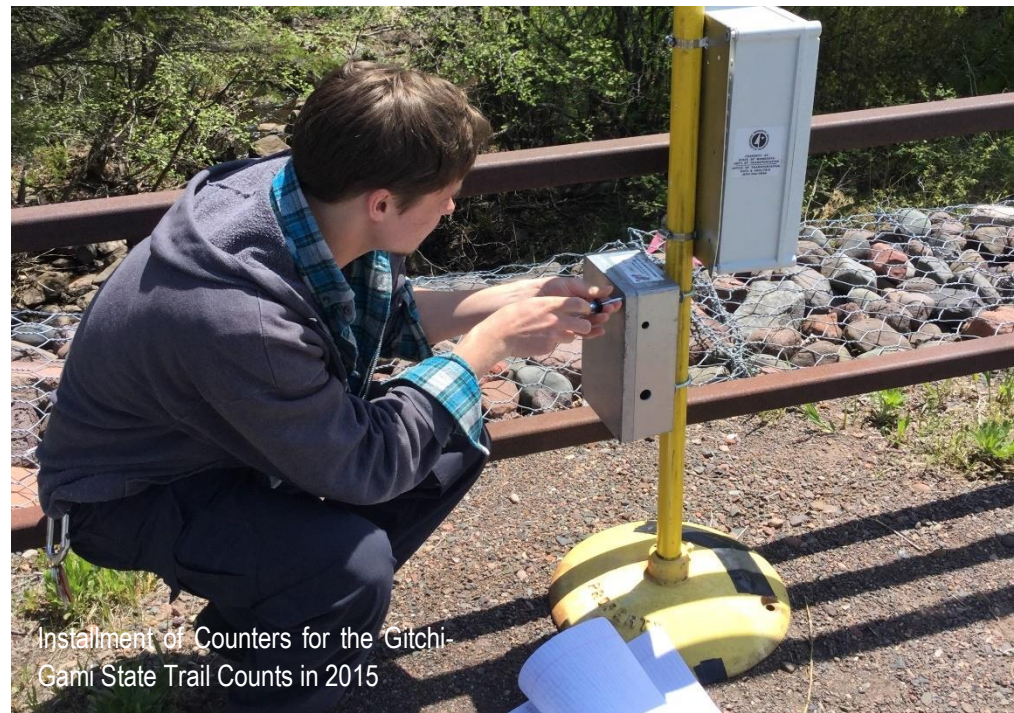
Tentative Trail System Logo

User Metrics and Research Plan

A desire to understand the amount of system users and their needs will call for a Visitor Count and Site Intercept Survey System to be established in tandem with development of the Lake County Mountain Bike Trail System.

Outlined in Section 6 of the *Greater MN Regional Parks and Trails Strategic Plan*, the protocol for Visitor Counts and Site Intercept Surveys outlines the methodology for conducting studies at a regional facility. This protocol includes a study period between Memorial Day and Labor Day, random sample locations, counts based on trail users, on-site interviews of visitors, and simultaneous administration of visitor counts and surveys. Completed by volunteers (possibly through a local bike club), these methods will produce quality information on facility use throughout the year. These research efforts could also be paired with the placing of continuous trail counters at entrances to the system to roughly count trail system users. A similar method was used to count trail users on the Gitchi-Gami State Trail in 2015 and 2016.

A special research request in Lake County pertains to the economic impact of hosting mountain bike trails. In turn, an additional research item as the trail system is developed will be the trails' economic impact through time.



Installation of Counters for the Gitchi-Gami State Trail Counts in 2015

Implementation, Management, and Sustainability Plan

Implementation Plan

The main implementation strategy that will be utilized for development of the Lake County Mountain Bike Trail System is phasing. As mountain bike trails are usually designed and built in segments, this strategy will be an important facet of Lake County's trail development, as is detailed in the Acquisition and Development Phasing Plan. Fortunately, the sites identified for mountain bike trail development is largely owned by Lake County, which means acquisition will play a minimal part in this project. To aid in implementation, a checklist has been developed for congregation of all recommended goals and actions. This checklist is attached in Appendix A.

Acquisition and Development Phasing Plan

When it comes to mountain bike trail development, phasing plays an important part in creating a quality trail system. This importance originates from both working with an exciting terrain and operating under funding constraints. An outline of proposed phases of acquisition and development are listed below.

