



DULUTH

TRAVERSE

MINI MASTERPLAN



DULUTH
TRAVERSE
TRAIL

EST. BY WWW.COGGS.COM



APPROVED BY PARKS COMMISSION: APRIL 11, 2017

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ACKNOWLEDGMENTS

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1. INTRODUCTION + PURPOSE

VISION STATEMENT

THE DULUTH TRAVERSE TRAIL MINI-MASTER PLAN OBJECTIVE IS TO COMPLETE, MAINTAIN, AND MANAGE THE DULUTH TRAVERSE TRAIL SYSTEM TO BEST SERVE THE RECREATIONAL NEEDS OF THE REGION, STATE OF MINNESOTA, AND THE CITIZENS OF DULUTH.

THE DULUTH TRAVERSE IS A BIKE-OPTIMIZED MULTI-USE NATURAL SURFACE TRAIL DESIGNED TO PROVIDE A NATIONALLY SIGNIFICANT MOUNTAIN BIKING EXPERIENCE, CONNECT PEOPLE TO DULUTH'S BEAUTIFUL NATURAL PLACES, AND EXEMPLIFY BEST PRACTICES FOR ENVIRONMENTALLY SUSTAINABLE TRAIL DESIGN AND MANAGEMENT.



» Photo Credit: Hansi Johnson



Duluth is Minnesota's outdoor recreation epicenter and is pursuing a goal to become "the premier trail city in North America." Minnesota's fourth largest city has made great strides toward this goal by creating the highly popular Lakewalk, integrating several regional trails through the city, showcasing the Superior Hiking Trail, the Cross City Trail that is currently being constructed, the Western Waterfront Trail, and the implementation of the St. Louis River Estuary Water Trail. These trails appeal to a diverse set of user groups and modes of recreation. Until recently, mountain bikers have not had an equivalent trail network in the region. The Cyclists of Gitchee Gumee Shores (COGGS) formed to advocate for mountain biking in the city, and have worked with city and county officials and staff to address the mountain biking needs of city residents. Since 2008, this partnership has been working toward the completion of a groundbreaking urban single-track mountain biking trail system of over 104 miles along the ridge line of Duluth. This would be the first urban bike trail system of its kind within an urban environment.

At the writing of this Master Plan, 82% of the original design for the Duluth Traverse Trail System has been constructed. The goal of this master plan is to complete the Duluth Traverse Trail and associated multi-use trail, that allow mountain bikes; propose an operations and management plan for long-term sustainability; engage stakeholders and public to build consensus and unify the vision; balance recreation needs, environmental protection, safety, scenic value,

82%

**OF THE ORIGINAL 104-MILE VISION
FOR THE DULUTH TRAVERSE HAS
BEEN CONSTRUCTED**

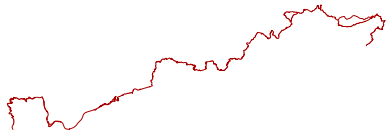
and access; develop infrastructure to support trail usage; create synergies and connections to other outdoor recreation projects throughout Duluth, and provide high quality opportunities for local residents and regional users. The following plan inventories the issues and gaps in the recently constructed portions of the trail and lays the framework to complete a trail system that will sustainably accommodate the expected high traffic for the long-term.

The City of Duluth and COGGS will continue to jointly build and maintain the Duluth Traverse Trail System and are using this process to plan for management expectations and relationship building with other outdoor recreation user groups in the City.

Additionally, the city and COGGS view Legacy grant funding, in addition to several other funding opportunities, as a potential source to assist in completing the trail, and associated infrastructure. This approved master plan satisfies a requirement for the Greater Minnesota Regional Parks and Trails Commission to apply for funding but also identifies opportunities to target other grant sources that will be necessary to complete the project.



THE DULUTH TRAVERSE TRAIL SYSTEM =



+



+



+



DULUTH TRAVERSE SPINE

40-mile two-way single track green level beginner trail that traverses Duluth and connects neighborhoods and people to green spaces and parks.

TRAIL CENTERS

5 Trail Centers encompass over 70+ miles of concentrated clusters of multi-use, single track trails with a range of skill levels and variety of terrain all connected to the Traverse Spine.

SKILLS AREAS + BIKE PARKS

Skills areas provide obstacles and features targeting beginners to advanced riders. Spirit Mountain is a bike park that contains a number of varied skills areas. See pages 25 & 26 for more information on these facilities.

NEIGHBORHOOD & INTER COMMUNITY CONNECTORS

Neighborhood Connections are short trail segments within City limits that connect Duluth's neighborhoods directly to the Traverse System. These connections focus on underserved neighborhoods. Inter Community Connections link adjacent Communities to the Traverse.

CLASSIFICATION CRITERIA

The Duluth Traverse will need to satisfy the following criteria to be classified as a regionally significant trail by the Greater Minnesota Regional Parks and Trails Commission. This designation would make the Duluth Traverse eligible for State Legacy funding opportunities. However, the following criteria apply to the City of Duluth and there is a lot of overlap between the priorities of the state and this master plan. The Duluth Traverse Trail System is of statewide significance for the following reasons:

1. PROVIDES A HIGH-QUALITY "DESTINATION" EXPERIENCE

The Duluth Traverse is a unique mountain biking experience that is a significant asset for the citizens of Duluth, regional visitors, national, and international mountain biking communities. The variety, high quality, and proximity of trails to residents were primary reasons that the International Mountain Bicycling Association (IMBA) awarded the Duluth Traverse the status of a Gold-Level Ride Center – 1 of only 6 in the world.

When complete, the spine trail will be a 40-mile trail along the ridgeline in Duluth and will connect many parks and open spaces, while providing unmatched views of the two lake cities, the St. Louis River Estuary, Lake Superior, and the natural resources and wildlife of the region. The Duluth Traverse connects several mountain bike focused trail centers throughout the city to provide numerous route options, that provide

a variety of experiences for riders at multiple skill levels. There are minimal disruptions on the Duluth Traverse Spine route due to roadway crossings, allowing the trail to connect parks and green spaces with minimal interruption. The entire multi-use trail system will be 100+ miles when completed.

The Traverse Spine and connected trail centers provide public access for bikers and hikers, to otherwise inaccessible vistas and natural landscapes along the ridgeline. These trails are destinations to themselves, and provide iconic views of the canal and lift bridge utilized in marketing and branding campaigns.



» Trail Running on the Traverse - Photo Credit: Hansi Johnson

2. WELL-LOCATED (CONVENIENCE OF ACCESS AND ADEQUATE LENGTH) TO SERVE REGIONAL POPULATION AND/OR TOURIST DESTINATION

The proximity of the high-quality trails that serve several urban neighborhoods is one of the most well liked aspects reported by local trail users. The corridor serves the regional popu-

lation of 279,601, with most of Duluth's 86,000 residents living within three miles of the Traverse Spine corridor or its trailheads. The Duluth Traverse Spine can be accessed from numerous parts of the city and this plan identifies several opportunities to connect to neighborhoods that are currently under-served with trail access. Community engagement highlighted that a majority of users already utilize the trail daily or weekly, either for the trail experience itself, or to connect to several of the destinations along the trail. The City of Duluth is committed to trail counts in the future, but there is anecdotal evidence of significant non-resident trail usage on weekends and holidays. Expectations are that the increase in trail populations is from the Twin Cities, and serious rider usage versus populations have come from national and international locales. The Traverse System is very attractive for residents looking for unmatched local trails near their homes and jobs. The Duluth Traverse complements the other high quality existing and planned trail centers in the region. Regionally, the Duluth Traverse and other trail systems in Minnesota, Wisconsin, and the Upper Peninsula position the Upper Midwest as a top destination for mountain biking in the world.



» Fat tire grooming - Photo Credit: COGGS

3. ENHANCES CONNECTIVITY TO REGIONAL DESTINATIONS

The Duluth Traverse Spine connects to several local, regional, and state parks, recreation facilities, and natural resource areas. The system complements and adds variety to the excellent state and regional trail connections existing in the city. The spine trail connects neighborhoods, open spaces, schools, business districts and tourist areas. The trail system is mentioned in several previous planning efforts as a key piece of supporting infrastructure and physically connects the following regional recreation destinations:

- Recreation Areas - Fairmont Park/ Lake Superior Zoo, Spirit Mountain Recreation Area, Quarry Park Climbing
- City Parks – Chambers Grove, Mission Creek, Magney-Snively, Fairmont, Keene Creek, Oneota, Brewer, Bellevue, Lincoln, Piedmont, Enger, Central, Hilltop, Chester, Hartley, Woodland, Downer, Amity, Lester.
- Nature/ Environmental Learning Areas – Bagley, Hartley, Hawk Ridge Nature Reserve
- Regional Trail Connections/ Crossings – Superior Hiking Trail, Munger State Trail, Gitchi-Gami State Trail, C.J. Ramstad, Cross City Trail, and Lakewalk
- State Parks – Jay Cooke State Park
- Schools and Universities – Lincoln Park Middle, The currently unoccupied Central High School site on the ridgeline,

Marshall School, College of St. Scholastica (CSS), University of Minnesota Duluth (UMD), Lake Superior College

4. FILLS A GAP IN RECREATIONAL OPPORTUNITY WITHIN THE REGION

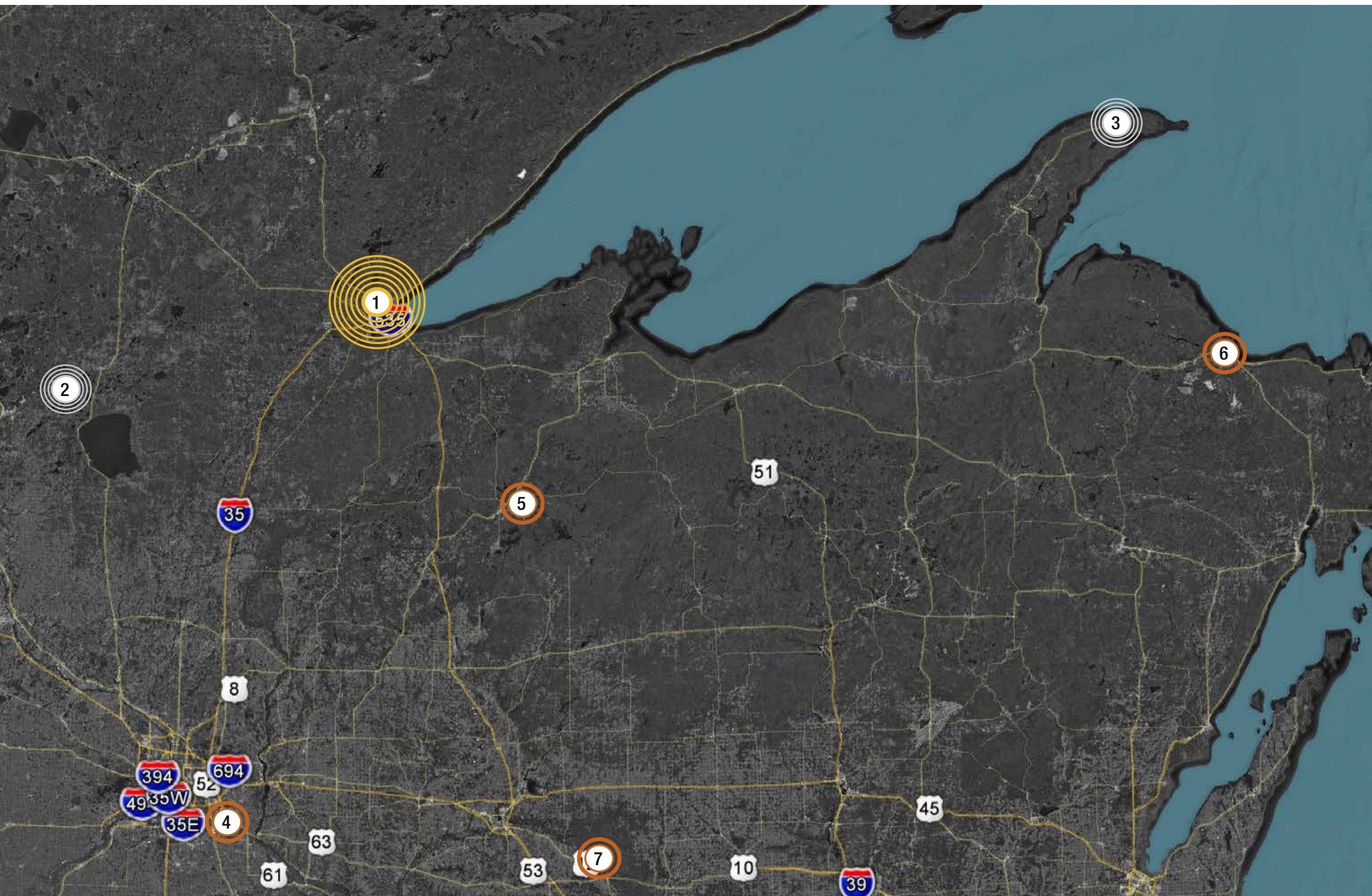
The fourth largest City in Minnesota, Duluth serves as a regional destination for the North Shore, Iron-Range, and “northwoods” of Northeastern Minnesota and Wisconsin. The City is one of the most popular tourist destinations in the state, attracting well over 3 million visitors throughout all 4-seasons. Additionally, the Duluth Trail and Bikeway Plan, proposed the ambitious goal that Duluth should be “The premier trail city in North America,” and a hub for outdoor recreation that will compete with other cities such as Boulder, CO, and Eugene, OR. Anecdotally, residents have moved to Duluth because of the outdoor recreation and trail opportunities throughout the seasons. The Duluth Traverse and associated trail centers are critical components to realizing this vision and filling an important gap in regional and statewide mountain biking needs. Minnesota is a Midwestern leader in mountain bike trail development and quality. The Duluth Traverse fills an important regional need, but also sets a precedent for an urban mountain biking system that will be the epicenter of mountain biking opportunities in the State and Region. The trail system complements other Regional ride centers in Minnesota and Wisconsin shown in the map above.

Other mountain biking trail loops exist from Tofte to Grand Marais but do not offer the acces-

sibility to large regional populations and tourist populaces that the Duluth Traverse does. The amount, variety, quality, connection, and proximity of the trails to population centers is unprecedented in the country. The Duluth Traverse will be an unmatched facility that will greatly enhance the quality of lives in the region, and become an iconic representation of Duluth, and the State of Minnesota’s commitment to outdoor recreation.

IMBA RECOGNIZED REGIONAL RIDE CENTERS & EPIC RIDES

- 1 Duluth Traverse, Duluth, MN
 - Gold Level IMBA Ride Center
- 2 Cuyuna Lakes, Crosby, MN
 - Silver Level IMBA Ride Center
- 3 Copper Harbor, MI
 - Silver Level IMBA Ride Center
 - IMBA Epic Ride
- 4 Twin Cities , MN
 - Bronze Level IMBA Ride Center
- 5 CAMBA Mountain Bike Trail System, Cable to Hayward, WI
 - Bronze Level IMBA Ride Center
 - IMBA Epic Ride - Rock Lake
- 6 Marquette, MI
 - Bronze Level IMBA Ride Center
- 7 Levis-Trow Mound, WI
 - IMBA Epic Ride



1

2

3

4

5

2016-2017
[DEC - JAN]

PROJECT INITIATION

- Kickoff
- Inventory-Site Visits
- Data Collection

2017
[JAN - FEB]

PUBLIC ENGAGEMENT

- Stakeholder Groups
- Open House
- On-line Forum

2017
[FEB - MAR]

DRAFT PLAN

- Plan
- Recommendations
- Mapping

2017
[MAR- APR]

REVIEW + REVISE

- Public Comment
- Revisions
- Submit to City Council + Parks Commission

PROCESS + COMMUNITY ENGAGEMENT

The Duluth Traverse project has been included in a number of previously completed City Plans and studies. Identified as a priority project in these plans, the Duluth Traverse was constructed swiftly as there was a fast tracked and sudden amount of opportunity, funds, and available routing. Trail construction happened quickly as momentum, excitement, and opportunity sped the process along. This fast track construction occurred without a formalized master plan, but the trail project was vetted by community input that was received in other master plans, an Environmental Assessment Worksheet (EAW) for the project that closely examined the environmental impacts of the proposed route, and many meetings with stakeholders and city staff.

With trail construction over 2/3 complete there are lessons that have been learned as the trail has become very popular with residents and tourists. Additionally, some of the unfinished sections of trail require greater clarity on uses, signage, and general rules for usership. This master plan will address these issues as well as defining the near-term development limits for the Duluth Traverse and all supporting infrastructure such as additional trailheads, additional trail connections, supporting infrastructure, and operations and maintenance practices.

To complete the master plan, a community engagement process was undertaken that focused on stakeholder engagement, public open houses, and an extensive on-line public input tool to gather feedback across the entire trail system.

In addition to the online engagement tool, the City received 177 website forum comments, 41 emails, and 7 written comment cards.

COMMUNITY ENGAGEMENT

KICKOFF AND VISIONING MEETING - DECEMBER 22ND, 2016

Located at City Hall, this meeting focused on the general direction of the Duluth Traverse and the City and COGGS vision and goals for the project. Input from various city departments was collected including from Emergency Response, Public Works, Engineering, Planning, and Communications. The community engagement process was established for this masterplan at the kickoff and visioning meeting.

COMMUNITY ENGAGEMENT GOALS:

1. GAIN AN UNDERSTANDING OF KEY ISSUES FROM THE LOCAL COMMUNITY THAT ARE IMPORTANT TO CONSIDER FOR THE LONG TERM SUSTAINABILITY OF THE TRAVERSE TRAIL
2. FIND OUT WHAT COMMUNITY MEMBERS LIKE AND DON'T LIKE ABOUT THE TRAVERSE TRAIL
3. HELP TO IDENTIFY KEY LOCATIONS FOR SUPPORTING FEATURES AND ANY ADDITIONAL INFRASTRUCTURE NEEDS
4. UNDERSTAND COMMUNITY PRIORITIES



STAKEHOLDER MEETING #1 - JANUARY 11TH, 2017

Located at Spirit Mountain's lower chalet, this meeting gathered approximately 16 stakeholders representing 13+ trail based groups including bikers, hikers, equestrian, skiers, snowmobile, and hunting groups, among others. The consultants gave a presentation on the Duluth Traverse project, history, guiding principles, and next steps, and the stakeholders provided specific input on identified issues along the entire length of the trail. The focus of the meeting was to educate, collect feedback, and begin building relationships between the various trail user groups. Additionally, stakeholders were asked to prioritize some previously identified issues to help focus consultant and city team's expertise.



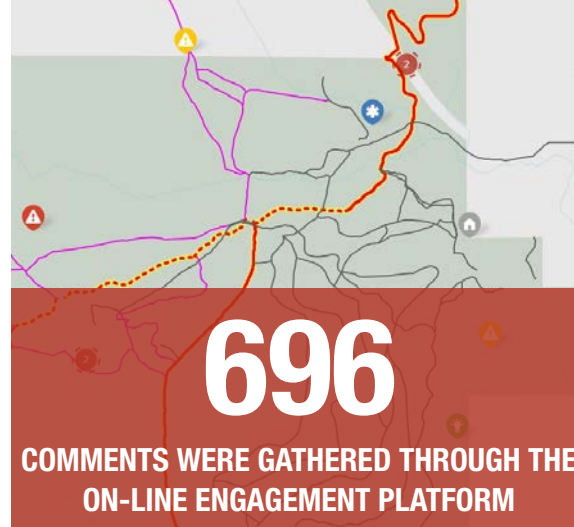
STAKEHOLDER MEETING #2 - JANUARY 25TH, 2017

Located at City hall, this meeting gathered approximately 40+ education, programmatic, business, youth users, property owners, nature centers, non-profits, affected larger scale property owners, and organizations that could play a role in furthering the success of the Duluth Traverse. The city and consultant gave a presentation on the Duluth Traverse project, history, guiding principles, next steps, issues that have been defined, and an introduction to an on-line community engagement tool used for the project. Stakeholders broke into small groups to identify and prioritize issues with regard to how they could affect the long-term success of the Duluth Traverse.



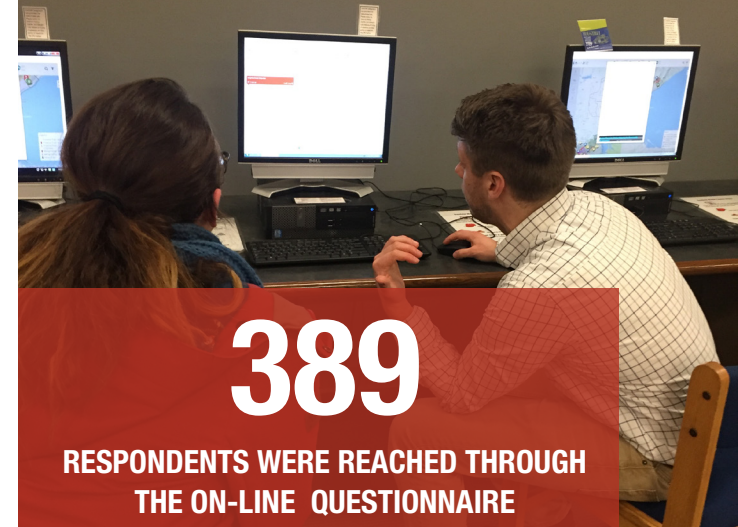
67

**COMMUNITY MEMBERS
ATTENDED AN OPEN HOUSE**



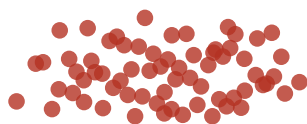
696

**COMMENTS WERE GATHERED THROUGH THE
ON-LINE ENGAGEMENT PLATFORM**



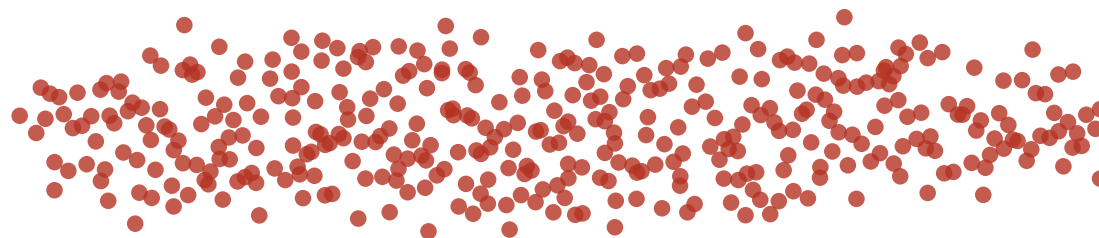
389

**RESPONDENTS WERE REACHED THROUGH
THE ON-LINE QUESTIONNAIRE**



PUBLIC OPEN HOUSE - FEBRUARY 9TH

Located at Denfeld High School, the public open house gathered 67 city residents and trail users to learn about the trail and comment on the master plan. The city and consultants gave a presentation on the history of the Duluth Traverse, some precedents from other parts of the country, a discussion on guiding principles, an introduction to the on-line engagement tool, and an extensive live polling exercise to collect feedback from the participants on priority issues and guiding principles. These same questions were asked in on-line materials and data was combined. Geographic mapping stations were available at the end of the meeting for feedback, comments, specific issue identification, and to facilitate discussion between various trail user groups – further fostering open lines of communications between these groups.