1. **Identify potential opportunities for mountain bike trail development in Lake County.** The County will work with consultants to identify potential areas for mountain bike trails on County land. This will help determine whether planning for development of mountain bike trails is a worthy investment. Cost: \$1,500 | Timeline: Completed Summer 2015
2. **Develop an overall plan for development of the trail system.** This plan will identify an overall vision and plans for development, land resources, programming, outreach and

marketing, research, implementation, and maintenance and operations. Master planning the system will help develop a detailed vision for mountain bike trails in Lake County that can be used as a reference and a support document for funding requests. It will also invite the public to start being involved in the process of mountain bike trail development on public land. Cost: \$7,270 | Timeline: Completed Spring 2016

3. **Work with a consultant to define, design, and build final trail routes at Split Rock Wilds site.** The Split Rock Wilds site serves as the largest proposed trail cluster in the Lake County mountain bike trail system. With 50 miles of proposed trails and considerable connectivity through Split Rock Lighthouse State Park, this trail cluster serves as a priority for trail development. Lake County and its consultant will work with formal area trail stakeholders (i.e. Superior Hiking Trail Association) and adjacent private landowners, as needed, to help guide this development. Cost: \$2,179,500 | Timeline: Short- to Mid-term (1-10 years, 2017-2026)
4. **Work with a consultant to outline potential trail corridors in Alger North, Alger South, Lake County Demonstration Forest, and Reeves Road Sites, as well as the Lake County Traverse.** The four other trail sites and traverse trail have not been explored or preliminarily mapped by a trail builder. As opportunities for funding or otherwise arise at these different specific sites, a more detailed concept of what the trail clusters and connector may look like would be helpful in receiving funding for future trail development. Cost: \$3,000. | Timeline: Mid-term (3-10 years, 2019-2026)

(Cont'd on next page)

Acquisition and Development Phasing Plan *(Cont'd)*

5. **Work with a consultant to define, design, and build final trail routes at Alger North, Alger South, Lake County Demonstration Forest, and Reeves Road Sites, as well as the Lake County Traverse and trailside campsites.** With a proposed 10 miles at each of these sites, development will create a trail system of substantial size and draw for mountain bikers, which will be aided by the connecting traverse trail. These development efforts may take place in tandem with development at the Split Rock Wilds site. Lake County and its consultant will also work with formal area trail stakeholders (i.e. Superior Hiking Trail Association) and adjacent private landowners, as needed, to help guide this development. Cost: \$2,179,500 | Timeline: Mid- to Long-term (3-10+ years, 2019-2026+)
6. **Identify additional opportunities for trail development.** While a substantial system will be in place when the five sites and traverse trail are developed, additional County-owned land in Lake County may accommodate further trail development or trail cluster expansion, if desired. Cost: Unknown. | Timeline: Long-term (10+ years, 2026+)

Acquisition and Development Costs to Date

To date, only planning work has been completed in regards to the Lake County Mountain Bike Trail System. Dirt Candy Designs, a trail building

consultant, conducted preliminary trail designs for the Split Rock Wilds site in 2015; this consultation fee was \$1,500. From April to June 2016, the Arrowhead Regional Development Commission (ARDC), a planning consultant, facilitated a series of trail committee meetings to develop this plan document; this consultation fee was \$7,270. All costs to date were paid through funds from Lake County. Cost: \$8,770

Acquisition and Development Cost Projections

Fortunately, the Lake County Mountain Bike Trail System is largely utilizing County-owned land, likely warranting little to no cost for land acquisition; however, development of the system will draw expense. While precise dollar values cannot be calculated for the entire system, development can be estimated between \$15k-\$100k per mile (average \$25k for cross-country trails, average \$65k per mile for gravity or flow trails, average \$60 per foot for boardwalk). So, as an example, for a proposed 50 mile-long system consisting of Lake County's probable mix of 85% cross-country trails, 10% gravity or flow trails, and 5% boardwalk, the estimated price point would be \$2,179,500. For a full 100-mile system like Lake County's, this number would be doubled at \$4,359,000. As is common with mountain bike facilities, the trail system will rely on phasing through both design and development as different sections of the system are created, which means future project costs may be altered depending on unknown economic factors. Cost: \$4,359,000

Cost Projections for Implementing Plan: \$4,370,770

Maintenance/Operations Plan


While the County will hire trail builders to construct quality trails using sustainable designs that mitigate physical deterioration, trail maintenance and operations will be completed by a combination of local volunteers and Lake County on an ongoing basis. Maintenance efforts will include grooming the trail system throughout the year, reopening the corridor from encroaching vegetation or other obstructions, generally maintaining water drainage, weed whipping, leaf blowing, and general upkeep of trailside campsites. Day-to-day maintenance is anticipated to be the responsibility of volunteers, which a local bike club or a volunteer coordinator would be helpful in organizing. As a local club has not been established, the County will perform start-up maintenance with the expectation that a club or volunteer network would eventually take over light maintenance responsibilities, assisted by the County in the case of large-scale needs, such as clean-up after a large storm event. To outline this relationship, a memorandum of understanding will need to be established to outline responsibilities between Lake County and a club or volunteer network. A rough estimate of maintenance activities overall would range between \$200 and \$300 annually per mile, which would accumulate to \$20,000 to \$30,000 per year for a 100-mile trail system.