ON-LINE ENGAGEMENT - JANUARY 25TH THROUGH APRIL 4TH (2017)

This process of community engagement utilized the application Social Pinpoint to collect on-line data from the public. This tool allowed people to zoom to specific areas of the trail, drag issues icons onto the map, and leave specific comments in specific geographic locations. Comments are public and other members of the public can click on a comment, “like” or “dislike” the comment, and start an on-line public discussion on that topic if they wish. This dynamic platform allowed some excellent input into specific issues on the trail and fostered some good public dis-

course around these issues. Social Pinpoint was made available at the open house with consultant-staffed computer stations. In addition, large maps, dots, and sticky notes were used in the stakeholder and open house meetings to collect additional comments. The consultant transferred all comments left on maps to the Social Pinpoint site following the meetings to build one database of community engagement comments.

In addition to the geographic input, a questionnaire was made available at the social pinpoint site, the city’s website, and printed versions as requested. 389 people responded to the questionnaire.

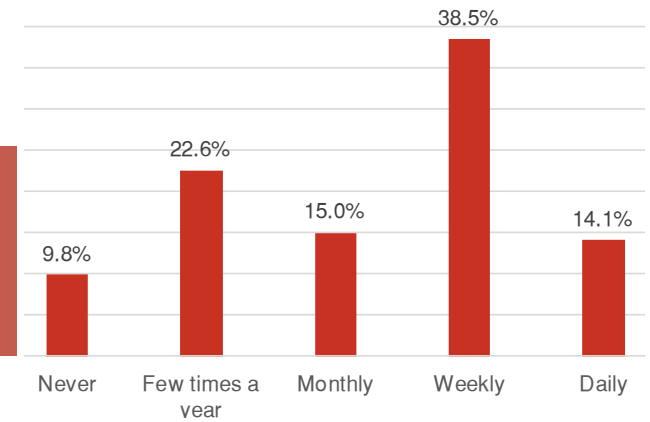
COMMUNITY ENGAGEMENT SUMMARY

WHO WE HEARD FROM...

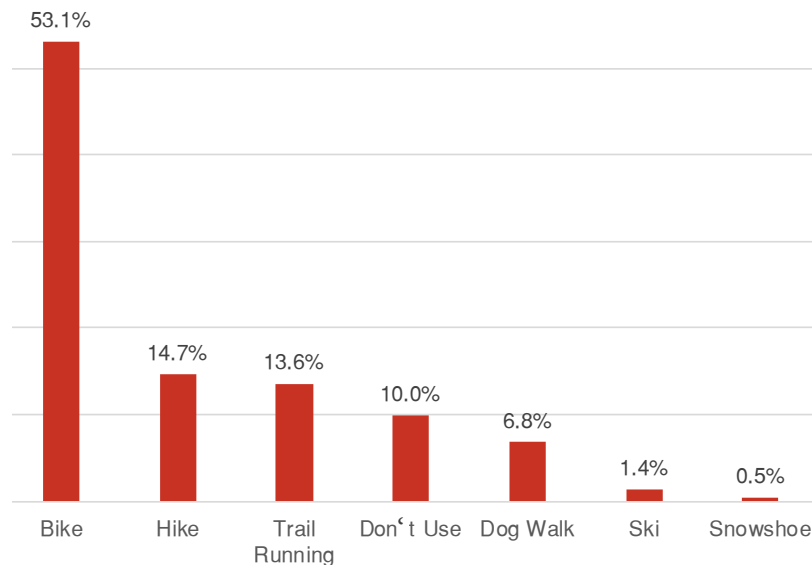
53% OF ALL RESPONDENTS USE THE TRAIL AT LEAST ONCE PER WEEK

66% OF MOUNTAIN BIKERS USE THE TRAIL AT LEAST ONCE PER WEEK

» How often do you use the Duluth Traverse Trail?



» What is your primary use of the Duluth Traverse Trail?



» Mountain Biker, Photo Credit: Hansi Johnson



» Trail Running, Photo Credit: Hansi Johnson

BIKING IS THE PRIMARY USE OF THE TRAIL (53%)
HIKING (15%) AND **TRAIL RUNNING**
 (14%) FOLLOW AS THE NEXT HIGHEST USES

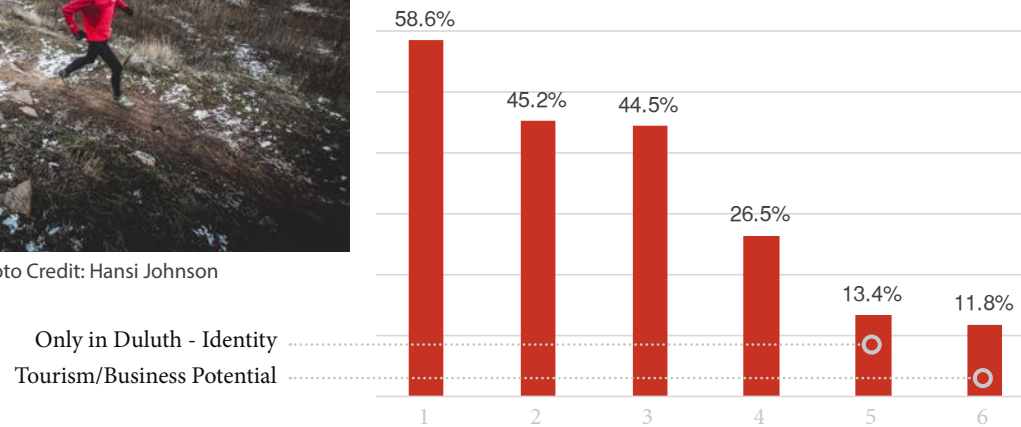
COMMUNITY ENGAGEMENT SUMMARY

WHAT WAS HEARD...



» Trail Running, Photo Credit: Hansi Johnson

» What do you like most about the Duluth Traverse Trail? (choose 2)



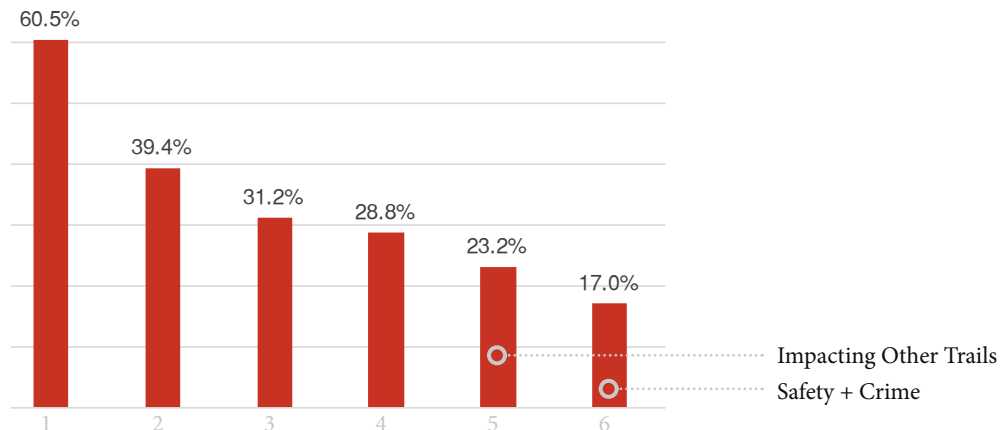
TOP ASSETS:

1. THE PROXIMITY OF THE TRAILS TO HOMES
2. THE DIVERSITY OF HIGH QUALITY MOUNTAIN BIKING
3. MULTI-USE NATURE OF TRAIL (BIKE/HIKE/RUN)
4. NEIGHBORHOOD CONNECTIVITY

TOP CONCERNS:

1. LONG TERM MAINTENANCE + COSTS
2. OVERCROWDING – TOO MANY TOURISTS
3. ACCESS - EXCLUDING RESIDENTS
4. ENVIRONMENTAL DEGRADATION

» What are you most concerned about with the Duluth Traverse Trail? (choose 2)





1

2

3

4

5

PRIORITY RANKING OF ISSUES (ALL RESPONDENTS):

- | | |
|-------------------------------|-----------------------------|
| 1 MANAGEMENT/ MAINTENANCE | 6 MISSING TRAIL CONNECTIONS |
| 2 USER CONFLICTS | 7 TRAFFIC + TRAILHEADS |
| 3 NATURAL RESOURCE PROTECTION | 8 TRAIL DISTRIBUTION |
| 4 SIGNAGE + WAYFINDING | 9 SAFETY + CRIME |
| 5 TRAIL ETIQUETTE | 10 SKILL BUILDING AREAS |

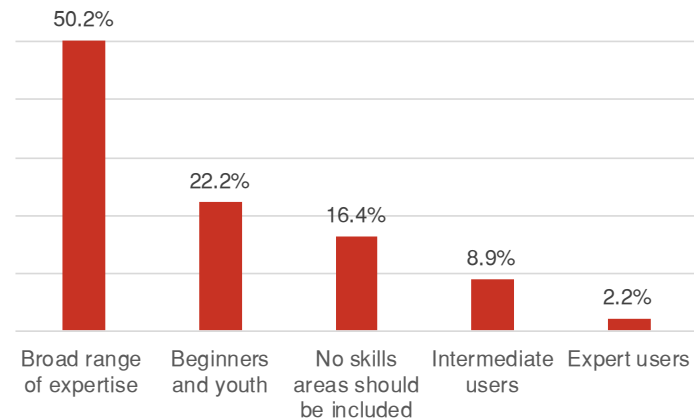
PRIORITY RANKING OF ISSUES (MOUNTAIN BIKERS):

- | | |
|-------------------------------|-----------------------------|
| 1 MANAGEMENT/ MAINTENANCE | 6 TRAFFIC + TRAILHEADS |
| 2 NATURAL RESOURCE PROTECTION | 7 SAFETY + CRIME |
| 3 TRAIL ETIQUETTE | 8 MISSING TRAIL CONNECTIONS |
| 4 SIGNAGE + WAYFINDING | 9 TRAIL DISTRIBUTION |
| 5 USER CONFLICTS | 10 SKILL BUILDING AREAS |

BIKE SKILLS AREA

» see definition of bike skills area on page 26.

» Bike Skills Areas in the DT Master Plan should be focused on:

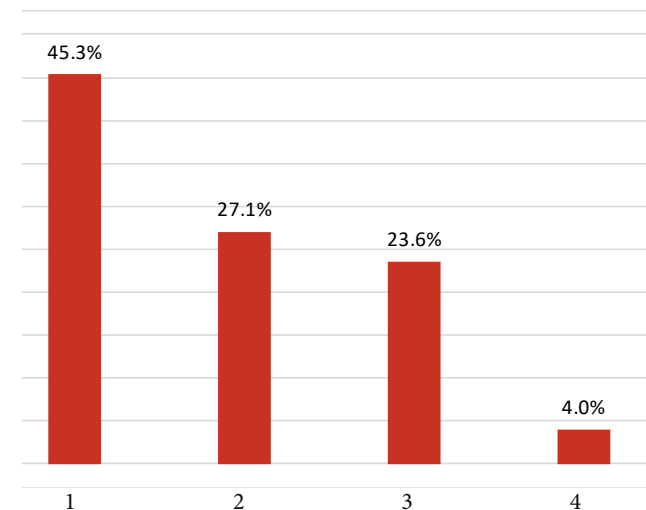


» Bike Skills Loop, Valmont Bike Park, CO

YOUTH OUTREACH

» Both the City of Duluth and COGGS believe that youth outreach is fundamental to the long-term sustainability of the trail system and mountain biking in Duluth. In your opinion, which of the following should be top priorities for this outreach?

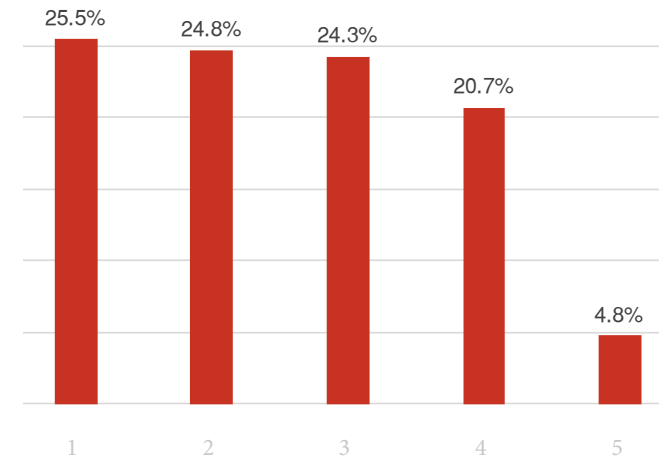
1. Creating Kid and family friendly trail opportunities distributed throughout the city
2. Providing education and programming opportunities - subsidized if necessary
3. Providing equipment access for under-served youth and families
4. Supporting local school racing teams and existing clubs



DWP + EQUESTRIAN

- » Equestrian usage on this section of trail has been identified in the St. Louis River Corridor Planning efforts. How should equestrian usage on this stretch of the DWP be implemented:

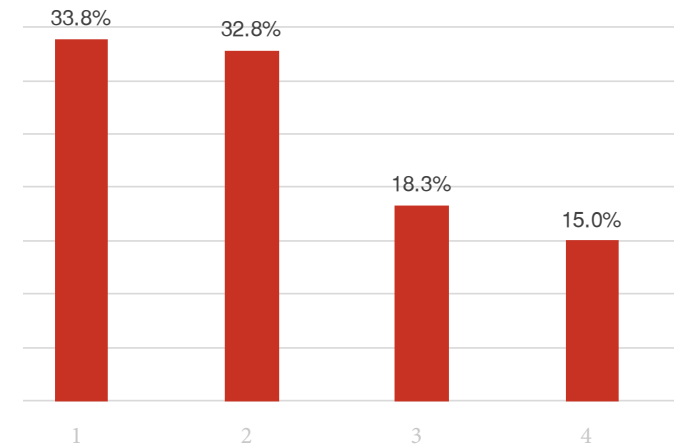
1. Totally separate users that could spook horses onto a separate alignment where possible
2. Widen and create separate grassy trail for horses and gravel for other users
3. Leave as is with general trail improvements (signs, structural improvements, etc.)
4. I have no opinion on this
5. Share with everyone but bicyclists (bikes have the potential to spook horses)



DWP + SNOWMOBILE

- » Respondents were not given an option to vote on whether to allow or not allow snowmobiles on the DWP. The question focused only on “if” snowmobiles were allowed.
- » Snowmobile usage on this section of trail could create an important connection to other existing snowmobile trails in the city. If implemented the trail would remain a multi-use trail in the winter. In your opinion, how could it be implemented:

1. Widen trail and allow typical speed limits found elsewhere in city for any users
2. Maintain current width (narrow trail) and implement and enforce lower speed limits
3. Leave as is with general trail improvements
4. I have no opinion on this



GUIDING PRINCIPLES

[IN ORDER OF PUBLIC PRIORITY]

01

CONNECT PEOPLE + PARKS + TRAILS

Provide a contiguous natural surface trail from one end of Duluth to the other. Build a multi-use trail optimized for bike use that connects neighborhoods and people to parks and green spaces. Complement and connect to Duluth's other trail systems and provide a variety of different trails for users of various skill levels.

02

LONG TERM SUSTAINABILITY

Identify best management practices and procedures to ensure long-term success. Utilize and integrate new technologies to improve maintenance efficiency, safety, collaboration, and community building.

03

EDUCATE ALL USERS

Provide clear and engaging signage and wayfinding to promote neighborhood access, efficiency, safety, and social etiquette education. Develop a culture of educated trail users that protect the environment and respect each other.

Utilize best practices for environmentally sustainable trail design, construction and management. Maximize opportunities for viewshed protection, natural resource preservation, and sensitive area protection and education.

PROTECT + RESTORE THE ENVIRONMENT

04

Maximize accessibility for all users by ensuring Duluth Traverse Spine Trail is green level designated. Be respectful to adjacent landowners, neighbors, and other outdoor recreation users in the area. Connect under-served neighborhoods and explore methods to reduce barriers to mountain biking for all residents.

EQUITY + ACCESS

05

Create a nationally significant destination level mountain bike trail system in the green spaces of an urban environment. Enhance the lives of residents and encourage tourism growth. Provide connections to regional trails and parks. Work toward the development of adequate facilities to handle local and tourist populations during peak use times.

ESTABLISH A UNIQUELY DULUTH DESTINATION

06

Actively seek partnerships across disciplines and user groups to improve opportunities for Duluth's outdoor recreation users. Develop a stronger community through collaborative development and protection of Duluth's unique outdoor recreation resources. Share knowledge and resources among user groups.

FOSTER PARTNERSHIPS + COMMUNITY

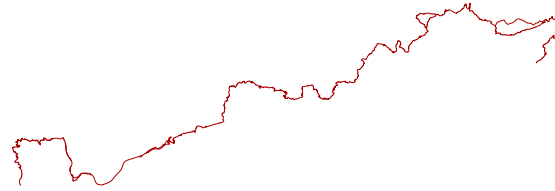
07

2.

DULUTH TRAVERSE OVERVIEW



» Photo Credit: Hansi Johnson



OVERVIEW OF TRAIL NETWORK

The original vision for the Duluth Traverse Trail System included 84-miles of mountain bike-focused, shared-use trails, with more than 54-miles of trail center-based singletrack connected by a 40-mile, beginner level spine. The Duluth Traverse has already received International Recognition by the International Mountain Biking (IMBA) with a Gold Level Trail Center designation in 2016; 1 of only 6 designations worldwide.

The full extent of the Duluth Traverse is a multi-use trail system linking neighborhoods and people to green spaces, and Duluth's parks. The Duluth Traverse stretches the entire ridge-line of Duluth from Lester Park in the east to Chambers Grove Park in the west, and will be the first 100+ mile trail system of its kind, wholly within an urban environment.

Although purpose built for mountain biking, this trail is intended to be multi-use and open to all human-powered users including runners, hikers, and on-leash dog walkers in the summer; and fat tire biking, snowshoeing and backcountry skiing in the winter months. There will be connections to the trail from parks, recreation areas, streets, trailheads, schools, universities, natural areas, and other local and regional trails.



» Photo Credit: Hansi Johnson



» Photo Credit: COGGS

TRAIL TYPES

Trail type defines the style of trail and its typical attributes. Different trail types are attractive to different riders and styles of riding. The Duluth Traverse incorporates a number of different types which increase the variety and attraction to riders targeting specific trail types. While diverse, each of the trail types meet a different market segment. It is important that the majority of trails cater for the existing and potential market majority.

CROSS COUNTRY

Primarily singletrack trail (less than 4' wide) with a combination of climbing and descending trails and natural trail features of varying technicality. Cross Country trails appeal to the majority market and can cater for timed competitive events. A majority of the Duluth Traverse is a cross country trail.

ALL WEATHER

All weather trails are biking trails that can be used in a variety of weather conditions. All weather trails are hardened with stone aggregate or wooden structures to accommodate riders when other sections of the Duluth Traverse Trail System may be closed due to wet/muddy conditions. Spirit Mountain is currently building an all weather trail.

DOWNHILL

Gravity-oriented descending only one-way trails with emphasis on speed and technical challenge.

These trails can cater for timed downhill competitive racing. Downhill trails appeal to the more experienced market and typically require uplift to the trailhead via chairlift or vehicle shuttle. Distinct bikes are designed for descending and are typically long-travel dual suspension and built for durability rather than low weight. Spirit Mountain currently contains the only downhill trail type connected to the Duluth Traverse.

FREERIDE

Typically descent focused trails with emphasis solely on technical challenge. Freeride trails feature both built and natural terrain technical features with a focus on drops and jumps. Appeals to the more experienced market and caters for competitions judging maneuvers and skills. Piedmont/Brewer Park currently have segments of trails over exposed rock that provide a freeride type experience. Duluth Traverse trails in these areas are designated and managed for safety and access, one-way use is encouraged.

TOURING

Typically long distance riding on reasonably uniform surface conditions and lower grades. Touring trails are dual direction linear trails or long distance circuits with a focus on reaching a destination. Touring trails can include rail or double track trails and access/ fire roads. Touring trails are typically easier trails making them accessible to all. There are portion of the Duluth Traverse that can be part of a longer touring route connecting to other regional trails in Duluth.

B-LINE

B Lines or Alt Lines are defined as short spurs that leave and then reconnect to the main trail and provide a progressively more challenging, skill building experience than the main trail. These spurs should always be “off” the main flow of the trail and the beginning “filter” or “qualifier” for the alternate line should be as difficult as the most difficult riding/balance move. These short spurs/technical trail features assist with skills development, risk management (knowing what to expect from the next difficulty level of trail) and providing experiential diversity.



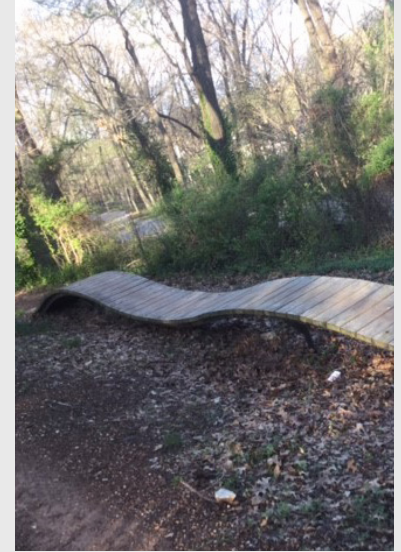
TECHNICAL TRAIL FEATURE BOARDWALKS

Similar to B-Lines, these features are constructed to allow for skill development and progression. they are often located parallel to the main trail, similar to a B-Line. Features will go through same approval process as B-Lines.

SKILLS AREAS

SKILLS AREAS

Built feature environment with emphasis on balance maneuvers, mountain bike skills development, and progression in riding capabilities. Appeals to a wide market including youth and beginners, and can cater for competitions. Skills Areas can include jump and pump tracks and skills areas. They are typically dirt surfaced but can include hardened surfaces. A few facilities are currently planned along the Duluth Traverse and this plan recommends locations for additional facilities. Skills areas are typically smaller scale, not centralized, and found throughout the trail system or at trailheads and ride centers. They can be fit into the fabric of an existing park.



» Photo Credit: Matt Goodman

BIKE PARKS

BIKE PARKS

Usually larger, centralized areas with built features emphasizing skills and progression. Appeals to wide market including youth and can cater for competitions and racing. Bike parks can include jump and pump tracks and skills park. Spirit Mountain is currently the only designated Bike Park on the Duluth Traverse. UMD has also discussed an on-campus skills area for students and other riders. Bike parks require greater levels of maintenance and operation.



TRAIL CLASSIFICATION

Mountain biking trail classifications are guided by the International Mountain Bicycling (IMBA) Trail Difficulty Rating System. This system was adapted from the International Trail Marking System used at ski areas throughout the world, and signage standards are based on the Duluth Parks Exterior signage design and wayfinding plan. The IMBA Trail Difficulty Rating System and signage markers can:

- Help trail users make informed decisions
- Encourage visitors to use trails that match their skill level
- Manage risk and minimize injuries
- Improve the outdoor experience for a wide variety of visitors
- Aid in the planning of trails and trail systems

Trails are rated from easiest through to extremely difficult. The difficulty rating system outlines the ratings, which are determined by trail width, tread surface, average trail gradient, maximum trail gradient and natural obstacles and technical trail features. The mountain bike trail classifications defined by IMBA are;

EASIEST - WHITE CIRCLE (WH)

Typically wide trail (72" or more) with a hardened or gravel surfaced tread and low gradients (average less than 5%). White Circle trails can be improved to meet the ADA requirements for accessibility. Until those improvements are done, surface may be uneven, loose or muddy at times but free from unavoidable obstacles. Recommended for novice riders, these trails are also referred to as "Gateway Trails". City plans call for the DWP Trail, Old Hartley Road Trail, and the Chambers Grove Interpretative Trail to meet ADA standards. (see page 69 for more info.)

EASY - GREEN CIRCLE (GN)

Typically flowing open trails (36"-48" wide or more) on firm terrain with gentle gradients (average 5% or less). Surface may be uneven, loose or muddy at times. Riders may encounter small rollable obstacles and technical trail features. Unavoidable bridges (48" or wider) may be included in this trail type. Recommended for beginner mountain bikers. A majority of the Traverse Spine is green rated.

MODERATE- BLUE SQUARE (BU)

Typically narrow trail (24" or more) with loose, soft, rocky or slippery sections and hills with short steep sections (average 10% or less). Riders will encounter obstacles and technical trail fea-

tures. Recommended for riders with some technical mountain biking experience. A number of blue rated trails are connected to the Duluth Traverse Spine in Trail Centers.

DIFFICULT - BLACK DIAMOND (BL)

Trails with variable surfaces and steep gradients (average 15% or less). Trails are often narrow (up to 24") and include large unavoidable obstacles and technical trail features. Recommended for experienced riders with good technical skill levels. Some black diamond sections of trail occur in Trail Centers.

EXTREME - DOUBLE BLACK DIAMOND (DB)

Trails may contain highly variable and unpredictable surfaces, very challenging terrain and/or very steep sections (20% or more). Trails are very narrow (6" or more) and include committing and unavoidable obstacles and technical trail features that may not be rollable. Recommended for very experienced riders with high level technical skill levels. Avid riders are interested in expanding this trail option type connected to the Duluth Traverse.



TRAIL CENTERS



FOCUS AREAS

EXISTING DULUTH TRAVERSE TRAIL SYSTEM OVERVIEW

DULUTH TRAVERSE SPINE
— EXISTING — PROPOSED

NEIGHBORHOOD CONNECTOR TRAILS
— EXISTING — PROPOSED

SUPERIOR HIKING TRAIL

0 0.25 0.5 MILES



MISSION CREEK FOREST PRESERVE/ CHAMBERS GROVE

FAIRMONT PARK/ ZOO

BREWER PARK + PIEDMONT
RECREATION AREA

PIEDMONT
RECREATION AREA

LINCOLN PARK
MIDDLE SCHOOL

HWY 2

SKYLINE PKWY

I-35W

HWY 2

GRAND AVE.

ST. LOUIS RIVER
ESTUARY

WESTERN TERMINUS AT CHAMBERS
GROVE PARK

FAIRMONT/ LAKE
SUPERIOR ZOO

SPIRIT MOUNTAIN
RECREATION AREA

MAGNEY-SNIVELY
NATURAL AREA

MISSION CREEK
FOREST PRESERVE

1

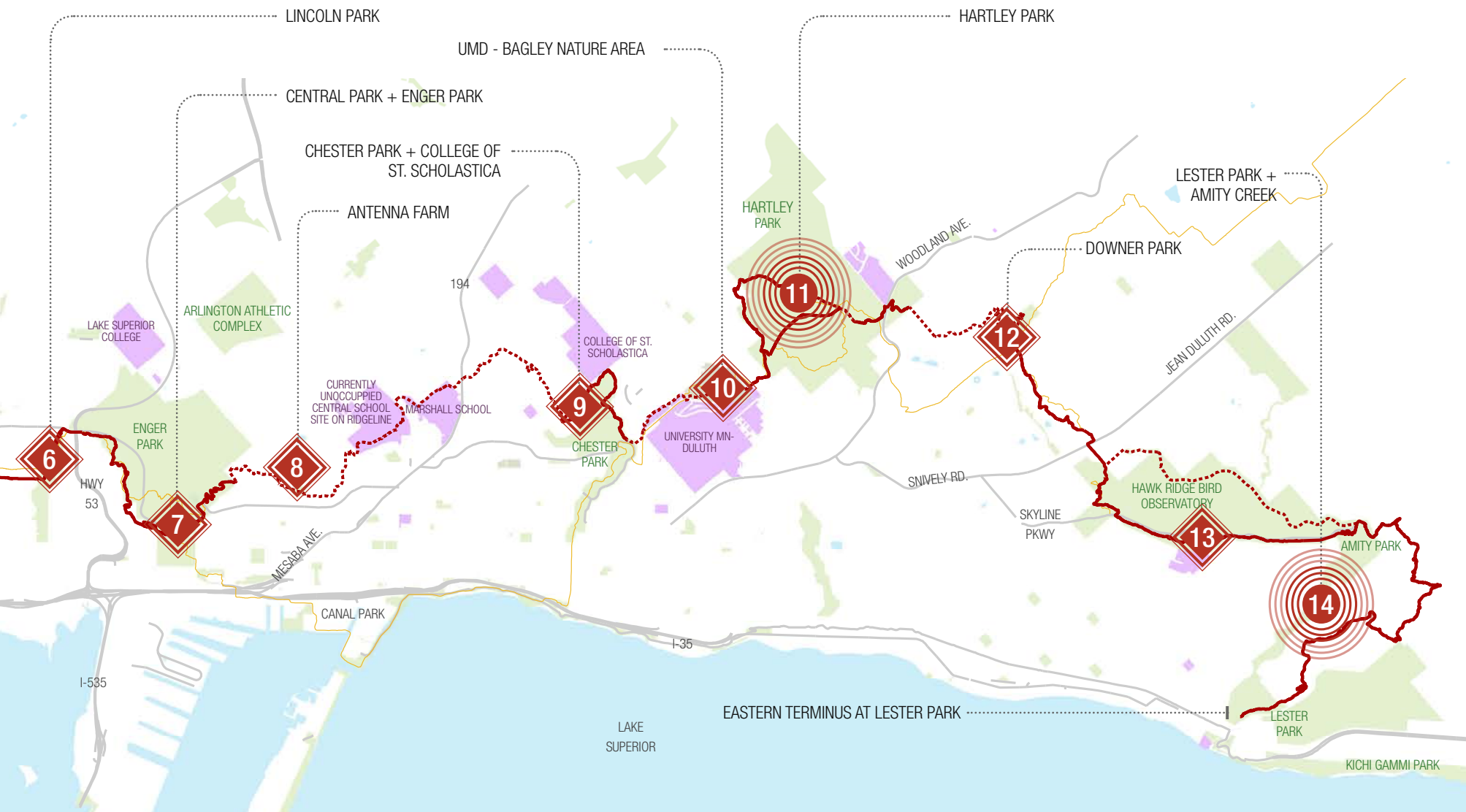
2

3

4

5

DULUTH TRAVERSE SPINE PROFILE





TRAIL CENTERS + FOCUS AREAS

EXISTING CONDITIONS

1. MISSION CREEK FOREST PRESERVE/ CHAMBERS GROVE

Mission Creek Forest Preserve contains 5.6 miles of the Duluth Traverse spine trail, and 18.3 miles of multi-use trail. The Preserve sits at the south-west terminus of the Duluth Traverse, and surrounds the Fond-du-lac community. Bordered to the northeast by Becks Road, the Preserve provides a diverse set of opportunities for trail based recreation of a large well forested natural area straddling the Mission Creek Valley. Chambers Grove Park contains a large parking lot on the Saint Louis River corridor and Highway 23. An additional informal trailhead is present in Fond-du-lac off of 131st Avenue West; this trail head provides access to the Superior Hiking Trail (via a spur trail) and multi-use trail in the Forest Preserve. There is also additional parking along Becks Road and Highway 210.

2. MAGNEY-SNIVELY NATURAL AREA + DWP CORRIDOR

This area connects Mission Creek Forest Preserve to Spirit Mountain. The DWP Corridor contains scenic rail trestles that need repair, a tunnel that needs to be cleared, and numerous rock slide areas to be addressed. This section will require significant investment and planning to safely open for use. However, the compacted grade makes an excellent trail base and it has some of the most unique natural areas, cultural remnants, excellent viewsheds, and potential to connect to currently under-served neighborhoods.

3. SPIRIT MOUNTAIN RECREATION AREA

Currently the Spirit Mountain Bike Park area has 5.9 miles of trail and 2.3 miles of completed Duluth Traverse spine. The Bike Park provides opportunities for both lift-served (gravity) riding and traditional cross country mountain biking. The Spirit Mountain Recreation Area Master Plan (in progress) will closely integrate with the Duluth Traverse Mini-Master Plan process.

4. FAIRMONT PARK

Situated along the DWP and above the Lake Superior Zoo, Fairmont Park contains a portion of the Duluth Traverse, including a neighborhood connection/ trail head at Waseca Street with public parking.

5. BREWER PARK + PIEDMONT RECREATION AREA

Brewer Park and Piedmont Recreation Area contain 8.3 miles of the Duluth Traverse spine and are situated around the Denfield, Cody and Piedmont Neighborhoods. Containing 11.5 miles of additional multi-use trail the park and Recreation Area are relatively fully developed, providing a dense network for trails for varied user access and experience. Public parking is provided at trailheads scattered throughout the area.



» Spirit Mountain, Hansi Johnson



» Spirit Mountain Skiers, City of Duluth



» Lincoln Park, City of Duluth

6. LINCOLN PARK

Lincoln Park is just northeast of Piedmont Recreation Area and provides a Duluth Traverse connection towards Skyline Parkway and onward to Enger Park above Duluth's Lincoln Park Business District.

7. CENTRAL PARK + ENGER PARK

Central Park sits just below the Duluth Traverse and Enger Park in the Central Hillside neighborhood. The park provides opportunities to connect to the central neighborhoods and contains 2 miles of Duluth Traverse spine.

8. ANTENNA FARM

The antenna farm is the location for several communications towers that are highly visible on the ridgeline. Private easements and concern over ice fall have limited the trail in this area to city streets.

9. CHESTER PARK

Chester Park is situated in a creek valley between Central Hillside, College of St. Scholastica, Uni-

versity of Minnesota Duluth, and between East and Hillside neighborhoods. It is bordered by 1.2 miles of existing Duluth Traverse Spine along the northern edge of the park. The park contains significant topography and a small neighborhood ski hill with a lift and chalet. Chester Park has adequate parking for Traverse access at the corner of College Street and Kenwood Avenue.

10. UMD – BAGLEY NATURE AREA

Bagley Nature Area contains a portion of the Superior Hiking Trail. Currently the Duluth Traverse is not present in Bagley. The route for the current trail is on streets through campus.



11. HARTLEY PARK

Hartley Park is located between Woodland, Hunters Park and Kenwood Neighborhoods. It contains 2.6 miles of the Duluth Traverse spine, and 7.5 miles of multi-use trail around Hartley pond and Tischer Creek. Connection to the adjacent neighborhoods provide access for many residents. Hartley has adequate parking for trail use. Existing trails in the northwest hills of Hartley Park were damaged by a severe storm in July 2016. All trails will be restored once the tree clean up efforts are completed in the winter of 2017-2018.

12. DOWNER PARK

Downer Park contains the Superior Hiking Trail, and short portions of proposed Duluth Traverse. It is adjacent to the Woodland and Pleasant View neighborhoods.



» University of Minnesota Duluth



» Hartley Park Tunnel Trail , City of Duluth



» Hartley Park Trail Head , City of Duluth



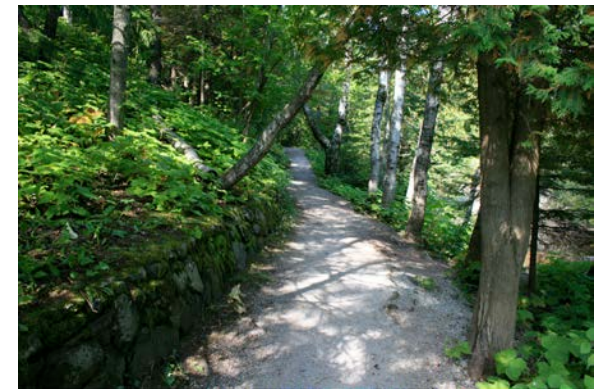
» Hawk Ridge Overlook, City of Duluth

13. HAWK RIDGE BIRD OBSERVATORY

The Hawk Ridge Bird Observatory contains roughly 2.5 miles of the Duluth Traverse. This section contains several difficult and challenging sections that do not currently conform to the beginner-level vision for the Duluth Traverse Spine. The Observatory is adjacent to Lester Park, and provides Duluth Traverse connectivity towards Downer Park from Lester Park. The Observatory contains several additional trails including a spur of the Superior Hiking Trail that provide looping opportunities and access for users seeking to access the ridge. Hawk Ridge is a popular tourist destination and proper management of the Duluth Traverse is necessary here to preserve the experience.

14. LESTER PARK + AMITY CREEK

Lester Park contains the eastern terminus of the Duluth Traverse. It contains 4.2 miles of the Duluth Traverse Spine connected to 4.5 miles of the Duluth Traverse System Leaving Lester Park, the Duluth Traverse connects to Hawk Ridge. Neighborhoods adjacent to Lester Park are Northshore and Lakeside-Lester Park. Adequate parking exists at Lester Park for trail access.



» Lester Park Trail, City of Duluth



» Lester Park River, City of Duluth

TRAIL DEVELOPMENT POLICY

The original vision for the Duluth Traverse Trail System was developed and formally approved by the City via two public processes: the 2011 City of Duluth Trails and Bikeways Plan and the 2013 Duluth Traverse Environmental Assessment Worksheet (EAW). The City then proceeded with detailed planning, design, and construction of individual trail segments. In the process of developing those segments, the City encountered issues and challenges that sometimes required changes to the original vision. The most significant changes to the original vision were formally reviewed and approved in two formal EAW updates in 2014 and 2016, respectively.

This Mini Master Plan includes and provides updated information on the 104 miles of trail identified in the final 2016 EAW update of which 84 have been completed. It is the intent of the City to continue to work with COGGS to complete that original vision.

Prior to construction of any new trail or trail-related facility, COGGS shall be required to submit a Park Project Proposal, which is the first step in the standard City of Duluth administrative process for all citizen-initiated park and trail construction projects. Following receipt of the project proposal by City staff, the next step will depend on whether the proposed trails are or are not included in the original 104-mile vision.

Trails included in the original 104-mile vision, as detailed in this mini master plan and preceding EAW update, will be subject to formal administrative review but will not be subject to additional environmental or public review.

Trails not included in the original 104-mile vision will be subject to administrative review AND additional public and environmental review.

The extent and character of the additional public review will be scaled to the importance, complexity, and contentiousness of the proposed project. The extent and character of additional environmental review shall be decided by the Planning Department in compliance with state law.

There are two subsets of trails not included in the original 104-mile vision: neighborhood/inter community connector trails and other trails. The City will bring different perspectives to applications to construct these different trail types. For any neighborhood/ inter community connector trail not included in the original 104-mile vision, the City will seek to devise an approvable trail plan, provided that the effected neighborhoods strongly support the trails. For any other trails not included in the original 104-mile vision, the City will impose a strong burden of proof on the applicant to demonstrate the desirability, necessity, and sustainability of the proposed trails.

All trails not included in the original 104-mile vision shall be evaluated against the following decision-making tenets:

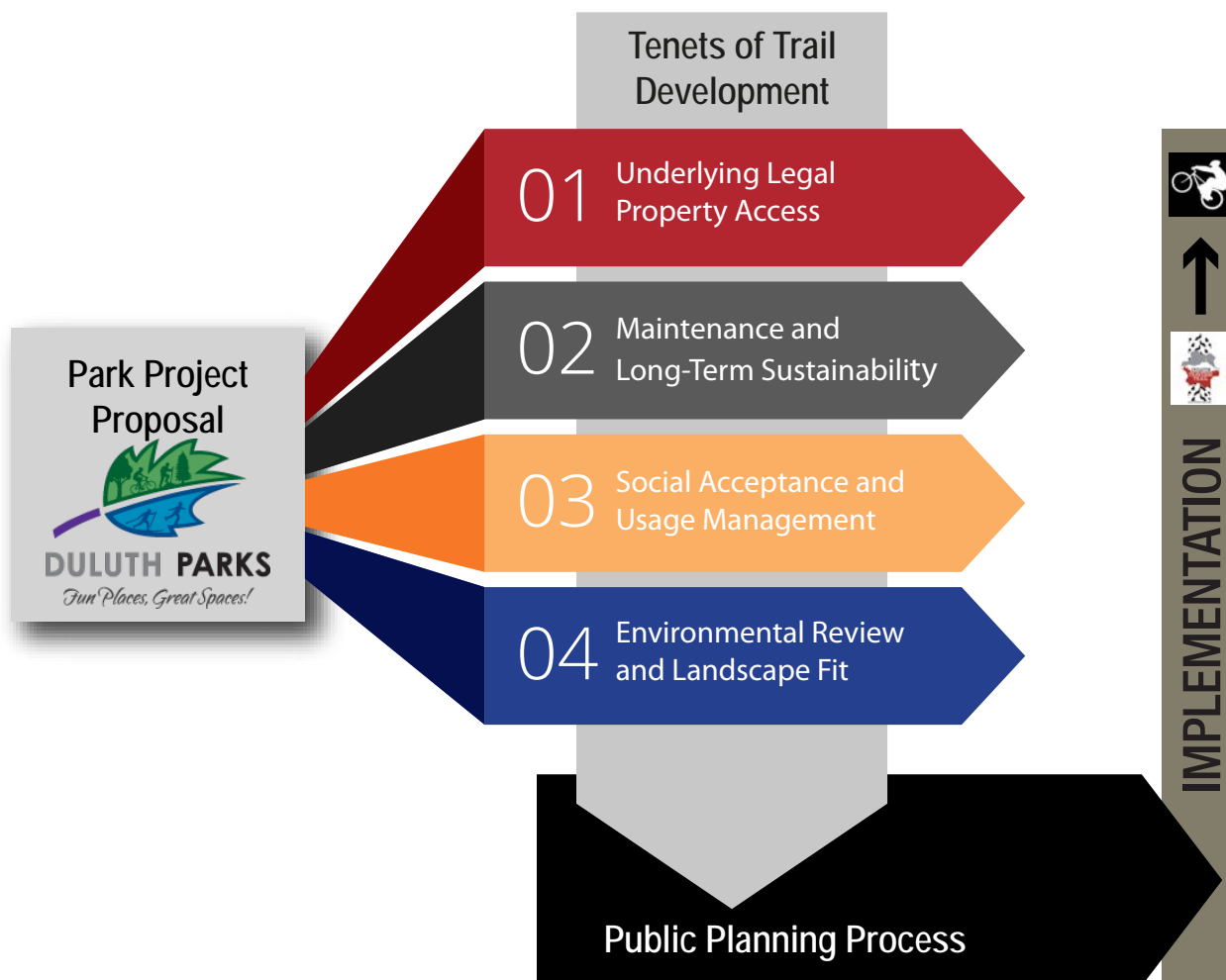
1. **Underlying Legal Property Access** – all property that the Duluth Traverse Trail System occupies shall be secured through City ownership, easement or other permanent agreement that allows the recreation usage of the trail to continue uninterrupted and retain a quality recreational experience

within that trail corridor

2. **Maintenance And Long Term Sustainability** – trail management will follow best industry practices for sustainability in design and maintenance. This high level of quality expectation in maintenance carried out in a sustainable way by the City and its Partners (i.e. COGGS) contributes directly to the experience that makes the Duluth Traverse Trail System a nationally significant trail system. The capacity to maintain existing trails + the added burden of proposed additional trails will be taken into consideration.
3. **Social Acceptance And Usage Management** – additions to the Duluth Traverse trail system must be supported by the neighborhoods/communities through an open public outreach process that includes community leaders, homeowners, and businesses.
4. **Environmental Review And Landscape Fit** – any trail routes that were not studied in an Environmental Assessment Worksheet (EAW) or one of the subsequent updates must be reviewed through a similar review process. Review will also include but not be limited to trail density, impacts to other users, search and rescue considerations, and quality as it is measured against the IMBA Gold Level Ride Center status as currently defined by the International Mountain Bike Association.