For identified fat-biking trail segments during the winter, volunteers will also be utilized for light-duty, manual clearing activities. When it comes to trail grooming, however, tools such as a motor bike with a 24 to 36 inch-wide roller/compactor would be helpful in creating the best

conditions, since trail corridors can be difficult to maneuver for larger equipment. An exemplary motor bike for grooming winter fat-bike trails is a Rokon Scout, which has a retail value of \$6,500. While rollers/compactors can vary greatly in price depending on size, brand, and type, the price of this particular grooming equipment can generally be estimated between \$1,500 and \$2,500.

To also aid in maintenance and operations of the mountain bike trail system, potential users also identified policies for trail system use. These policies include restricting trail use to non-motorized bicyclists, closing the trail system during the hunting season, closing sections of the trail system for use when trails are wet, setting event courses away from where they would significantly disturb other formalized area trail systems, limiting the number of nights for camping in the trail system, and placing restrictions on fire use at campsites in the trail system. Given other formalized trail systems in the area, rider etiquette policies would also need to be established. These policies will help mitigate potential issues with maintenance and overall trail use. In the future, considerations for trailside campsite development and use will need to be further addressed as well.

Annual Routine Maintenance and Operations Cost Total: \$20,000-\$30,000



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SECTION 4: POTENTIAL FUNDING SOURCES

One of the major constraints for a trail system project is funding. Most trails are built using a combination of federal, state, and local sources. Opportunities available to expand the Lake County Mountain Bike Trail System include, but are not limited to, the following:

- **Greater Minnesota Regional Parks and Trails Commission (GMRPTC) Legacy Amendment Funds:** In 2008, Minnesota voters passed the Clean Water, Land and Legacy Amendment (Legacy Amendment) to the Minnesota Constitution, which increased the state sales tax to partially provide funding for parks and trails development in Minnesota. Established in 2013, the Greater Minnesota Regional Parks and Trails Commission (GMRPTC) took over allocation duties of Legacy Amendment parks and trails funds. Looking to fund regionally significant trails outside of the seven-county metropolitan area, the GMRPTC ranks projects with high, medium, or low merit based on standards set forth in their strategic plan, and then grants regional designation and determines funding recommendations based on these rankings. Find more information at www.gmrptcommission.org.
- **Iron Range Resources and Rehabilitation Board (IRRRB):** Among providing other development opportunities, IRRRB's Culture and Tourism Grant Program supports non-profits by supporting strong arts, culture, heritage and recreational activities in the IRRRB service area, in which Lake County is located. For more information, visit www.mn.gov/irrrb.
- **Minnesota's Lake Superior Coastal Program:** This program funds projects within the Lake Superior coastal zone, which includes the coastal zone in Lake County. These are federal funds that are distributed by the Minnesota Department of Natural Resources. The grants must be matched (50%) by non-federal funds.
- **Recreational Trails Program (RTP):** Enacted in July 2012 under the Moving Ahead for Progress in the 21st Century Act (MAP-21), the Recreational Trail Program (RTP), as a part of Federal surface transportation funding, provides financial assistance for the development and maintenance of recreational trails and trail-related projects solely located within Minnesota. The grant coordinator works for the Minnesota Department of Natural Resources, and funding is available for acquisition, construction, and management of recreational trail facilities. Find more information at www.dnr.state.mn.us/grants/recreation/trails_federal.html.
- **Regional Trail Grant Program:** Established in Minnesota Statutes 85.019, the Regional Trail Grant Program issues state funds from \$5,000 to \$250,000 to promote development of regionally significant trails outside the seven-county metropolitan area. Administered by the Minnesota Department of Natural Resources, grants are reimbursement-based up to 75 percent of eligible project costs, and recipients must provide a non-state cash match of at least 25 percent. Other state funds or grants, such as Parks and Trails Legacy Grants, cannot match these grants. Find more information at www.dnr.state.mn.us/grants/recreation/trails_regional.html.
- **International Mountain Bicycling Association (IMBA) Grants:** Outlining numerous resources, IMBA lists potential funding sources from all levels directed specifically to mountain biking and trail development. Find more information at www.imba.com/resources/grants.