PARKING AREAS, SKILLS AREAS, AND OTHER AMENITIES IDENTIFIED BY THIS MASTER PLAN ARE TO BE REVIEWED THROUGH THIS PROCESS PRIOR TO IMPLEMENTATION.

PREVIOUSLY APPROVED PARK MINI MASTER PLANS TAKE PRECEDENCE OVER THE DULUTH TRAVERSE MINI MASTER PLAN. IF DIFFERENCES IN RECOMMENDATIONS EXIST BETWEEN MINI MASTER PLANS, A PUBLIC PROCESS MUST BE USED TO ENGAGE COMMUNITY STAKEHOLDERS AND APPROVE ANY NEW RECOMMENDATIONS THAT ARE DIFFERENT THAN THE ORIGINAL PARK MINI MASTER PLAN.



Balancing these tenets in a careful manner provides long-term durability to the trail system with the intent to protect it into perpetuity. They also ensure that the energy, creativity, and resources that are brought to the table by community partners, such as COGGS, are not stifled and lost. Both of which are essential components to making the Traverse a highly valued amenity by the community and a world class destination trail facility.

The following are exempt to the parameters outlined in this policy and shall be further defined in the City/COGGS user agreement and the Duluth Traverse Trail Operations and Maintenance Plan:

- Regular maintenance
- Re-routes and substantial reconstruction of an existing trail that are within the existing 50' trail corridor
- Re-routes outside the 50' corridor must be evaluated
- Trail improvements to an existing trail such as sustainability upgrades, feature construction, B-Lines, and technical trail boardwalks.
 - Feature construction and B-Lines must be consistent with any underlying planning processes and be approved administratively by City staff
- Any trail development at Spirit Mountain that is part of their Master Plan and associated EAW.

DULUTH TRAVERSE TRAIL SYSTEM MILEAGE

The Duluth Traverse Trail system as originally envisioned was a 104-mile multi-use natural surface trail system stretching the entire length of the City. This vision did not include all the necessary or possible neighborhood connections. It primarily focused on Trail Centers and the Spine connecting them together. This plan hopes to bring equity in access to many of Duluth's neighborhoods. These under-served communities have been a focus of recent planning efforts in the Parks Department and this planning process is no exception to that goal. The connections in this plan will focus on natural surface routes. Other street and paved path routes that serve as connections do exist and are not covered in the scope of this plan but have been taken into consideration in the preparation of this document.

The Duluth Traverse Trail Summaries Table provides an overview of the mileages that have been constructed, at the time of this documents writing, and the proposed trails that will complete the Duluth Traverse Trail System.

		Completed		Proposed		Total
		mi.	(%)	mi.	(%)	mi.
DULUTH TRAVERSE TRAIL SUMMARIES	Duluth Traverse Trail System Overall*	77.30	67%	26.17	23%	114.77
	Spine	30.50	79%	8.07	21%	38.57
	Multi-Use (non-spine)	46.80	72%	18.10	28%	64.90
	Double Track (included in Spine)	3.14	29%	7.69	71%	10.83
	Neighborhood Connectors	1.92	17%	9.38	83%	11.30
	Mission Creek Forest Preserve	23.86	87%	3.41	13%	27.27
	Spine	5.58	100%	0.00	0%	5.58
	Multi-Use (non-spine)	18.28	84%	3.41	16%	21.69
	Double Track	2.01	100%	0.00	0%	2.01
	Neighborhood Connectors	0.00	0%	0.62	100%	0.62
	Spirit Mountain Recreation Area	8.25	42%	11.28	58%	19.53
	Spine	2.31	52%	2.17	48%	4.48
	Multi-Use (non-spine)	5.94	39%	9.11	61%	15.05
	Double Track	0.00	0%	2.17	100%	2.17
	Neighborhood Connectors	0.00	0%	1.78	100%	1.78
	Brewer + Piedmont Parks	19.79	89%	2.37	11%	22.16
	Spine	8.26	100%	0.00	0%	8.26
	Multi-Use (non-spine)	11.53	83%	2.37	17%	13.90
	Double Track	0.00	0%	0.00	0%	0.00
	Neighborhood Connectors	0.00	0%	4.72	100%	4.72
	Hartley Park	9.90	95%	0.50	5%	10.40
	Spine	2.60	84%	0.50	16%	3.10
	Multi-Use (non-spine)	7.30	100%	0.00	0%	7.30
	Double Track	0.87	86%	0.14	14%	1.01
	Neighborhood Connectors	1.46	44%	1.89	56%	3.35
	Lester Park	7.90	76%	2.55	24%	10.45
	Spine	4.20	73%	1.55	27%	5.75
	Multi-Use (non-spine)	3.70	79%	1.00	21%	4.70
	Double Track	0.00	0%	1.55	100%	1.55
	Neighborhood Connectors	0.44	81%	0.10	19%	0.54

*Totals do not include "community connectors"

Few mountain bikers, few & informal trails, Duluth east-west rides pieced together by enterprising riders.

*COGGS (Cyclists of Gitchee Gumees Shores) organizes in 1994 to respond to threats.

1990s



2000s

Limited formal trails, more mountain bikers, some trail closures, and more extensive potential closures.

2006-2010: COGGS mtb concept plan integrated by City, and following Parks & Recreation Referendum, into Parks Master Plan.

2006



2011

Potential DT Trail corridor identified in the city Trail and Bikeway Plan.

2011-2017: COGGS raises funds for trail development. Totals nearly \$800,000.

COGGS becomes a non-profit chapter of the IMBA

\$600,000 in City funds utilized to “match” nearly \$900,000 in State, and Federal grant funds to make rapid trail development a reality.

2012-2016: Trail development plan framed in numerous Mini Master Plans, St. Louis River Corridor Plan and Western Trails Plan.

2012



2016-2017

2016: IMBA Gold Level Ride Center

2017-Future: Master plan development that provides opportunity for management-related State funds and frames City/Stakeholder partnerships

HISTORY

The Duluth Traverse largely grew out of Duluth citizens reaction and organization in the face of mountain biking threatened to be banned in the City. This was the case in the 1990’s, when mountain biking was growing across the country, as well as in Duluth. Riders were using a combination of hiking, hunting, and other trails to stitch together rides and were bringing a new, and very fast paced activity to the forest that had never previously been. There was negative reac-

tion from the public and mountain biking was being threatened. COGGS was formed in the wake of this threat and organized to protect and advocate for mountain biking that could fit into the fabric of Duluth’s outdoor recreation scene.

COGGS worked with the International Mountain Biking Association (IMBA) to raise money and advocate to city leaders. Together, these groups brought mountain biking back into the discussion for several key city park and trail planning projects. The Duluth Traverse idea was

born, was integrated into planning documents, and was supported by community leaders. The Duluth Traverse became a key feature in the City’s trail development vision.

Portions of the trail were constructed over time as COGGS and IMBA raised money and volunteer efforts to match grants and other funding sources. The City and COGGS are now planning for the trails completion and long-term sustainability of the Duluth Traverse as a community asset.

RELATED PLANNING EFFORTS

The Duluth Traverse is found in numerous related Planning Studies and Master Plans completed by the City of Duluth. The plans listed below support the Duluth Traverse and include elements of the Duluth Traverse in each plan. All three plans were approved by the Duluth City Council at the time of their writing. Related plans include:

2006 DULUTH COMPREHENSIVE LAND USE PLAN

This plan discusses a conceptual multi-use trail network across the city from Jay Cooke State Park in the west to Lester Park, and beyond, in the east. This trail was to be located along the ridgeline and connect parks, green spaces, recreational areas, natural corridors and public land along the way. This idea and language can be viewed as the precursor to the Duluth Traverse.

2010 CITY OF DULUTH PARKS AND RECREATION MASTER PLAN

This plan calls for a multi-use mountain bike trail traversing the ridgeline of the city from Mission Creek to Lester Park. It also recommended that the Duluth Traverse as a priority action project for Parks and Rec., Maintenance, and COGGS and directs the inclusion of Duluth Traverse in the citywide trail and bikeway plan.

2011 CITY OF DULUTH TRAIL AND BIKEWAY PLAN

Trail Vision Plan – The Duluth Traverse is listed as 1 of 6 trail systems that cross the City and an implementation priority to “Construct the first phases of the Duluth Traverse trail as land and funding are available.” During the writing of this document, the goal for Duluth to be “the premier trail city in North America” was developed. The Duluth Traverse plays a significant role in achieving this vision.

ST. LOUIS RIVER CORRIDOR VISION PROJECTS

The Duluth Traverse is mentioned in the St. Louis River Corridor Project as a priority project that will be integrated with several other trail and corridor planning efforts. As a part of this planning project, Equestrian use for the DWP was identified and will be a part of this master plan. Other projects in this study that mention the Duluth Traverse and have direct impact on this master plan include:

- Chambers Grove Park – Design and construction of flood restoration projects and park amenities that will support a trailhead for the Duluth Traverse at this location.
- Superior Hiking Trail Loops - integration and access to a network of biking, hiking, and climbing routes and trails including: Ely Peak, Bardon Peak, Spirit Mountain, Brewer Park, Enger Tower, and Spirit Mountain Loop Trail.

- Western Waterfront Trail – providing connection opportunities to the Duluth Traverse were an important aspect of this project.
- Cross City Trail – connects to the Munger State Trail at Fairmont/ Zoo/ Western Waterfront Trail at the east end of Spirit Mountain and provides an important connection to the system.
- Park Mini-Master Plans – Duluth Traverse connects parks and is included in a number of mini-master plans including: Hartley Park, Quarry Park, Fairmont/ Lake Superior Zoo, Lincoln Park, Chester Park, and Irving Park.
- Spirit Mountain Recreation Area Master Plan – connects to Duluth Traverse and provides significant amenities for mountain biking including the all-weather trail, lift service, downhill trails, and skills areas as well as support infrastructure.



» St. Louis River Corridor Trails Plan

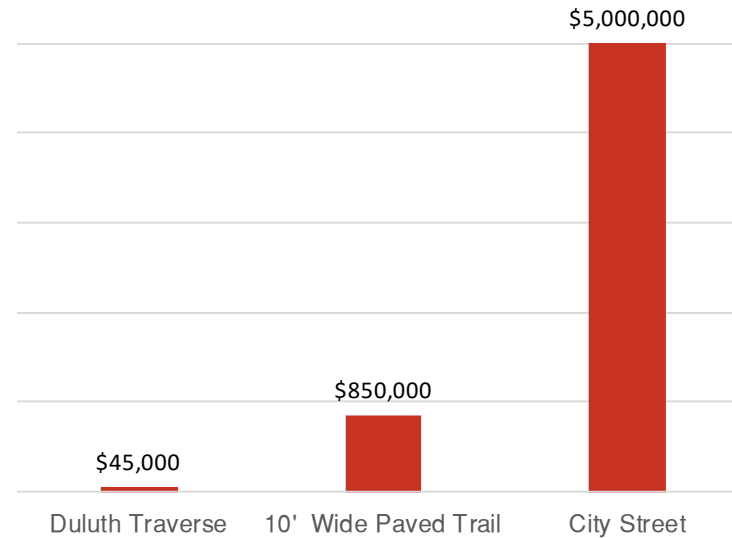
FUNDING + MAINTENANCE PARTNERS

The Duluth Traverse is the direct result of the efforts of partner groups such as the Cyclists of Gitchee Gumee Shores (COGGS). COGGS has raised 28% of the Traverse financing to date. In addition, COGGS uses their funds to build trails and employs a 3 to 4 person, full-time, seasonal, trail-building crew. COGGS continues to raise money for the trails completion, trail improvements, and operations and maintenance activities.

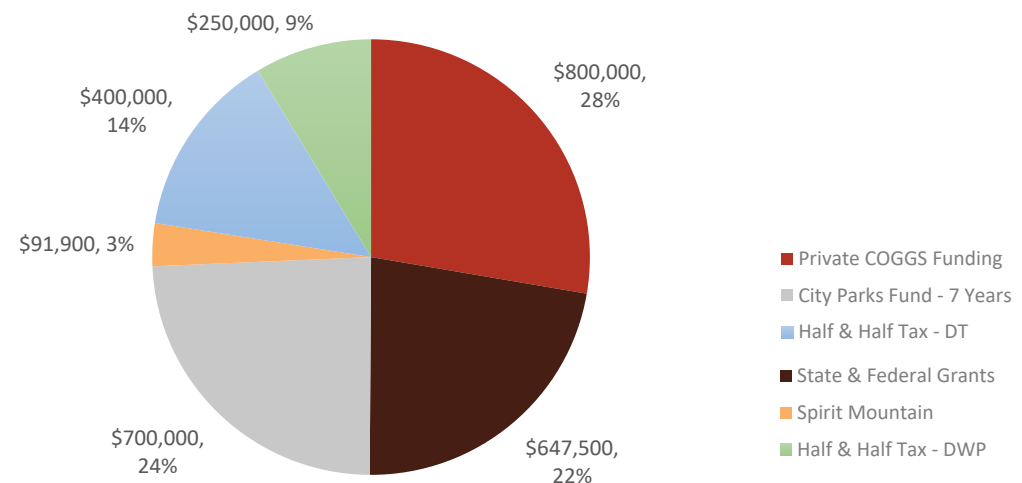
To date COGGS has provided over 60% of the necessary resources for maintenance, and is working collaboratively with Spirit Mountain and the City of Duluth on these efforts. The City of Duluth is working on an official agreement with COGGS for general maintenance and operations, that defines procedures and parameters for maintenance activities, schedule, and limits of work that don't require city and public approvals. The partnership will continue to address critical elements such as overall trail maintenance, emergency response and services, trail closures (temporary and permanent), and providing infrastructure improvements identified in this master plan.

Spirit Mountain provides a significant amount of resources for maintenance on their own trails and facilities and will continue to do so in the future. Spirit Mountain is a significant destination on the Duluth Traverse and their partnership contributes greatly to the overall success of the trail network.

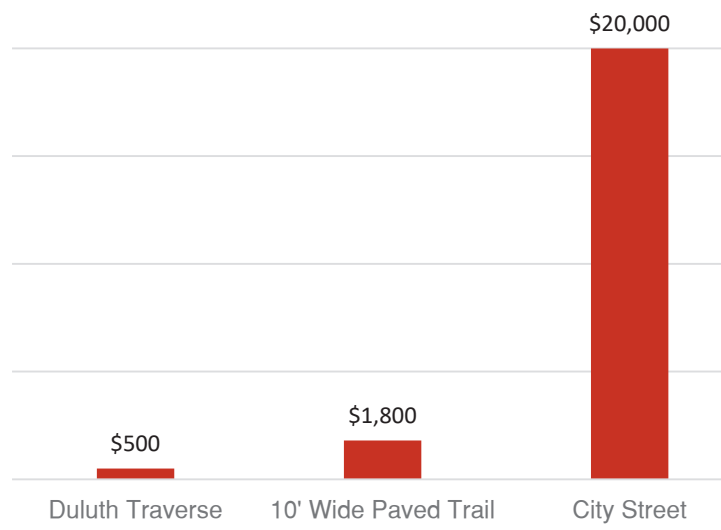
AVERAGE CONSTRUCTION COSTS (PER MILE)



DULUTH TRAVERSE FINANCING (AS OF 4/24/2017)



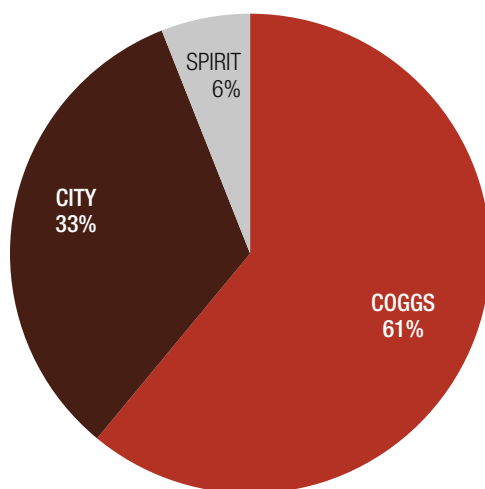
YEARLY MAINTENANCE COSTS (PER MILE)



Maintenance Over Time:

- Natural surface trails typically have more intense maintenance needs the first 2-3 years following construction, while the trail matures. Trails need to “season” and will become more stable after compaction that results from settling, exposure to wind and water, compaction from use, and vegetation establishment surrounding the trail. Fixing wet areas or problem soils missed in initial construction, as well as erosion and drainage needs, are frequently required during these initial years. Maintenance needs reduce significantly after the trail has been in place for a full 1-2 seasons with point source issues mitigated.
- The city and COGGS are in the middle of this point source issue mitigation process and have easily kept up with the required work.
- With 82% of the system complete and almost half of that being new trails (2-3 years old), the partnership is confident the maintenance needs of the Duluth Traverse System in this master plan are well within their collective abilities, and will require resources that are realistic and attainable.
- Numbers shown are for trails only

DULUTH TRAVERSE MAINTENANCE RESPONSIBILITY



Current Maintenance Resources for 84 Miles:

- COGGS donates over 4,000 hours of volunteer time each year.
- COGGS employs full time seasonal Trail Crew (3 to 4 employees) 25% of their time dedicated to maintenance.
- City Trail Maintenance Crew (2-weeks a year & materials on an “as needed” basis)
- Spirit Mountain Trail Maintenance Crew (Full season & materials)

Trails within the boundary of the Recreation Authority are maintained and managed by the Spirit Mountain Recreation Authority in partnership with COGGS.

3.

MOUNTAIN BIKING + DULUTH



» City of Duluth, Minnesota



THE OUTDOOR RECREATION INDUSTRY

OIA (Outdoor Economy Report, 2012) estimates the size of the outdoor industry in general as generating \$646 Billion in consumer spending, with nearly \$525 Billion of that figure related to trips and travel-related spending. The industry supports 6.1 Million jobs, and nearly \$40 Billion in state/local tax revenue. In comparison to other large industry sectors, consumer spending on outdoor recreation is nearly twice as large as pharmaceutical (\$311 Billion) and motor vehicle/parts (\$346 Billion), gasoline/fuel (\$354 Billion), and household utilities (309 Billion), and falls below industries such as financial services and insurance (\$780 Billion) and outpatient health care (\$767 Billion).

The size of the outdoor recreation industry in Minnesota (Outdoor Recreation Economy, 2012) is estimated at \$11.6 Billion in consumer spending, 118,000 direct jobs, \$3.4 Billion in wages and salaries, and \$815 Million in state and local tax revenue.

Growth in mountain biking has been steady over the last decade. According to research conducted by the Outdoor Industry Association's

(OIA) Outdoor Recreation Participation Topline Report, 2016, mountain biking participation grew from 6.7 million participants in 2006 to 8.3 million participants (approximately 3% of Americans) in 2015. The National Bicycle Dealers Association estimates the size of the bicycle industry at approximately \$6.2 Billion in sales of bicycles, related parts, and accessories at the national level, growing from \$5.4 Billion in 2003. OIA research indicates that Americans spent more on bicycling gear and trips (\$81 Billion) than they did on airplane tickets and fees (\$51 Billion) in 2011.

Cycling in general held higher aspirational values than hiking and individual ball sports for all classes of children and young adults; ease of access to this activity can have positive impacts on youth activity levels and "nature deficit disorder". The faster pace and limited free time present in many children's modern lives requires a more dynamic and directed form of outdoor recreation like mountain biking and trail running. A focus on facilitating trail experiences that are accessible to youth skill sets (i.e. less challenging trails without long or steep climbs, loops of one

to three miles, and skills development areas) on the Duluth Traverse will help to develop not only active, independent children, but an emotional tie to the outdoors and dedication to future stewardship.

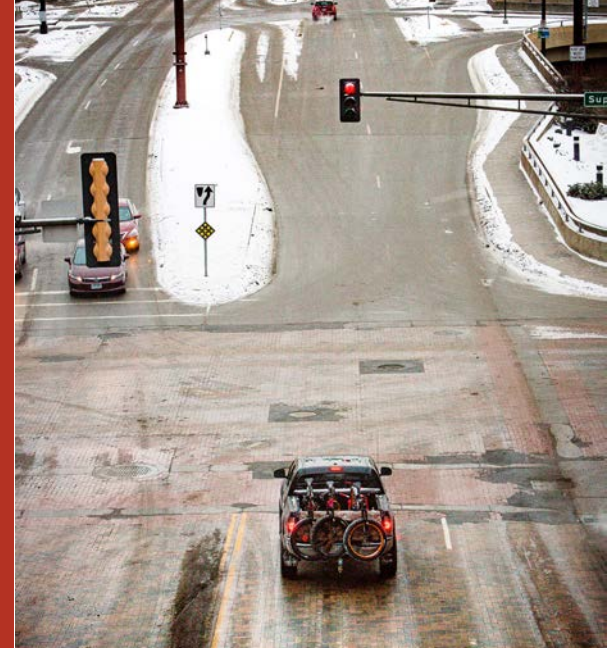
It has long been held that mountain bikers travel specifically for their recreation. This assumption is backed by looking at paper and electronic media outlets that commit significant amounts of space to mountain bike travel-related topics, especially when compared to similar outlets servicing hiking, trail running, and equestrian interest groups. Data collected on travel patterns by Singletracks.com in 2015 indicated that mountain bike enthusiasts took two riding-focused trips per year with an average distance away from home being just over 550 miles and lasting just under three days. This information is similar to outreach conducted to members of the International Mountain Bicycling Association in the early 2000's. These enthusiasts also reported bringing their mountain bikes on an average of two additional trips each year where riding was not the focal point of the trip, but where they still planned to include that activity. This typical trip distance for mountain biking indicates a direct service area for the Duluth Traverse Trail System stretching to include cities as far away as Kansas City, Indianapolis, Winnipeg, and Detroit, and a total population of more than 56 Million people. With similar levels of outdoor recreation participation in these Midwestern states as in other portions of the country (OIA Recreation Economy 2012), this represents nearly 1.7 Million potential mountain bike tourists in the Duluth Traverse service area.

1.7 MILLION

**ESTIMATED MOUNTAIN BIKE
TOURISTS IN THE DULUTH
TRAVERSE SERVICE AREA**

NATIONAL SIGNIFICANCE - MOUNTAIN BIKE DESTINATIONS

The Duluth Traverse Trail System project endeavors to become an iconic trail destination of regional and national significance. These types of trails and trail systems draw tourism visitation for the quality and quantity of the mountain biking experiences available and become mountain bike-focused vacation targets for trail enthusiasts. Economic studies around iconic trail destinations, such as Jackson/Teton Valley, Wyoming, the Methow Valley, Washington, Squamish, British Columbia, and Fruita/Grand Junction, Colorado have demonstrated economic impacts of \$10-15 Million annually, the majority of those expenditures in the service sector. A key to these impacts are the high quality, large mileage trail systems that provide the opportunity for multiple day excursions, a diversity of experiences, and stunning scenery. With more than 100 intercon-



» Photo Credit: Hansi Johnson

nected miles of trails, diverse experiences provided throughout the trail center nodes, and the ridgeline orientation that overlooks the City and Lake Superior, the Duluth Traverse is well-positioned to achieve similar destination impacts.

The Duluth Traverse Trail is also a community-centered mountain bike trail system on top of being a destination trail system. There are similar communities around North America, such as Park City and Moab, Utah, Sedona, Arizona, Crested Butte, Colorado, Whistler, British Columbia, where high quality mountain bike trails are accessible to residents by bike from everywhere in the community. The notable difference between these communities and Duluth are the geographic size and population. Duluth is a small urban area, whereas the other aforementioned destinations are much smaller towns. The result is that the Duluth Traverse Trail System can provide outdoor access to far more residents,

and the quality of life benefits, property value increases, and business/employee recruitment impacts that numerous studies have demonstrated can be magnified at this larger city scale.

Unique to Duluth relative to the aforementioned iconic trail systems and communities, the Duluth Traverse seeks to be a four-season mountain biking destination through an aggressive winter grooming program that covers the entire trail system. The Duluth Traverse currently features more miles of groomed singletrack that anywhere else in North America. Building on the region's Nordic heritage and culture of outdoor winter recreation, the Duluth Traverse is positioning to become THE premier fat biking trail system, a point of differentiation from other trail destinations that is important to residents and also has potential tourism impacts.

The culmination of these accomplishments, with the majority of the trail system already constructed and an active, volunteer-led summer maintenance and winter grooming program in place, the Duluth Traverse is quickly becoming both a community focal point and a mountain biking destination for tourists and prospective residents seeking an outdoor-focused lifestyle that includes in-town, high quality trail access. The development of this situation has already earned Duluth numerous accolades. From Outside Magazine naming the city the "Best Town Ever" in 2014 to being named a Gold Level Ride Center (one of six in the world) by the International Mountain Bicycling Association, in 2016.



» Patapasco Valley, Suburban Maryland



» Photo Credit: Duluth Women MTBers



» Photo Credit: Hansi Johnson



			Distance from DT		Trail Comparison	
			Time (minutes)	Distance (miles)	Completed Trail (miles)	General Information
REGIONAL MTB FACILITIES	1	Duluth Traverse Trail System Duluth Minnesota	86,128	0	0.0	85 total 77.9 singletrack 85 miles of high quality, professionally built singletrack trails through varied Duluth Landscape including lift assisted downhill service. Another 29 + miles designed and permitted. Adjacent to neighborhoods and business districts and a short drive or bike ride from over 270,000 residents.
	2	Chequamegon Trail (CAMBA) Hayward, Wisconsin	2,312	83	75.1	300 total 84 singletrack Over 300 miles of marked and mapped routes (84 of those single track) through near wilderness - connecting towns of Hayward, Seeley, Cable, and Namakagon.
	3	Cuyuna Lakes Big Tour Trail Cuyuna, Minnesota	339	112	100.4	28 Over 30 purpose built singletrack routes with a range of difficulties. 40 groomed fat tire trails in winter. On-site camping and Yurt rental.
	4	Levis-Trow Mound Epic, Neillsville, Wisconsin	2,442	210	211.0	30 appeals to beginners and the most experienced riders. Sandstone bluffs offer a chance to take in views of the surrounding area landscape - backcountry riding experience.
	5	Twin Cities, 11 Cities in Metropolitan Region, Minnesota	3.8 million	151	162.7	85 Single use singletrack, with ranging trail difficulties from beginner (GN) and intermediate (BU) outer loop trails to the interior difficult (BL and DB). Skills areas at trailheads.
	6	Marquette, Michigan	21,491	287	252.6	34 Singletrack trails with over 900ft vertical change. A range of difficulties but focused more on technical trails. Isolated trail loops outside the city aren't linked.
	7	Copper Harbor Trail, Copper Harbor, Michigan	108	310	262.1	22 Singletrack trails destination mountain biking focused on intermediate to advanced trails.

1

2

3

4

5

REGIONAL MOUNTAIN BIKE FACILITIES

Iconic trail destinations are a focal point for tourism. When multiple, high-quality experiences are present in a region, that tourism draw is intensified and often broadened to become an integral part of the regional culture and a draw for both residents and businesses/employees in the outdoor recreation sector. In this region, a number of larger scale mountain bike-focused trail development initiatives have been undertaken in the last decade. Cuyuna Lakes, Minnesota hosts more than 28 miles of purpose-built mountain bike trail with 50 more miles in the planning stages. Copper Harbor, Michigan is recognized as a north country destination with plans for 65 miles of singletrack by 2020. Marquette, Michigan plans for 100 miles of trail by 2020 and already grooms 60 miles of trail specifically for winter riding. The Chequamegon area in northern Wisconsin maintains more than 84 miles of singletrack in the summer months and grooms more than 40 miles in the winter. Each of these areas has been recognized as an IMBA Ride Center.

The Duluth Traverse's focus on quality trails that harness the sense of place throughout the trail corridor, all within an urban environment that is easily connected to residents, hotels, and traveler amenities, is a key distinction between the other trail centers listed here.

The Duluth Traverse system provides a regional hub that complements the upper midwest's array of bike destinations. Strengthening the Duluth Traverse will bolster the region's mountain bik-

ing reputation and make the upper midwest an even more attractive destination for regional and national tourists. Additionally, Duluth Traverse commitment to focusing on high populations of youth will grow the number of educated, respectful, and skilled riders that will be looking to travel for varied biking experiences. International airport and hotel accommodations makes Duluth a natural hub for the upper midwest.



» Photo Credit: Hansi Johnson

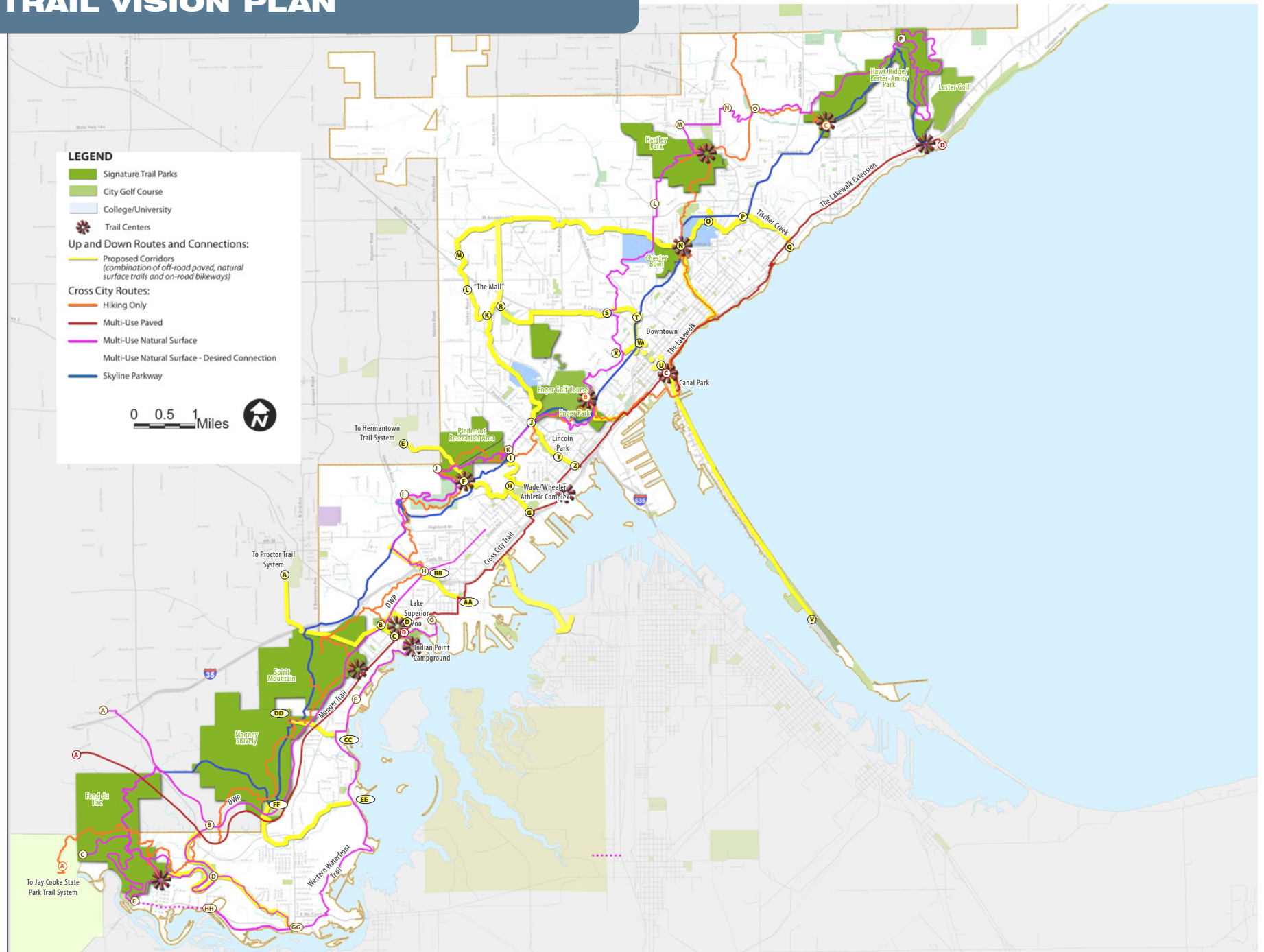
CITY/REGIONAL CONNECTIONS

The Duluth Traverse provides critical connections between key features and open spaces in the city. The Traverse also connects to several other regional trails that run through Duluth including:

- Willard Munger State Trail
- Superior Hiking Trail
- Cross City Trail
- Western Waterfront Trail & Connectors
- Future Lakewalk Sections
- DWP Accessible Trail
- C.J. Ramstad/ North Shore State Trail
- Future Gitchi Gami State Trail Connection

The Duluth Traverse has always been envisioned as an essential connection to Duluth's other trails and open spaces. The map on page 47 is from the 2011 Trail and Bikeway Plan and shows the original vision of the Duluth Traverse and its relationship to other trails in the City and Region. The original vision of the Duluth Traverse is similar to the updated vision shown in this master plan.

TRAIL VISION PLAN



» Early Vision of the Duluth Traverse (Multi-Use Natural Surface) from The Duluth Trail and Bikeway Plan, 2011

4. DEVELOPMENT PLAN



» Photo Credit: Hansi Johnson



GAP ANALYSIS

The Duluth Traverse Trail is nearly connected in the manner it was originally planned. A site-based inventory and assessment of the route has identified a number of “gaps” relative to the initial plan that should be addressed as the route development is completed, or in the near future. These gaps include:

- Trail Connectivity
- Parking, Signage + Wayfinding
- Rules + Education
- High Intensity Users
- Experiential Desires
- Environmental/ Natural Resource Issues + Protection
- Trail Construction + Closures
- Trail Corridor Protection

Broadly, these new challenges are present due to the popularity and success of the Duluth Traverse project.

TRAIL CONNECTIVITY

The Duluth Traverse has a few outstanding issues related to existing land use. First, the DWP corridor is not yet safe for use. A number of structures need to be upgraded and funding has either been secured or being pursued to undertake this engineering and reconstruction. This segment will not be open until all reconstruction activities are complete, which will likely take three to five years.

Second, a preferred off-road route through the Antenna Farm provides seasonal safety issues related to ice fall off the towers and long-term access challenges with the need to secure multiple easements through private property. Identification of non-winter access and easements will continue, as practicable, but will not be the City’s highest priorities as a reasonable on-road route exists.

The desire for direct neighborhood access was not identified during the initial planning processes that included regional portions of the Duluth Traverse. However, due to public excitement about the outdoor recreation opportunity, this direct access has become a focal point of the public outreach process. Potential access points

are outlined by region in the following segment. In each case, further vetting of alignments, neighborhood/existing park desires and approval of the connections, and funding or volunteer engagement to implement the projects, still needs to be undertaken. In each case, it will be important to balance the neighborhood/park desires for direct access to the Duluth Traverse with potential impacts related to parking, recreational user and vehicle interface, and other items specific to particular access locations. The City/COGGS intend to engage on access issues after more significant trailhead and parking areas are developed in order to first direct access and use of the Duluth Traverse at locations with greater access capacity.

Trail connectivity is further explored in specific geographical areas in the Duluth Traverse Focus Area Plans [starting on page 59].



NEIGHBORHOOD CONNECTORS

Include connections to neighborhoods within Duluth. Some are existing. This plan is prioritizing connections to under-served neighborhoods.



INTER COMMUNITY CONNECTORS

Include connections to neighboring communities, parks, or regional trails outside of Duluth. These connections will require additional study and planning.

PARKING, SIGNAGE + WAYFINDING

Demand for parking to access the Duluth Traverse Trail System has already exceeded supply. With anticipated increases in resident and tourism utilization of the trail system, this planning gap is a high priority item for the City. This issue has been further complicated by a lack of in- and through-town navigation to trailheads and limited signage information presented at major trailheads. As such, residents and visitors alike continue to access the trail system at historically utilized locations that have little inherent parking availability, which leads to clogged street side parking in neighborhoods, overflow parking at trail center parking areas, and utilization of small trailheads never intended to access the Duluth Traverse.

Priority trailheads have been identified for development and improvement. All existing and proposed trailheads are shared use with other recreation users. Signage at these locations will conform to the City's recently completed signage plan for trail mapping, regulation, use, etiquette, and emergency contact information. Directing use to these major access points will require on-street directional signage at major thoroughfares and throughout neighborhoods, map elements that clearly depict trailhead locations, and the consideration of on-highway signage at primary entrance points into the City that list upcoming exits that access the Duluth Traverse Trail System.

For a system of the developing size and complexity as the Duluth Traverse, with the core con-

necting spine trail and regional trail centers, on-trail signage is imperative to navigability and a positive recreation experience. This information should also include mileage and/or time required to access these locations. Simple navigational signage, as dictated in the signage plan, should be installed at all trail junctions. Mile marker confidence signage would provide considerable assistance to casual, local trail users and out-of-town visitors.

Three trailhead models were developed for the Duluth Traverse Plans. These models include a minimally developed Type 3 Trailhead, a Typical Type 2 Trailhead and a Larger Type 1 Trailhead.



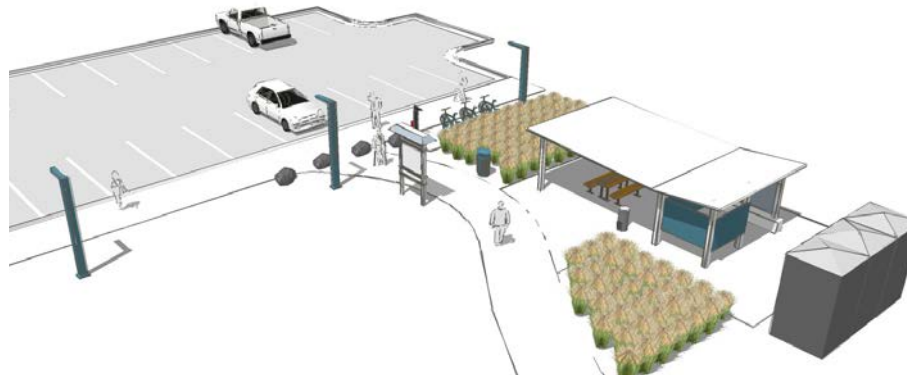
» Trailhead Tailgate, Hansi Johnson

PROPOSED TRAILHEAD IMPROVEMENT TYPOLOGIES



TYPE 1 TRAILHEAD

- Lighting
- Parking (20 vehicles)
- Signage / Kiosk - "Rules & Etiquette"
- Shelter/ Changing Room
- Portable Restroom
- Drinking Fountain
- Fix-It station
- Transit Stop (optional)
- Litter Receptacle (optional)
- Bollards (optional)
- Bike Racks (optional)
- "Landscape Identity" (optional)



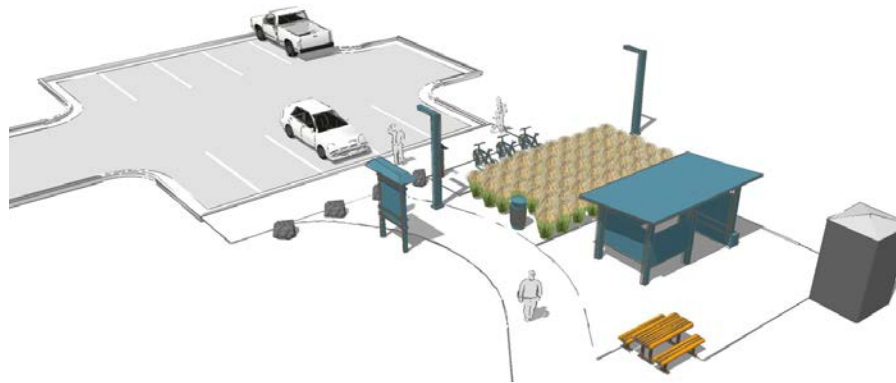
LOCATIONS

- Chambers Grove
- Spirit Mt - Upper
- Spirit Mt - Lower
- Lake Superior College
- Chester Park
- Lester / S 61st Ave
- Spirit Mountain
- Currently Unoccupied Central School Site on Ridgeline
- Arlington Soccer Complex
- Hartley Park



TYPE 2 TRAILHEAD

- Lighting
- Parking (10-16 vehicles)
- Signage / Kiosk - "Rules & Etiquette"
- Portable Restroom
- Changing Room
- Fix-It station
- Litter Receptacle (optional)
- Bollards (optional)
- Bike Racks (optional)
- "Landscape Identity" (optional)

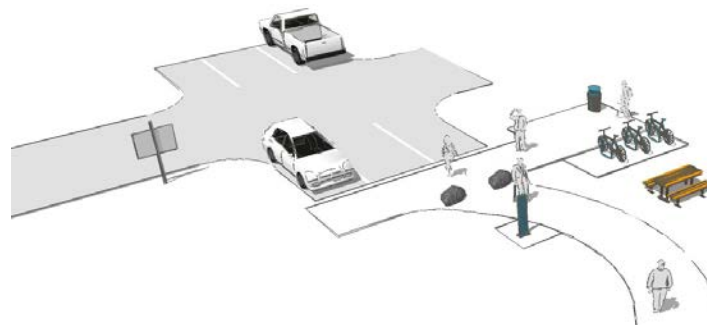


- Fond u lac / 131st Ave
- Munger Trail
- Magney - Snively
- Hwy 2 / Keene Creek
- Haines Road
- Lincoln Park
- Piedmont / Skyline
- Hutchinson Rd.
- Old School / Victoria
- Becks Road
- Twin Ponds
- Oneota Park
- Quarry Park



TYPE 3 TRAILHEAD

- Local Connector
- Parking (4-6 vehicles)
- Signage / Kiosk - "Rules & Etiquette"
- Litter Receptacle (optional)
- Bollards (optional)
- Bike Racks (optional)



- Haines Rd.
- UMD lots - summer
- Skyline / Snively
- Bellevue Park
- Oldenberg
- Oldenberg 2
- Chester Park - North



» Family Ride, Hansi Johnson

RULES + EDUCATION

MULTI-USE BIKE TRAILS

Duluth has a large, complex network of paved and unpaved trails that wind through the city. These trails have multiple users that include biking, hiking, equestrian, skiing, snowmobiling, etc. Bikers should assume that no trail is open to bikes unless a trail is designated by an approved plan. Users should assume a trail is prohibited unless an approved plan and/or signage instructs users differently.