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APPENDIX A: IMPLEMENTATION CHECKLIST

Vision: The Lake County Mountain Bike Trail System will be an international destination that features over 100 miles of purpose-built, user-maintained backcountry mountain bike trails in an inter-connected trail cluster network that are used in all seasons by people of all skill levels.

Goal Statement	Timeline	Status
Development Plan		
D1. Identify potential opportunities for mountain bike trail development in Lake County.	<i>Complete</i>	
D2. Develop an overall plan for development of the trail system.	<i>Complete</i>	
D3. Identify routes for winter fat-bike trails, including facilities tailored for winter-only use.	<i>Short-term (1-2 years)</i>	
D4. Work with a consultant to define, design, and build final trail routes and related facilities at Split Rock Wilds site; review designs with area trail stakeholders (i.e. Superior Hiking Trail Association and State Parks) and adjacent private landowners.	<i>Short- to Long-term (1-10+ years)</i>	
D5. Work with a consultant to outline potential trail corridors in Alger North, Alger South, Lake County Demonstration Forest, and Reeves Road Sites, as well as the Lake County Traverse.	<i>Mid-term (3-10 years)</i>	
D6. Work with a consultant to define, design, and build final trail routes at Alger North, Alger South, Lake County Demonstration Forest, and Reeves Road Sites, as well as the Lake County Traverse and trailside campsites; review designs with area trail stakeholders (i.e. SHTA and State Parks) and adjacent private landowners.	<i>Mid- to Long-term (3-10+ years)</i>	
D7. Identify additional opportunities for trail and related facilities development.	<i>Long-term (10+ years)</i>	
Ecological/Land Resources Plan		
ELR1. Work to mitigate ecological impacts of mountain bike trails by designing and building purpose-built trails specific to mountain bike use, particularly taking drainage and the construction for “wet weather” loops into account.	<i>Ongoing</i>	

ELR2. Only hire qualified trail designers and contractors to complete trail construction.	<i>Ongoing</i>	
ELR3. Coordinate with and utilize resources from the International Mountain Bicycling Association (IMBA) to build quality trail systems that preserve natural resources and mitigate trail system impacts.	<i>Ongoing</i>	
ELR4. Study the land in potential mountain bike trail development areas in Lake County and compile guidelines on how best to work with the land and environment to create an optimized trail experience.	<i>Short-term (1-2 years)</i>	
ELR5. Plan and install signage to educate recreationists of proper trail use, which will mitigate impact and preserve the integrity of trails.	<i>Upon Opening - Short-term (1-2 years)</i>	
Programming Plan		
P1. Identify potential locations for trailside campsites during development of the trail system, and develop these sites and policies that promote and support quality bikepacking in the Lake County system.	<i>Short- to Mid-term (1-10 years)</i>	
P2. Identify segments of the trail system that could accommodate winter riding opportunities through development, and work to promote winter use of the trail system.	<i>Short- to Mid-term (1-10 years)</i>	
P3. Work with stakeholders and sponsors to develop and create mountain bike events (i.e. festivals, races, etc.) utilizing Lake County mountain bike trails.	<i>Short- to Mid-term (1-10 years)</i>	
P4. Promote youth use of the mountain bike trail system; work with schools and community education programs to launch local high school mountain bike teams; and support high school race events or team retreats that will utilize the trail system.	<i>Short- to Mid-term (1-10 years)</i>	
P5. Promote use of the trail system as a tool for learning how to mountain bike as well as learning about bicycle safety in general; offer multiple opportunities for education, possibly including classes and on-trail signage.	<i>Short- to Mid-term (1-10 years)</i>	
P6. Investigate the opportunity to participate in the Minnesota State Parks's I Can Mountain Bike! Program, and work with Minnesota State Parks to implement the program.	<i>Short- to Mid-term (1-10 years)</i>	
P7. Explore opportunities for including interpretive signage along mountain bike trails in Lake County, and make partnerships to implement interpretive signage at the sites.	<i>Short- to Mid-term (1-10 years)</i>	