Biking and hiking is excluded from trail systems that were purpose built exclusively for nordic skiing or snowmobiling. These trails are more at risk for damage and erosion because of the design and construction, which were not built for biking and hiking use.

Riding bikes on higher speed-limit grant-in-aid snowmobile trails in the winter is strongly discouraged. It is recommended and strongly encouraged that bikers seek designated mountain bike routes to ride rather than snowmobile trails. It is also recommended if a rider finds themselves on a designated snowmobile trail that they are to stay to the right out of traffic, use head and tails lights, be alert and yield to snowmobiles, and use extra caution on blind hills and corners. Bike usage is prohibited on the 0.3-mile snowmobile trail segment that goes through private property from West Skyline Parkway to the DWP just east of Becks Rd.

ELECTRONIC BIKES (E-BIKES)

Until a further determination can be made by the City, electrical assist bicycles shall not be allowed on single-track trail sections of the Duluth Traverse Trail System. This information should be posted at all trailheads and trail entries.

TRAIL ETIQUETTE

The Duluth Traverse is a bike optimized trail and is specifically designed for mountain bikes, however, it is also a multi-use trail and very popular with other user groups. Learning to share this resource is a critical element of trail etiquette and can effectively deal with a number of the users conflicts that are inherent to a very popular, two-way, multi-use trail, in an urban and tourist centric community. The conflict between bikers and pedestrians is the most common, and is exacerbated at highly popular areas such as Lester Park

and Hartley. Recommendations for addressing these hotspots are found throughout this document, but the first manner in which to address these conflicts is through broad trail etiquette education.

Trail etiquette information will be placed on kiosk signage throughout the system to educate different user groups on the overall social etiquette expectations. Common elements regarding minimal impact principles (remaining on the trail, not widening puddled areas or routing around downed trees), yielding to other trail users (bikes yield to pedestrians, downhill bike travel yields to uphill bike travel, pedestrian and bike travel yields to equestrian travel, where present, passing at walking pace), and interactions with other trails/roads (bike use not allowed on Superior Hiking Trail, don't loiter on the trail or neighboring roads/neighborhoods, no camping, fires, use of alcohol or other illegal substances on the trail or within trailheads) will be incorporated to provide regulatory and common sense reminders regarding activities on the trail. This signage package will be crucial for educating all users, but will be most impactful for new users and tourists. This information will help preserve the best trail experience possible for regular users, especially during peak use times, on weekends and holidays, and anytime there is a lot of mixed usage between locals and tourists.

HIGH INTENSITY USERS

Some user groups are high intensity and travel at fast speeds with maximum risk to themselves, and

any other trail user that may be on the trail at the same time. These users create additional risk for others and need to be addressed through social etiquette education and designating locations and times that are safe and appropriate for high intensity uses.

STRAVA, MONDO, AND RELATED FITNESS LOGGING APPLICATIONS

Strava and Mondo type applications have become popular means to track trail usage, distances, and times of individual riders. These statistics can be compared with others on social media and this promotes competition between users who are “racing” each other for the best time at a certain section of the trail. This creates conflict with other trail users who are on the trail at the same time as racers and can be rude, at a minimum, and create dangerous interactions at a maximum. Community engagement and signage should be an effective strategy to control Strava use. Directing Strava users to Spirit Mountain and other facilities that can better handle this type of use would be preferred. The following steps should be taken to address Fitness tracking applications

1. Provide signage in high traffic areas to allow for voluntary compliance. If issues still remain...
2. Install ride calming design elements such as pinch points to reduce user speed. If issues still remain...
3. Work with application software developer to remove race segments from the application software.



» Varied challenges for all riders, Photo Credit: MTBProject

These strategies should be targeted to locations with the following characteristics:

1. High-traffic areas
2. Popular parks with large numbers of multiple users.
3. High potential for dangerous risk levels - i.e. along cliffs or steep stream banks.
4. Near type 1 trailheads with high populations and a lot of tourist visits.

Lower Lester Park fits these requirements, and there have been numerous incidents already reported in this area.

NATIONAL INTERSCHOLASTIC CYCLING ASSOCIATION (NICA)

NICA racing leagues are youth development focused, but are a high intensity user and COGGS and the City should continue to permit this use for training and racing event locations and times. These users will likely become trail stewards in the future, and a solid educational experience will give them a great foundation to help sustain the

Duluth Traverse for generations.

EXPERIENTIAL DESIRES

The ongoing development of the Duluth Traverse Trail System has also indicated gaps in experiences provided. While the Duluth Traverse Spine Trail has been envisioned as a beginner level trail with the highest level of accessibility to a natural surface singletrack trail experience, some trail segments have not attained this status due to terrain. In these locations, alternative routing, or a split, of the trail is being proposed to provide the intended experience. It has also become apparent that much of the Duluth Traverse is somewhat incorrectly rated as a beginner mountain bike trail experience. This rating is relative to trail users that are already adept at negotiating singletrack trails. For children or novice mountain bikers, some of the challenges presented by the Duluth Traverse exceed their capabilities, either in terms of length between common trail nodes or in the technical needs for balance and bike handling. For these reasons, shorter loops are being considered, especially at Trail Centers and neighborhood connections where schools are nearby.

Additionally, skill development areas are being considered at Trail Centers and nearby park facilities where children and novice riders can develop the bike handling capacity to comfortably handle the challenges presented on the Duluth Traverse. This is critical to building an educated, responsible, and skilled ridership that will be future trail users and stewards. Beginner trail loops are desired by the community and should have the following qualities:

- Close to trailheads and/ or neighborhood connectors for easy access.
- A loop route for easy out and back navigation.
- Loops should be short to not overexert beginning riders, typically a maximum of a few miles.

Lower Lester Park has been identified by the community as a potential location for an additional beginner loop (green level).

On the opposite side of the spectrum, skilled riders have expressed the desire for more challenging riding elements than are presented in some areas. Providing these more challenging experiences will also appeal to enthusiast mountain bikers seeking out Duluth as a riding destination. Many of these destination-oriented visitors are seeking well-rounded mountain bike facilities, such as bike parks, gravity-oriented, or highly technically challenging riding opportunities. These elements are being considered in a number of locations throughout the system and are proposed in the Trail Opportunities Section. These conceptual locations will need to pass through additional neighborhood/park vetting, agreements regarding best management practices, and funding for implementation before they can be constructed. In several locations, new trail development could be tied to existing trail closures to prevent trail saturation.

Skills areas that are being proposed were developed from community recommendations and address a number of different skill levels, but are

primarily focused on youth. Skills areas and bike parks are similar but vary in their level of intensity. Skills areas are focused on one user group and can be located on trail, such as advanced loops, or in a public place, such as the beginner loop proposed at Chambers Grove Park. Bike Parks are more intense, developed, and cater to a range of riders, such as the multiple riding facilities at Spirit Mountain.

SKILLS AREAS

The following skills areas have been identified by the community and are proposed in this plan:

1. Chambers Grove - Youth oriented facility that was included in initial plans.
2. Keene Creek - Youth to advanced skills loop with constructed features in an urban location. This feature is included in the mini-master plan for this park.
3. Quarry Park - Advanced skills area.
4. Lincoln Park Middle School - Youth/ beginner to intermediate loop focused on students.
5. Lincoln Park - Beginner focused facility located outside of highly active zones.
6. Marshall School - Youth/ beginner to intermediate loop focused on students. This is private property and the city/ COGGS would provide support for implementation.
7. Downer Park - Advanced skills loop for technical riding.
8. Amity East - Advanced skills loop potential

location. This loop would need to be accompanied with equivalent trail closures, due to the high trail saturation that currently exists.

9. Lester Park - Beginner loop at the fringes of the park greenspace area at the bottom of the hill that would be focused on youth.
10. Chester Park - Skills area located in the existing gravel area along Kenwood Avenue.

BIKE PARKS

1. Spirit Mountain Recreation Area - Existing bike park being implemented over time. This facility is a hub for biking in the city and provides a number of excellent facilities for local residents and tourists. The City and COGGS should continue to support this relationship. See the Spirit Mountain Recreation Area Master Plan for further details (in progress). The Duluth Traverse pass through this bike park, but also supports key aspects of the



» Bike Duluth Festival, Photo Credit: COGGS

bike park, such as providing a return route for the downhill lifts. The bike park facilities, and notably the downhill lift, are a major reason for the Gold Level Designation by IMBA.

* Development of any skills areas or future bike parks must be identified in this plan and also be consistent with any existing Mini-Master Plans that exist for specific parks. Existing plans take precedence over recommendations in this plan and additional public processes must follow the Trail Development Policy in this Master Plan.

INTERPRETIVE OPPORTUNITIES

The geographic span and immediate access to residents and visitors alike with little knowledge about Duluth's history, natural elements, and features of interest provides an incredible interpretive opportunity.

Signage should be focused at trailheads, in public parks, at key rest areas, and overlook points along the trail, and should provide information and directionality to high quality features or experiences provided (i.e. vistas, historical interest, additional trails).

There are several opportunities to incorporate interpretive signage along the Duluth Traverse to educate trail riders about the unique natural and cultural communities that they are passing through. Signage should be focused at sensitive natural areas to alert riders that they are entering a special place that encourages lower speeds and general respect for the environment. The Duluth Traverse passes through the Hartley Nature Center, Bagley Nature Center, Hawk Ridge Bird

Observatory, and other prime interpretive areas that already have environmental education as a focus. Continue to work with these organizations to build an interpretive program through these areas that addresses Duluth Traverse users.

Interpretive signage along the trail system should be considered that helps to tell the "Duluth Story" and provides trail users with more than a recreational experience. This storyline development and interpretation will be an ongoing outreach and development process and should focus on the natural, cultural and historic resources that make Duluth such a unique place.

OTHER ON TRAIL AMENITIES

Benches located at key intervals and overlook locations were identified in the planning process by the public. Locations and implementation would have to be consistent with the City's wayfinding, signage, and amenities plan.

TRAIL NAMING STANDARD

All existing trail names are adequate for the purposes of this plan. New trails shall be subject to the following requirements - trail names shall be simple and have unique identifiers that help in emergency search and rescue locating efforts.

For a trail name to receive approval it must be submitted to the City for vetting. The Indigenous Commission and the City Naming Committee may provide direction if naming requires input and/ or if existing names are proposed to be modified (such as including indigenous names).



» Fat Tire Biking, Photo Credit: COGGS



» Green level trails = all abilities, Photo Credit: Tjaard Breeuwer



» Chester Park Trail, City of Duluth

ENVIRONMENTAL/ NATURAL RESOURCE ISSUES + PROTECTION

Protecting natural resources and the environment is a primary goal of the Duluth Traverse project and was as one of the highest ranked guiding principles. The quality of natural resources, the setting along the ridgeline, and the proximity to the City of Duluth are what make the Duluth Traverse so unique. Protecting all of these assets is critical to the long term sustainable success of the trail. An Environmental Assessment Worksheet (EAW) was completed along with several updates totaling around 10-miles. Several additional studies have been undertaken, and City staff and the general public have identified a number of environmental and natural resource concerns and opportunities.

ENVIRONMENTAL ASSESSMENT WORKSHEET (EAW) ISSUES AND UNFINISHED WORK

An EAW was completed for the Duluth Traverse, and was approved in 2013. The EAW is a standardized public process designed to disclose information about the potential negative environmental effects of a proposed development and ways to avoid or minimize them before the project is permitted and built. The study reviewed the alignment and proposed trail construction techniques for the 104 miles Duluth Traverse System trail segments that were proposed at that time. Future development, that will occur in association with the Duluth Traverse will need to modify or update the existing EAW or potentially complete another study. The City planning department, the Responsible Government Unit (RGU), will make that determination.

Approximately fifteen percent of the Duluth Traverse Spine has yet to be constructed, and portions of these sections will be built in association with land access and available funding. Each successive phase will be very similar to previous phases in regards to the EAW, since the trail character, design, and construction will remain largely unchanged for the original segments studied in the EAW. Additional environmental reviews and permits will be completed as necessary per federal, state, and local requirements and per the terms of the Legacy grants that are a significant source of the funding for this project.

NATURAL RESOURCE IMPACTS

The proposed trail has been designed and constructed to minimize the overall disturbance and avoid impacts to ecologically sensitive areas. The following impacts to Natural Resources have been identified in the EAW, by the consultant team, and through the public input process.



» Photo Credit, Hansi Johnson

WILDLIFE

The Duluth Traverse primarily cuts through wooded forestland that provides habitat for a variety of wildlife, including mammals, reptiles and birds. Typical mammals found in the area are black bear, deer, porcupine, rabbits, skunks, raccoons, mice, bats, and rarely seen wolf, transient mountain lions and moose. Reptiles and amphibians, such as the common garter snake and toads, can be found in the forests in and surrounding Duluth. Varieties of birds both live and nest in the area and transiently move through the area.

VEGETATION

The Duluth Traverse's narrow footprint, along with its large geographic area, is not anticipated to have a significant adverse effect on wildlife. Typical vegetation removal includes brush and small trees of sapling size that need to be removed to create the trail corridor. There is no anticipated effect to the forest canopy as larger trees will be preserved and worked around.

ECOLOGY

Additional effects to ecologically sensitive resources have been avoided by referencing Minnesota County Biological Survey (MCBS) ecological subsection maps and sensitive plant community locations and geologic features when planning the corridor for the Duluth Traverse. The trail is routed to avoid and minimize impacts to sensitive resources, such as at the Magney Snively Natural Area. Construction effects to nesting and migrating birds has been reduced by adjusting the construction schedule to avoid potentially negative effects, such as construction noise on nest site selection or resting/foraging during migration, and to avoid known critical habitat areas during these important time windows. This will be particularly important as the trail crosses Hawk Ridge.

The MNDNR Natural Heritage Information System database was used to verify that no species of concern would be affected. The EAW provides details on this search, field methods, and findings. Deviations in routing, or additional trail loops and infrastructure, may require additional investigation and an amendment to the EAW.



» Boardwalk over drainage feature, City of Duluth

WATER RESOURCE ISSUES

Erosion and soil disturbance issues provide the greatest surface water related issues. An operations and maintenance plan should be developed to address ongoing erosion issues and stream crossings that may be damaged from storms or natural wear and tear.

Wastewater will not be treated on site and portable toilets and/ or pit toilets are utilized throughout the trail system. These facilities would be pumped on a regular basis and brought to Western Lakes Sanitary Sewer District for processing.

TRAFFIC

Currently traffic does not play a significant role on the regional transportation system. There are issues with parking at trailheads that are discussed in this master plan. The issues should be monitored over time and addressed if ridership continues to grow and impact parking areas and traffic patterns. One goal of the Duluth Traverse is to encourage connections to local resident neighborhoods by biking and hiking, reducing parking needs for residents. Additionally, it is expected that completion of the full Spine Trail will distribute ridership and auto traffic throughout the corridor. Focusing tourist traffic to facilities that can handle increased usage, such as Spirit Mountain, will take some pressure off of localized, smaller trailheads.



» Mission Creek, City of Duluth

ENVIRONMENTAL ISSUES/ AREAS OF INTEREST

A few areas of interest have been identified through the public input process that attention:

Mission Creek Forest Preserve

The Mission Creek area contains a number of natural landslide and slope failures. These issues are not related to the Duluth Traverse but will likely have an impact on the trail at some point in the future. An example of this issue is where the trail is cut in below a slope failure, and the landslide is slowly migrating down the hill. Volunteers and trail building crews have tried to establish vegetation on slopes, but have not been successful in slowing the slides. COGGS and the City should work with the South St. Louis Soil and Water Conservation District to further study this issue and provide a plan to address. In the short term, maintenance may be needed more frequently in this area.

Magney Snively Natural Area and DWP Corridor

Portions of the Magney Snively Natural Area are adjacent to the DWP Corridor and have a high natural resource value, with remnant patches of old growth forest. Options have been discussed to construct a parallel mountain bike trail through portions of this section to separate trail users and minimize conflict. This master plan recommends not routing any additional trails within the Magney Snively Natural Area. Trail users will share the DWP Corridor through this area to minimize any additional impacts to this high quality area.

Hawk Ridge

Hawk Ridge is a high-quality bird viewing area that is popular with locals and tourists. Additionally, this section of trail is for advanced riders and this plan proposes utilizing other trails as an easier, green level, alternate route. COGGS and the City should continue to work with Hawk Ridge to minimize impacts from the trail. Signage should be provided to communicate to riders that they are entering a natural area.



» Mission Creek, Photo Credit: Hansi Johnson



» Hawk Ridge Overlook, Photo Credit: Tjaard Breeuwer

TRAIL CONSTRUCTION + CLOSURES

The Duluth Traverse is being constructed, and was designed to, IMBA and MNDNR sustainable trail guidelines to minimize maintenance, resource disturbance, and erosion problems. Trails that have followed IMBA guidelines have been built across the country and internationally, and have been shown to be quite sustainable. All proposed future trails should adhere to the most up to date sustainable guidelines at the time of their design and construction. Typical IMBA Sustainable Trailbuilding Guidelines include:

- Avoiding the Fall Line – this will minimize erosion from fast moving water that strips soil from the trail
- Avoid Flat Areas – keep trail and tread above standing water areas. Maintain positive drainage
- Slope the Trail Tread – Sloping land out sheets water off the trail instead of concentrating flow
- The Half Rule – The trail grade should not exceed half the grade of the hillside of sideslope that the trail traverses to prevent it from becoming a fall line trail
- 10% - Maintain an average trail grade of 10% or less for the majority of the trail to prevent erosion
- Don't Exceed 15-25% except for very short distance and other special conditions
- Rolling Contour Trails with Grade Reversals – Grade reversals direct water off the trail to minimize concentrated flow erosion

Trail widths are typically 48"-green level, 36"-blue level, and 18-24"-black level. Modifications will be necessary to fit the unique conditions along the trail corridor. The trail has been designed and built by professional trail builders trained in sustainable trail building guidelines, and built with a mixture of professional and volunteer labor using sustainable trail building techniques. The trail was constructed with both mechanical and hand labor that are typically lighter weight and able to reduced disturbance and impacts to the trail corridor itself. Following trail construction, the physical disturbance of the natural environment is generally confined to the trail's tread way. Vegetation encroachment typically creeps into the trail, leading to an 18-36" trail width, winding through the forested lands that the trail will be built on.

Erosion and sediment control is a high priority focus of the project, both during construction and ongoing maintenance. Excavation consists of full bench cutting into side-slopes for sustainability. The removed topsoil is typically stock-piled temporarily for reuse on the backside of berms. Sometimes these soils are collected and moved short distances along the trail to prevent soil erosion adjacent to waterways or wetlands, to create berms for turns, and other trail features following IMBA guidelines for sustainable trail construction. Large boulders and rock have been moved and rearranged to improve the trail experience, and/ or to armor in sections where concentrated flows may occur along the trail. No boulders, soils, or brush slash have been, or will be moved or placed into wetlands or waterways.

There is no anticipated need to have additional fill materials brought into the trail construction site from other locations unless armoring is needed (very limited).

The corridor is typically built on side slopes and avoids wetlands and low-lying areas. No wetlands will be drained or filled due to the proposed trail construction. Wetlands will be crossed by small treated lumber or other rot resistant natural wood boardwalks. The Duluth Traverse will cross most of the streams and rivers coming down the hill as it crosses Duluth. Crossings are typically created with small treated lumber or other rot resistant natural wood boardwalks or bridges. Large stream and river crossings have been made using already established bridges.

Wildlife disturbance will primarily be from trail users passing by along the trail. Trail traffic is typically during daylight hours. However, there



» Temporary Closing at Lester Park trail



is some nighttime trail usage, usually in the fall and winter evenings, where trail users will wear headlamps to traverse the trail in the darkness. Trail operation hours will be associated with parks that they pass through and are typically from 6a.m to Midnight. Speeds are typically slower than daytime use, and the number of riders is much less than during daylight times.

The trail or sections of the trail will be temporarily closed when trail conditions are too wet to avoid damage to the treadway and avoid future erosion or migration of soil material. COGGS is very active in communicating trail conditions through their website and social media, and signage and wayfinding should be utilized at trailheads to further coordinate and communicate this information. A recommendation of this master plan is to coordinate communication efforts, both on-line and physical signage, between COGGS and the City to limit trail usage when conditions are not suitable. Riding during these wet conditions can produce erosion and trail damage.

When trails need to be closed permanently because they aren't identified in this master plan, or a future planning effort approves trail revisions; the trail will be physically barricaded with ordinance signage and appropriate vegetation restoration to provide a visual and physical barrier on the old trail footprint. An Operations and Maintenance document should be developed with detailed closure procedures.

BOARDWALK MAINTENANCE

On average there are 130 lf of boardwalk per mile on typical Duluth Traverse trail construction. In today's dollars to have the boardwalks professionally installed and replaced costs \$50.00 per linear foot. That equates to \$6,500 per mile on average in replacement costs. The typical life span for the materials used is 20 years. It is recommended that the City and COGGS work together to amortize the replacement costs of these structures over that 20 year period.



» Typical boulevard crossing, Photo Credit: Matt Goodman

TRAIL CORRIDOR PROTECTION

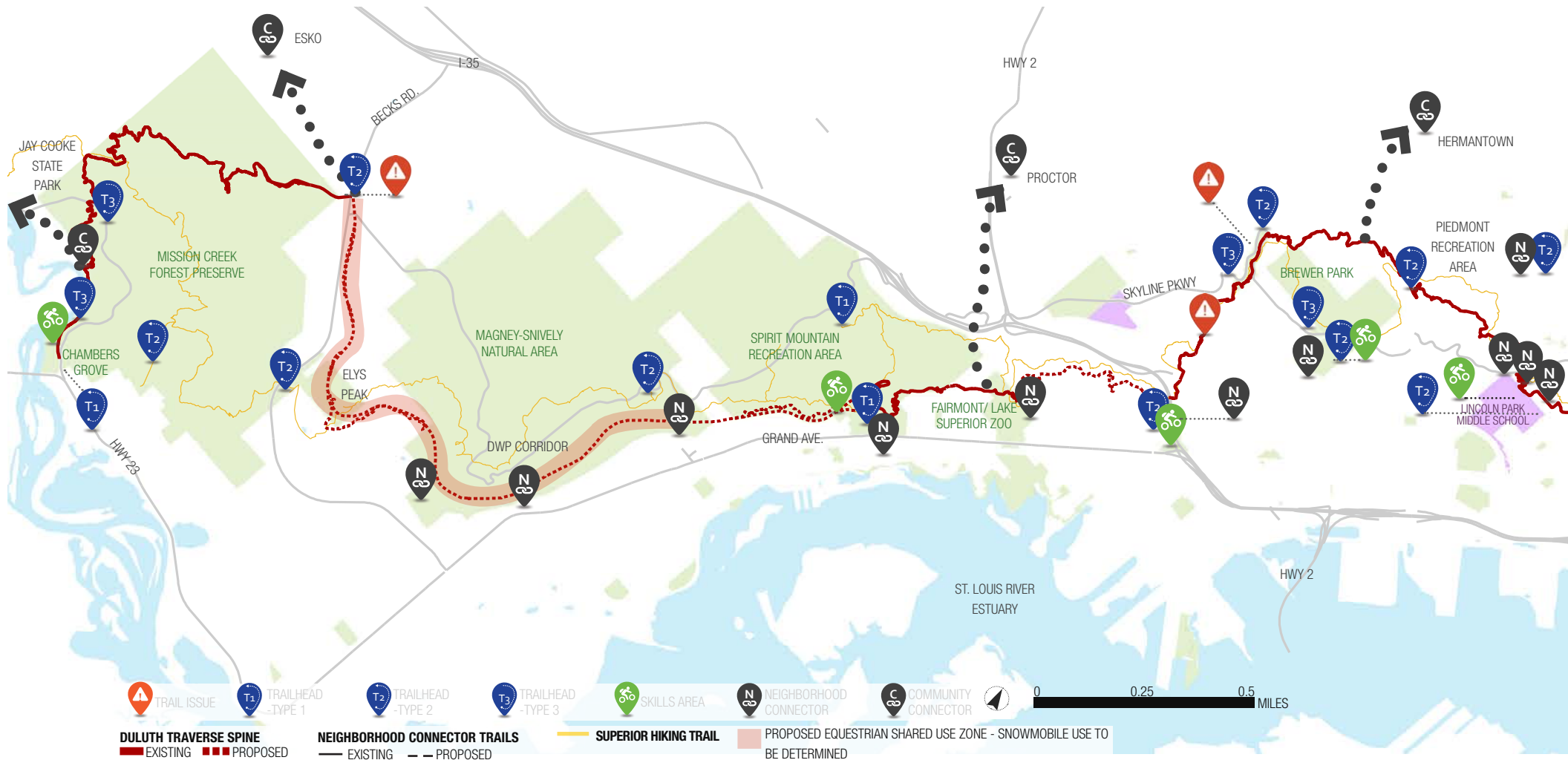
The Duluth Traverse System winds through the city via a network of City owned, County tax forfeited land, private property easements, and other landholders within the City. The trail fits well in under-developed parcels but may face development pressures over time that could physically impact the trail itself and/ or the visual qualities and trail experience. There are examples throughout the United States where locally popular trails have been impacted by development and construction that was not considered during the trail routing and design. Duluth and COGGS should protect the Traverse from any future threats by providing the long-term preser-

vation of the trail, and trail viewsheds. This effort could consist of the following elements:

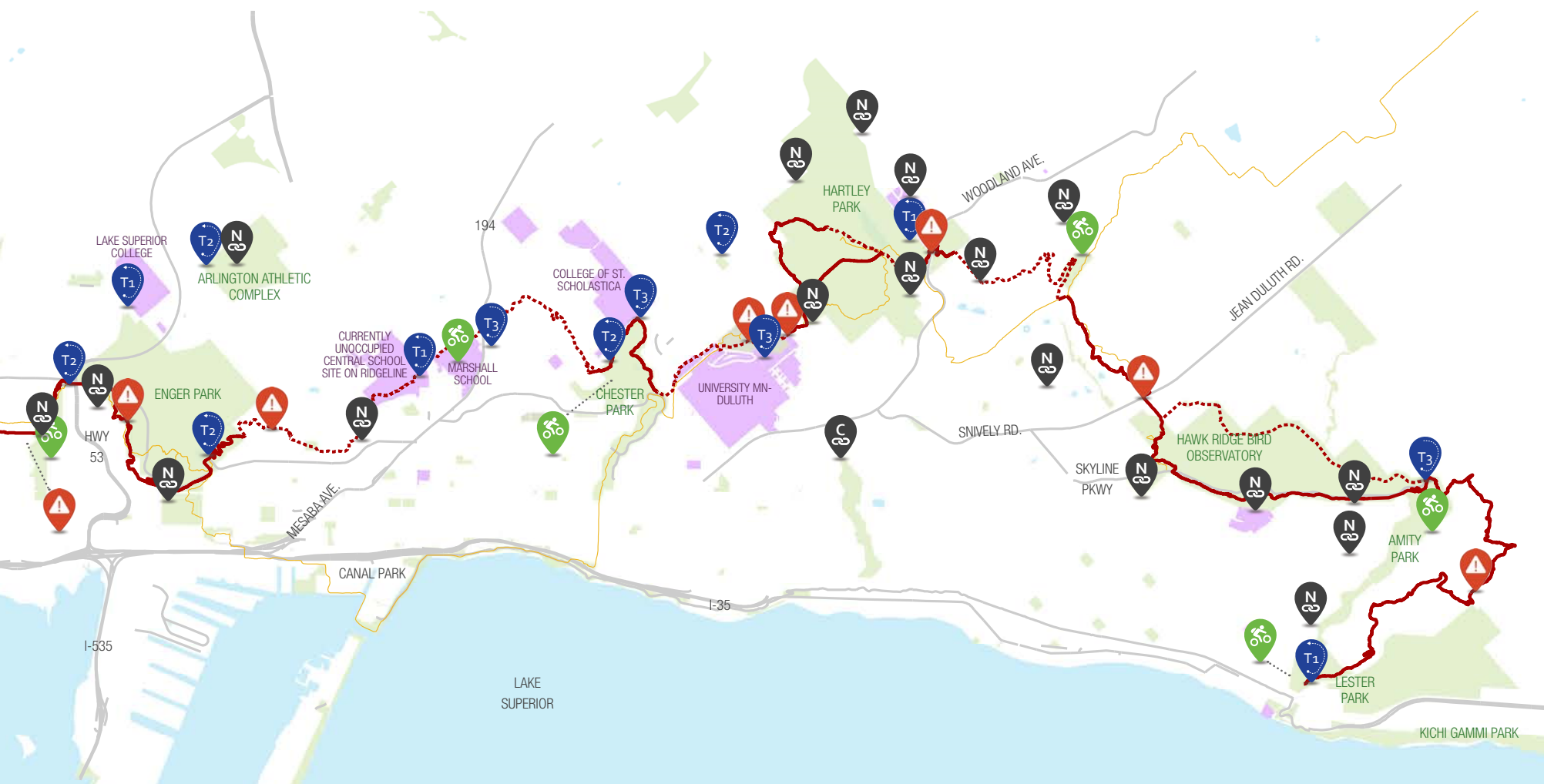
- Completing an ownership study of the parcels that the trail passes through including any rights of way, easements, or additional agreements that have allowed trail access. This should also be done in key areas to protect viewsheds, property lines within proximity of the trail, and any other large-scale development-ready parcels that could negatively impact the future Duluth Traverse.
- Developing a long-term trail preservation planning study and strategy that explores the use of the following tools to protect the Duluth Traverse trail and experience:
 - Fee Title Acquisition – ownership of lands the trail passes through
 - Public Right of Way Easements
 - Corridor Preservation Easements
 - Exploring the integration of ordinance language into the city's comprehensive plan and zoning code. This language could protect the Duluth Traverse with an overlay district, potentially including buffer requirements along the corridor and/ or performance standards. These standards and requirements would be developed to address future development parcels that could impact the Duluth Traverse's route, experience, and viewsheds.

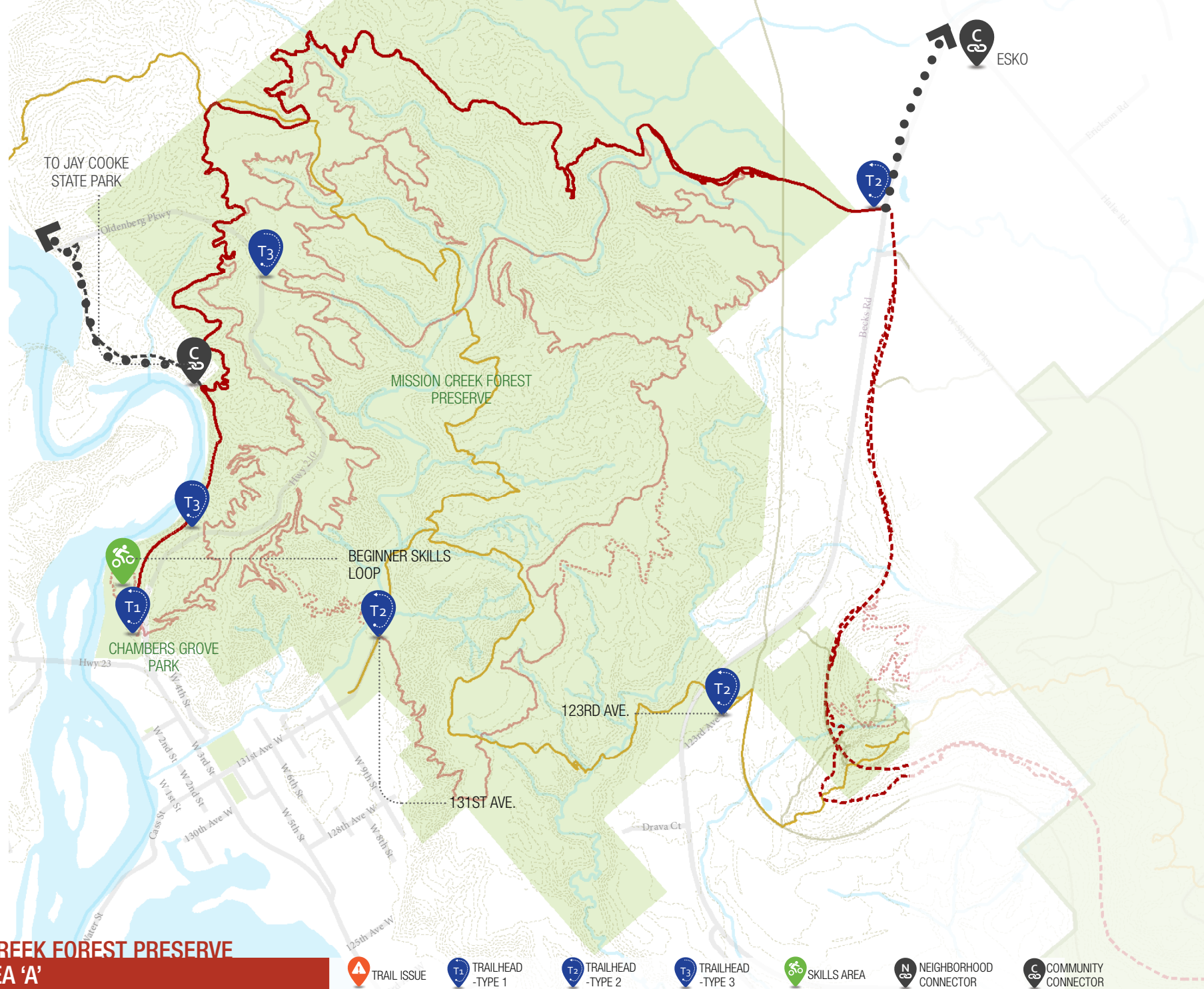
PROPOSED DULUTH TRAVERSE PLAN OVERVIEW

Through inventory and analysis, public input, and stakeholder input, the following opportunities for improvement of the trail have been identified. The opportunities address identified issues and conflicts, creating and strengthening connections to neighborhoods throughout the City, and locating infrastructure and additional skills areas for overall trail enhancement and quality preservation. The recommendations are rooted in community input and priorities of the guiding principles.



DULUTH TRAVERSE SPINE PROFILE





0 0.25 0.5 MILES

DULUTH TRAVERSE SPINE
— EXISTING — PROPOSED

MULTI-USE BIKING / HIKING TRAILS
— EXISTING — PROPOSED

NEIGHBORHOOD CONNECTOR TRAILS
— EXISTING — PROPOSED

SUPERIOR HIKING TRAIL

OTHER TRAILS

TRAIL ISSUE

TRAILHEAD -TYPE 1

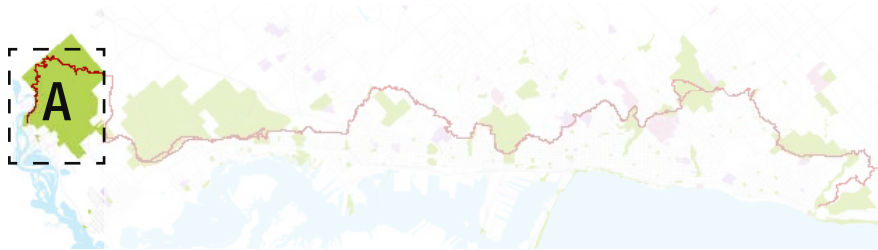
TRAILHEAD -TYPE 2

TRAILHEAD -TYPE 3

SKILLS AREA

NEIGHBORHOOD CONNECTOR

COMMUNITY CONNECTOR



MISSION CREEK FOREST PRESERVE

Proposed development of an additional 3.4 miles of multi-use trail to improve intra-preserve connectivity and increased diversity and range of options are included in this master plan. An interpretive loop and kid-friendly skills development trail loop are approved for development at Chambers Grove Park.

Several trailhead development options are recommended in and around the Mission Creek Forest Preserve. Specifically:

1. Improvement and formalization of Fond-du-lac trailhead on 131st Avenue West; to include signage and wayfinding specific to the Preserve, the Superior Hiking Trail and the Duluth Traverse.
2. Signage and trailhead improvements at Chambers Grove Park, to include signage and wayfinding specific to the Preserve and the Duluth Traverse.
3. Establishment of the 123rd. Ave. trailhead as overflow parking for Mission Creek access; connectivity via Munger Trail parallel to Becks Road.

Connectivity to the Duluth Traverse and the multi-use trails on the Preserve will benefit local communities' health, quality of life and economic activity. Several connections to nearby communities and neighboring lands have been noted for the Preserve, specifically:

1. Connections to Gary-New Duluth via development outlined in the Bikeway Plan
2. Connectivity to Buffalo House campground through coordination between preserve management and adjacent private property owners.
3. Improved connectivity to the DWP.

The preserve suffers from numerous natural landslides and slope failures. These have created dynamic hillslopes that threaten the trail corridor in some locations throughout the Preserve. Strategies to stabilize and shore up these slides where possible need to be developed through coordination with volunteers and the Soil and Water Conservation District. In some cases maintenance may be needed on a semi-regular basis as these areas settle into a more static state.

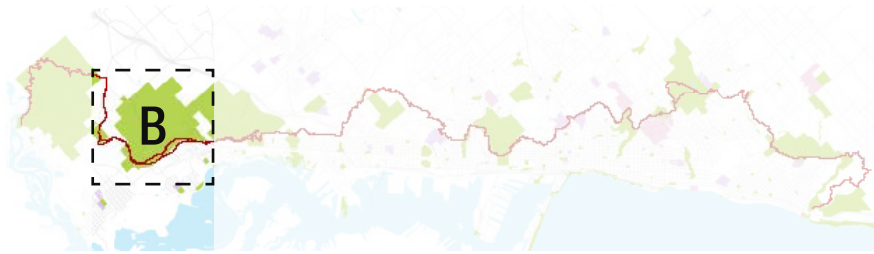


» Photo Credit: Hansi Johnson



» Photo Credit: Tjaard Breeuwer





MAGNEY-SNIVELY + ELYS PEAK + DWP CORRIDOR

The Duluth Traverse will follow the existing DWP trail and mountain biking will be another use within this multi-use corridor. Plans for this segment include development and improvement of singletrack and double track trail through the DWP from near Becks Road to the base of Spirit Mountain, and 2.2 miles of multi-use trail around Elys Peak. Much of the proposed Duluth Traverse mileage is along the DWP corridor and requires regrading, bridge repair, rock scaling, culvert repair, and bridge replacement where landslides and storm run-off have impacted the corridor. Additional development recommendations include:

1. No new trail development will be allowed in Magney-Snively Natural area.
2. Signage installation at intersections with equestrian trails.
3. Improvement of the equestrian trailhead at Magney-Snively natural area.
4. Coordination of trail development with the climbing community and Superior Hiking Trail Association.
5. Development of a connection to Clyde

Avenue to provide community access to Smithville, Munger, and Morgan Park.

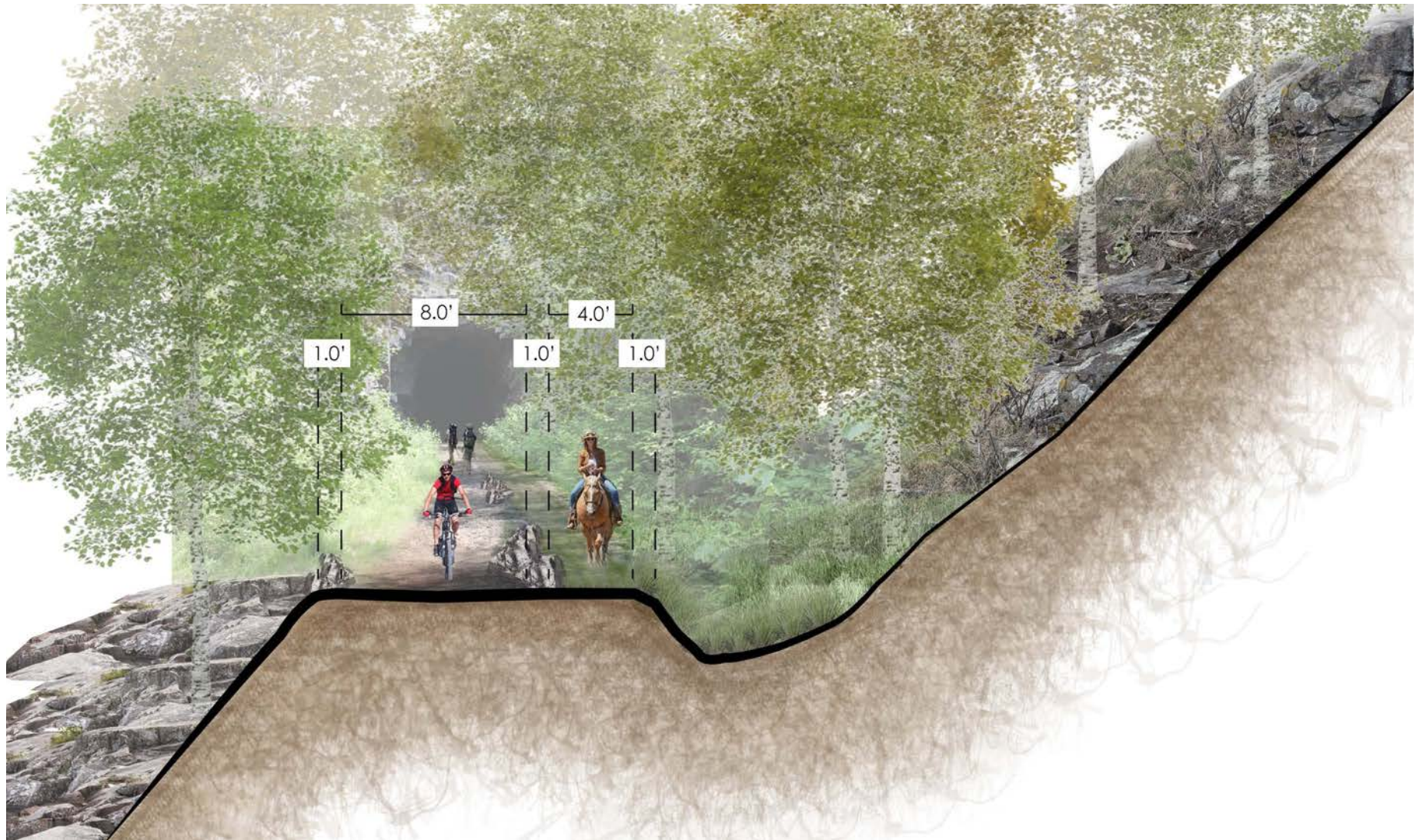
Elys Peak is a unique area that attracts several user groups to hike, climb, and bike. The plan shown was designed with multiple stakeholders at the table and balances the uses to minimize trail conflicts. The mountain biking portion of the trails are highly technical and will require low speeds and tight maneuvering. High speeds will not impact other user groups in this area. The trail layout considers climbing trails and the Superior Hiking Trail loop hike as described in the St. Louis River Corridor Initiative. All three trail types have been design and coordinated to reduced impacts on the natural environment and focuses impacts on shared corridors.