Outreach and Marketing Plan		
OM1. Build a support network of partners (i.e. county and city governments, businesses, and non-profits, in addition to other interested agencies) that can aid in trail system communications and outreach through their communications.	<i>Short-term (1-2 years) – Ongoing</i>	
OM2. Make connections with other groups planning or developing mountain bike trails throughout Northeast Minnesota, and participate in a regional coalition to strategically plan mountain biking within the context of regional, national, and international systems.	<i>Short-term (1-2 years) – Ongoing</i>	
OM3. Create a multimedia-friendly brand (i.e. logos, names, symbols, consideration of user experience, and more), and consider partnering with a professional marketing agency in development.	<i>Short-term (1-2 years) – Ongoing</i>	
OM4. Develop an electronic and social media presence, including within the scope of other bike-related web tools or pages, surrounding the trail system.	<i>Short-term (1-2 years) – Ongoing</i>	
OM5. Develop print materials that can be widely distributed in local papers, at local businesses, and at wayside rest kiosks, among others.	<i>Short- to Mid-term (1-10 years) – Ongoing</i>	
OM6. Identify opportunities for trail system promotional tie-ins, especially in conjunction with large-scale events already present in Lake County (i.e. Grandma's Marathon, NorthShore Inline Marathon, Two Harbors Kayak Festival, Silver Bay ATV Parade), and work with event organizers to promote the trail system.	<i>Mid-term (3-10 years) – Ongoing</i>	
OM7. Utilize existing online platforms and apps for mountain biking (i.e. MTB Project) to extend presence of trails and ensure that the online content is up-to-date as the trail system grows and develops.	<i>Mid-term (3-10 years) – Ongoing</i>	
Research Plan		
R1. Implement a system to count and interview site visitors in accordance with the Greater Minnesota Regional Parks and Trails Strategic Plan.	<i>Mid-term (3-10 years) – Ongoing</i>	

R2. Consider the use of continuous trail counters to collect quantitative information on trail users.	<i>Mid-term (3-10 years)</i>	
R3. Establish a system – through surveying or other forms of analysis – to research the economic impact of mountain bike trails in Lake County.	<i>Mid-term (3-10 years) – Ongoing</i>	
Implementation, Management, and Sustainability Plan		
IMS1. Purchase equipment to aid grooming efforts of winter fat-biking trails, and work with a volunteer network or local bike club to maintain quality winter riding options in the trail system.	<i>Short-term (1-2 years) – Ongoing</i>	
IMS2. Mitigate ecological impacts of mountain bike trails by ensuring purpose-built designs and proper upkeep of the trail system.	<i>Short-term (1-2 years) – Ongoing</i>	
IMS3. Establish a local bicycle club or volunteer network to organize annual volunteer maintenance of the trail system; create a memorandum of understanding to clarify maintenance roles and responsibilities for both Lake County and the local bicycle club or volunteer network.	<i>Short-term (1-2 years) – Ongoing</i>	
IMS4. Establish policies and regulations dealing with public use of the trail system and its proposed campsites.	<i>Mid-term (3-10 years)</i>	
IMS5. Consider the need to hire individuals to coordinate expanded facilities maintenance, and hire such individuals as needed.	<i>Mid-term (3-10 years)</i>	

APPENDIX B: CURRENT USAGE OF THE LAKE COUNTY-OWNED PROPERTY ABOVE SPLIT ROCK

Current usage of the “Split Rock Wilds” area (over 6,000 acres, proposed 50 miles of purpose-built mountain bike trails) primarily includes hiking on the Superior Hiking Trail, ATV riding on unofficial, unauthorized trails, and hunting (primarily whitetail deer and ruffed grouse). There are a few cabin sites in the area leased by Lake County to long-time tenants. There are a few access roads in the property, but those are not publicly accessible because they cross private property or Split Rock Lighthouse State Park property at one or more points.

The Superior Hiking Trail (SHT) is a backcountry trail facility that traverses the entire North Shore between Jay Cooke State Park southwest of Duluth and far eastern Cook County. Built in 1987, the “Split Rock State Park to Beaver Bay” section crosses Lake County’s property at “Split Rock Wilds” and is one of the SHT’s longest sections between trail access points (11.3 miles). Additionally, it has an extra loop trail in this area allowing it to access two significant viewshed locations – one overlooking the Beaver River Valley and the “Fault Line” canyon and one overlooking Lake Superior as well as inland. Also, an SHT spur trail on the site built in 1996 moves south through private property, connecting the SHT to Cove Point Lodge and the Gitchi-Gami State Trail (a paved, non-motorized trail). The SHT is administered by the Superior Hiking Trail Association, a non-profit organization that manages the trail’s easements on public and private lands, maintains the trail, and promotes its use. Users are required to camp in designated sites only, and users are required to share campsites with others if requested. There are three designated campsites in this area.

Hunting also occurs in the “Split Rock Wilds” area, but it is difficult to quantify how many people commonly use the area and what they might be targeting in their hunt. While ruffed grouse and whitetail deer bow hunting very likely occurs starting in mid-September, the most popular time for hunting is almost assuredly the whitetail deer firearms season, which occurs in early to mid-November. Much of the firearms hunting is likely done by the people leasing cabin sites from the County and by private land owners adjacent to the site, particularly those parties maintaining forest roads leading from their property into the County’s lands.

All-Terrain Vehicle (ATV) use occurs on the County’s property at the “Split Rock Wilds” site. This use is sometimes associated with hunting activities, but pleasure riding also is likely occurring. This use could include larger “side by side” ATV use and off-road motorcycle use. The use currently occurs on user-built trails that are not officially mapped or authorized by Lake County. A recent review by Lake County reveals that some of this ATV use is damaging the property, particularly in wet areas. Damaging wetlands on any lands in Minnesota is not allowed by MS Chapter 103G.2241:

A Person driving an ATV in a wetland must not operate the vehicle in a way that:


1. Willfully, wantonly or recklessly disregards the safety of people or property
2. Carelessly upsets the natural and ecological balance of a wetland; or
3. Impacts more than maximum amount of wetlands as allowed by law, which is approximately 400 square feet.

Logging and timber management has been a use of Lake County owned lands for many years. The “Split Rock Wilds” area, however, is not likely to experience significant cutting in the near future, due to its rugged landscape and the overall characteristics of the trees located there.

Lake County recognizes these current uses of the “Split Rock Wilds” site and acknowledges that some impacts will occur to them if the mountain bike plan is implemented. Lake County will strive to minimize that impact by designing and constructing the mountain bike trails in the following ways, *as long as the action does not significantly reduce Lake County’s ability to become a world-class mountain biking destination.*

- Regarding the Superior Hiking Trail, Lake County will:
 - Involve the Superior Hiking Trail Association in mountain bike trail planning, design, and construction in order to avoid conflicts whenever possible
 - Design trails and trail routes in a way that limits the frequency of mountain bike trails crossing the Superior Hiking Trail, or vice versa
 - Consider the safety of both cyclists and hikers at intersections of the trail systems (i.e. 90-degree crossings, signage to warn trail users of crossings)
 - Build mountain bike trails a significant distance away from the Superior Hiking Trail and keep a vegetative screen between the trails whenever possible
 - Avoid trail sharing with the Superior Hiking Trail unless deemed necessary or mutually beneficial
 - Cooperatively address mountain bike trail and Superior Hiking Trail access to popular overlooks and viewsheds so all users can enjoy those locations
 - Place facilities associated with the mountain bike trails, such as parking lots, trailheads, and campsites well away from the Superior Hiking Trail whenever possible
 - Whenever possible, place mountain bike trails in a fashion that will discourage mountain bikers from using the designated Superior Hiking Trail campsites
 - *Note: Lake County will work with the Superior Hiking Trail in a similar fashion when developing the other potential mountain bike sites, including the Lake County Demonstration Forest and Reeves Road locations*
- Regarding hunting, Lake County will:
 - Close the mountain bike trails during the November firearms deer hunting season
 - Whenever possible, design and construct the mountain bike trails in a fashion that keeps them spread out and ensures trail densities are kept low (spreading trails out across a landscape has been shown as more wildlife friendly versus concentrating trails in a small area)
- Regarding ATV use, Lake County will:
 - Work with adjacent landowners and people leasing cabin sites from Lake County to identify and map current ATV trails
 - Review existing ATV trails to determine which ones (if any) are significantly damaging Lake County property
 - Adjust ATV routes if necessary to ensure sustainability
 - Designate these adjusted routes as official facilities
 - When possible, avoid these identified ATV routes when designing and constructing mountain bike trails and maintain a vegetative buffer
 - *Note: Lake County will not promote this area as a destination for ATV use*
- Regarding logging, Lake County will:
 - Continue to conduct timber management activities on the site when appropriate
 - Through interpretive signage, educate trail users about timber management activities when trails pass near or through impacted areas

It should be noted that, while Lake County will work to limit impacts on current uses of the “Split Rock Wilds” site, that meeting its goal of becoming a world-class mountain bike destination (and having a significant positive impact on the Lake County economy) may require compromise between new uses and traditional ones.



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