» DWP Corridor condition



» Bouldering at Elys Peak



» Typical trail Section in DWP with trail sharing - to be designed and vetted in future process . Some areas may be narrower due to pinch points, railroad grade width restrictions, or other landscape features.

DWP CORRIDOR DISCUSSION

The DWP rail-bed section is the largest remaining section of trail development in the Duluth Traverse Trail System, and most costly due to repairs and significant infrastructure improvements to make it safe. This master plan is proposing to allow Equestrian use in the summer - only in the 4-mile section of the DWP between Becks Road and the Clyde Connector Trail. Fully separating the trails with a parallel mountain bike route was evaluated, but ultimately will not be recommended through Magney-Snively. All new trail uses will not be allowed in the natural area. The shared trail recommendation is made for the following reasons:

1. Equestrian use has been proposed in this section in previous master plans for the St. Louis River Corridor.
2. Snowmobile use will not be included in this planning effort. Use of snowmobiles in the DWP will be determined in a future public planning processes.
3. Allowing multiple uses in this area would provide connections and a unique and high amenity trail section for all users - directly relating to 4 of 7 guiding principles of this master plan. Snowmobiling is recommended as a potential additional use and will require a process outside of this Mini-Master Plan to determine if it will be a compatible use in the corridor.
4. There are wide trails and long sight-lines within the existing corridor to safely accommodate equestrian users.

5. Routing a mountain bike trail through the natural areas of Magney-Snively will have negative impacts to a high quality natural resource. One of the higher priority guiding principles was protecting the natural environment, and this section of the trail corridor is high quality and highly sensitive to impacts.

This 4-mile section of the DWP, and a section through Hawk Ridge on the Snively Trail, will be the only sections open to equestrian use and will have different approaches to trail sharing within these corridors. Future planning and final design will need to occur to finalize the design approaches within the corridor, but the emphasis of future design should be on safety, etiquette, and minimizing the potential user conflicts.

The following recommendations should be considered:

- Separating uses as much as possible within the corridor between equestrians and bikers. Once outside of the Magney-Snively area it is recommended to have an off rail bed option for the Duluth Traverse splitting faster moving bikes off the rail-bed. This is to be done where possible and appropriate with as few re-joining points to the rail trail as possible.
- Maintain open sight lines for users to visually see other traffic and minimize surprise encounters that may spook horses.
- Providing signage along the corridor, at regular intervals, and at key intersections to give usage guidance and rules.

Signage and social etiquette education will be critical in this area to maximize safety and communicate the risks of this area. Future design studies should explore methods to communicate the following risks and best practices to address the risks:

- Rock fall potential
- Horse and mountain bike conflicts
- Lack of cell service/ spotty service
- Emergency response times will be increased

ADA Accessibility

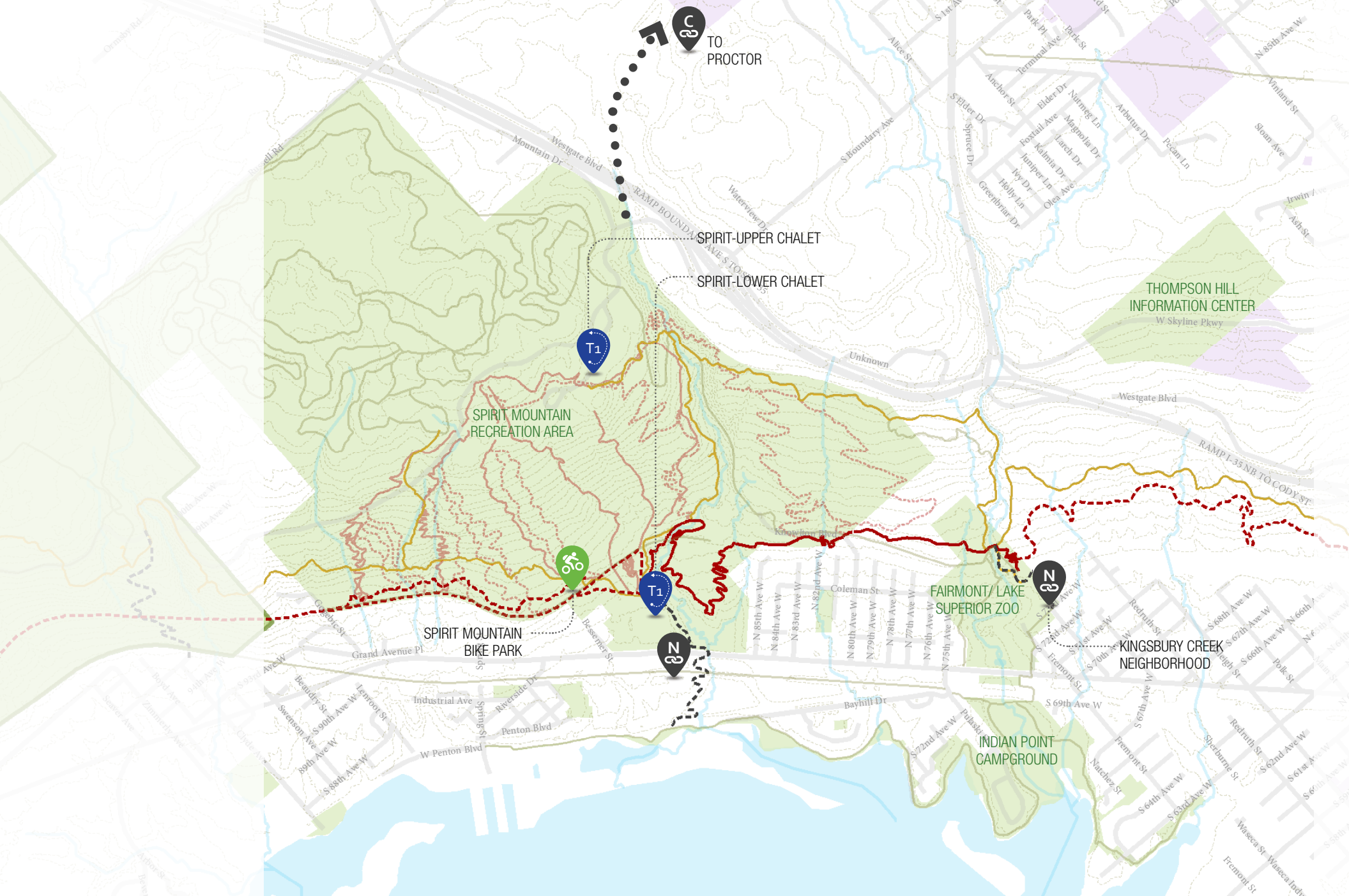
5.7-miles of trail in this focus area, from Lower Spirit Trailhead to Becks Road will be ADA Accessible. Other ADA Accessible portions of the trail, once constructed / restored could include:

- DWP - 5.7 Miles
- Old Hartley Road - 1.0 Mile
- *Snively Trail - 1.9 Miles
- Chambers Grove Interpretative Trail - 0.6 Miles (spring of 2018)
- Total ADA Accessible Trail Mileage = 9.2 Miles

*Needs more study to determine feasibility



» Equestrian trail at Magney-Snively, City of Duluth



SPIRIT MOUNTAIN + FAIRMONT PARK **FOCUS AREA 'C'**



- TRAIL ISSUE
- TRAILHEAD -TYPE 1
- TRAILHEAD -TYPE 2
- TRAILHEAD -TYPE 3
- SKILLS AREA
- NEIGHBORHOOD CONNECTOR
- COMMUNITY CONNECTOR
- DULUTH TRAVERSE SPINE
 - EXISTING
 - PROPOSED
- MULTI-USE BIKING / HIKING TRAILS*
 - EXISTING
 - PROPOSED
- NEIGHBORHOOD CONNECTOR TRAILS
 - EXISTING
 - PROPOSED
- SUPERIOR HIKING TRAIL
- OTHER TRAILS

* Downhill trails at Spirit Mountain are NOT multi-use, and are only open to mountain biking



SPIRIT MOUNTAIN RECREATION AREA

Spirit Mountain is the Duluth Traverse's only bike park that will have a range of bike related facilities when the master plan is fully realized. There are existing lift services to facilitate downhill focused riders. An additional 9.1 miles of downhill one-way trails and multi-use trail is proposed to enhance Spirit Mountain Bike Park. The downhill trails at Spirit Mountain are NOT multi-use and only open to mountain bikes. This mileage includes improved and diversified opportunities for gravity and traditional cross country mountain biking, and a hardened all-weather trail loop. These improvements will increase the utility of the bike park's trails and extend the use season during times of wet soil conditions. The All Weather Trail has been designed to facilitate special events, including NICA league meets and practice, and to provide trail corridors that can support grooming for additional winter fat biking. Development of bike park skills and training areas at the base of the mountain are also recommended and currently being implemented. The Duluth Traverse is separated from the DWP in key areas and split to reduce conflicts with other users, due to the downhill riders that will utilize the Traverse as a return trail to the lifts. For more details, see the Spirit Mountain Trail master plan.

Much of the proposed Duluth Traverse mileage is along the DWP corridor and requires regrading and bridge installation and replacement where landslides and storm run-off have impacted the corridor.

A connection to Proctor should be explored in future phases to allow access to the Duluth Traverse under 35W.

FAIRMONT PARK

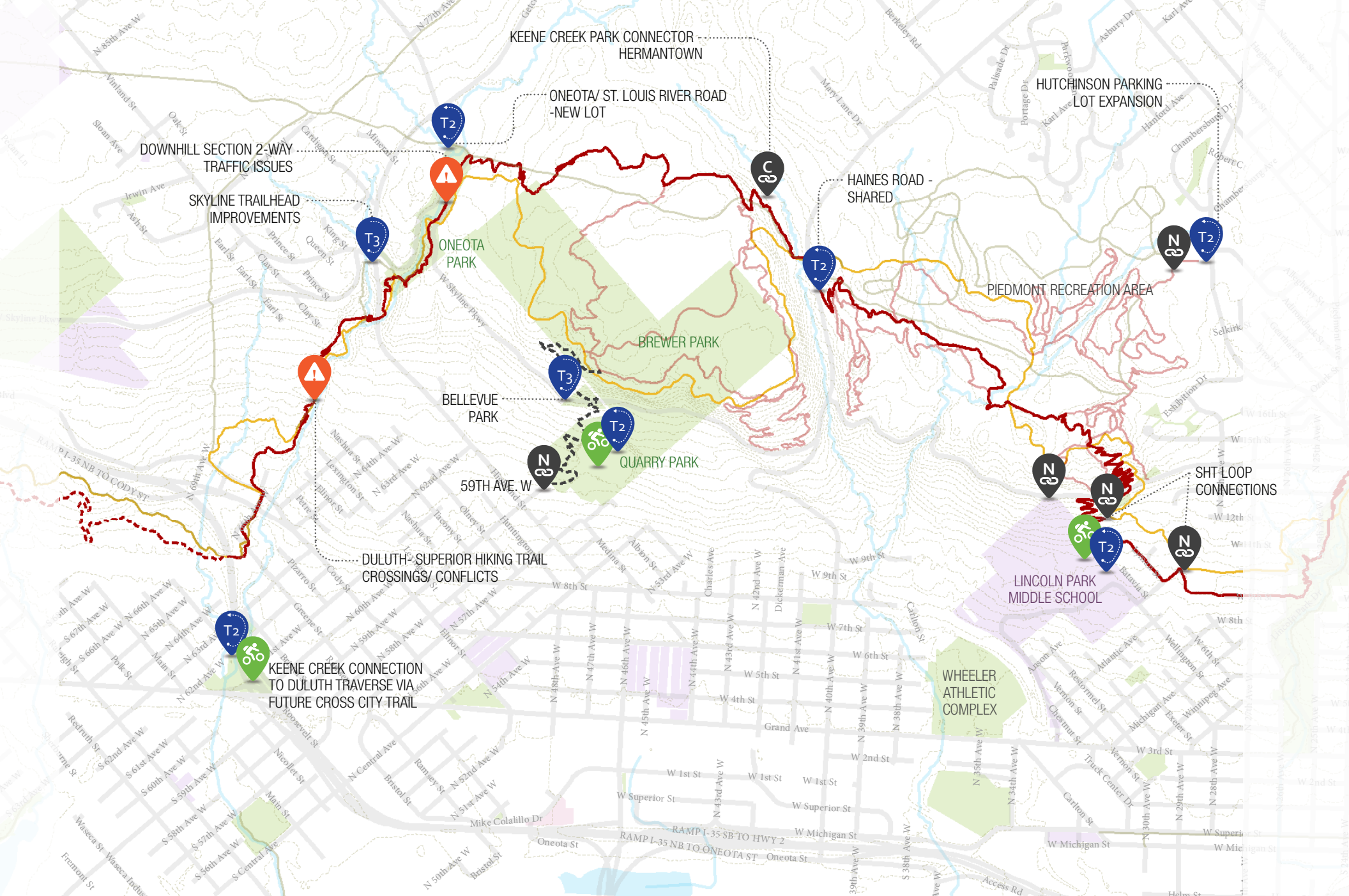
Maintenance to address seeps and perennial wet soil conditions along the Duluth Traverse are needed to address user experience and resource protection needs. This could include surface hardening or development of raised boardwalk or trail tread. Additional connectivity toward Keene Creek, the Green Street trailhead and Cody and Fairmont neighborhoods should be explored. This section of the trail is currently heavily impacted by ATV usage. The city and COGGS should continue to work with ATV users to lessen these impacts. The connections and trail construction will be lower priority in this area until the ATV issue is addressed, due to safety issues and the potential for damage to the completed Duluth Traverse.



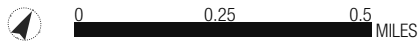
» Spirit Mountain Lift, Photo Credit: Hansi Johnson



» Spirit Mountain Lift, Photo Credit: Hansi Johnson



BREWER PARK + PIEDMONT REC. AREA FOCUS AREA 'D'



- TRAIL ISSUE
- TRAILHEAD -TYPE 1
- TRAILHEAD -TYPE 2
- TRAILHEAD -TYPE 3
- SKILLS AREA
- NEIGHBORHOOD CONNECTOR
- COMMUNITY CONNECTOR
- DULUTH TRAVERSE SPINE
EXISTING
- PROPOSED
- MULTI-USE BIKING / HIKING TRAILS
EXISTING
- PROPOSED
- NEIGHBORHOOD CONNECTOR TRAILS
EXISTING
- PROPOSED
- SUPERIOR HIKING TRAIL
EXISTING
- PROPOSED
- OTHER TRAILS
EXISTING
- PROPOSED



BREWER PARK + PIEDMONT RECREATION AREA

The Brewer + Piedmont Trail Center in this focus area 'D' is the advanced focused trail center of the Duluth Traverse Trail System. An additional 2.7 miles of multi-use trail are proposed in this focus area along the Duluth Traverse. These trails should be developed carefully to improve system function, protect resources and complement the existing networks of trail present. Specific trail recommendations in this focus area include:

1. New trail development:

- Connection to Hermantown's Keene Creek Park and adjacent neighborhoods.
- 59th Avenue Trailhead and connection (Quarry Park) to improve access from Spirit Valley.
- Potential re-routing and signage improvements for the Traverse and Superior Hiking Trail in this area to minimize crossings and fully separate.
- Access to Lincoln Park Middle School.
- Looping connection with the Superior Hiking Trail, for hikers only, to create an approximately 1.5 mile loop for

neighborhood access from Lincoln Park (connection between Duluth Traverse and Superior Hiking Trail).

2. Trail management and infrastructure improvements and additions:

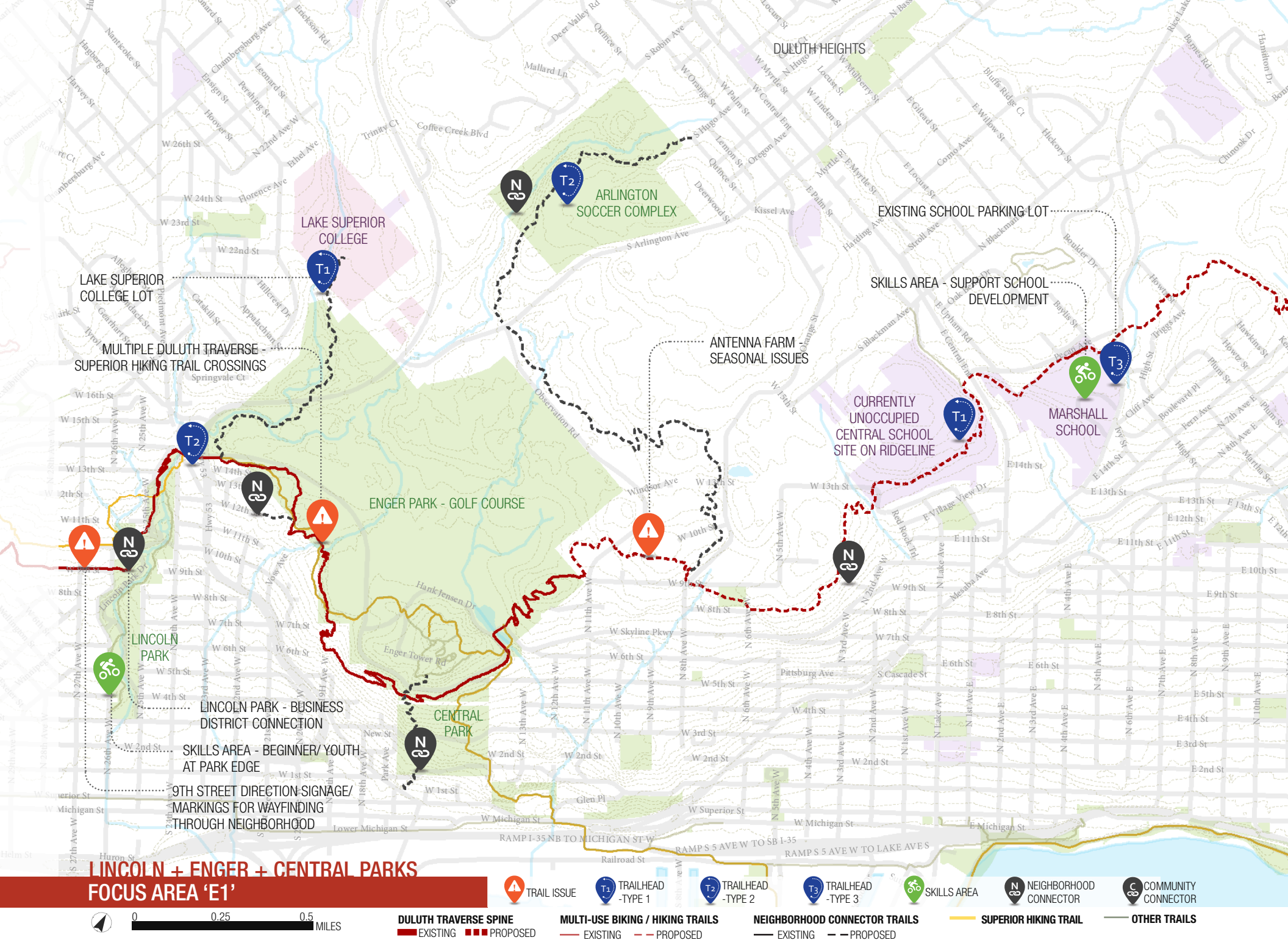
- Skyline Climb trail reconstruction and rerouting due to the construction of the Duluth Traverse Spine in 2016
- Prioritize maintenance and areas of water based erosion over new trail construction.
- Improve and maintain navigation and etiquette signage to improve navigability and keep users on formal trails.
- Close trails that are removed from the system efficiently and effectively to prevent intentional or unintentional re-opening of trail corridors and to mitigate natural resource impacts associated with ongoing erosion by water (i.e. COGGS plan for closure, needs to be formalized and utilized).
- Shift use to other trail systems to reduce parking congestion until parking improvements can be made.

• Improve access points:

- Expand the SHT trailhead as much as possible along Haines and Hutchinson Roads.
- Create additional parking or trail-head locations to relieve pressure on Haines Road trailheads.
- Improve existing parking and amenities at these popular trailheads.



» Photo credit: Duluth Women MTBers





LINCOLN + ENGER PARKS

Improvements in this focus area connect the community and provide ridership opportunities for youth through to advanced riders. A 0.9 mile connection is proposed to the Arlington Soccer Complex to connect to Duluth Heights neighborhoods and Coffee Creek. Additional parking and trailheads could re-purpose existing large scale public parking lots in the area. Priority recommendations in Focus Area E1 include:

- Explore the development of a new trail center in the Coffee Creek Valley to connect to the Duluth Traverse.
- Develop additional trailheads, or formalize trailheads at existing parking lots, to alleviate over-parking at popular trails in the area including the following:
 - The junction of Piedmont Avenue and North 24th Avenue West.
 - Old Central School Site on the Hill
 - Marshall School
 - Lake Superior College
 - Arlington Soccer Complex
- Provide signage to improve navigability through the neighborhood on W. 9th Street on the southwest side of the Park.

- Formalize a connection to Duluth's Central Business District utilizes Lincoln Park Drive, signage and maps to increase use and navigability of this corridor are needed.
- Provide neighborhood connection from the end of W. 12th Street. This would create a multi-use hiking trail loop option for local neighborhoods.
- Explore a beginner focused skills area in low traffic areas of Lincoln Park to serve neighborhood kids.

CENTRAL PARK

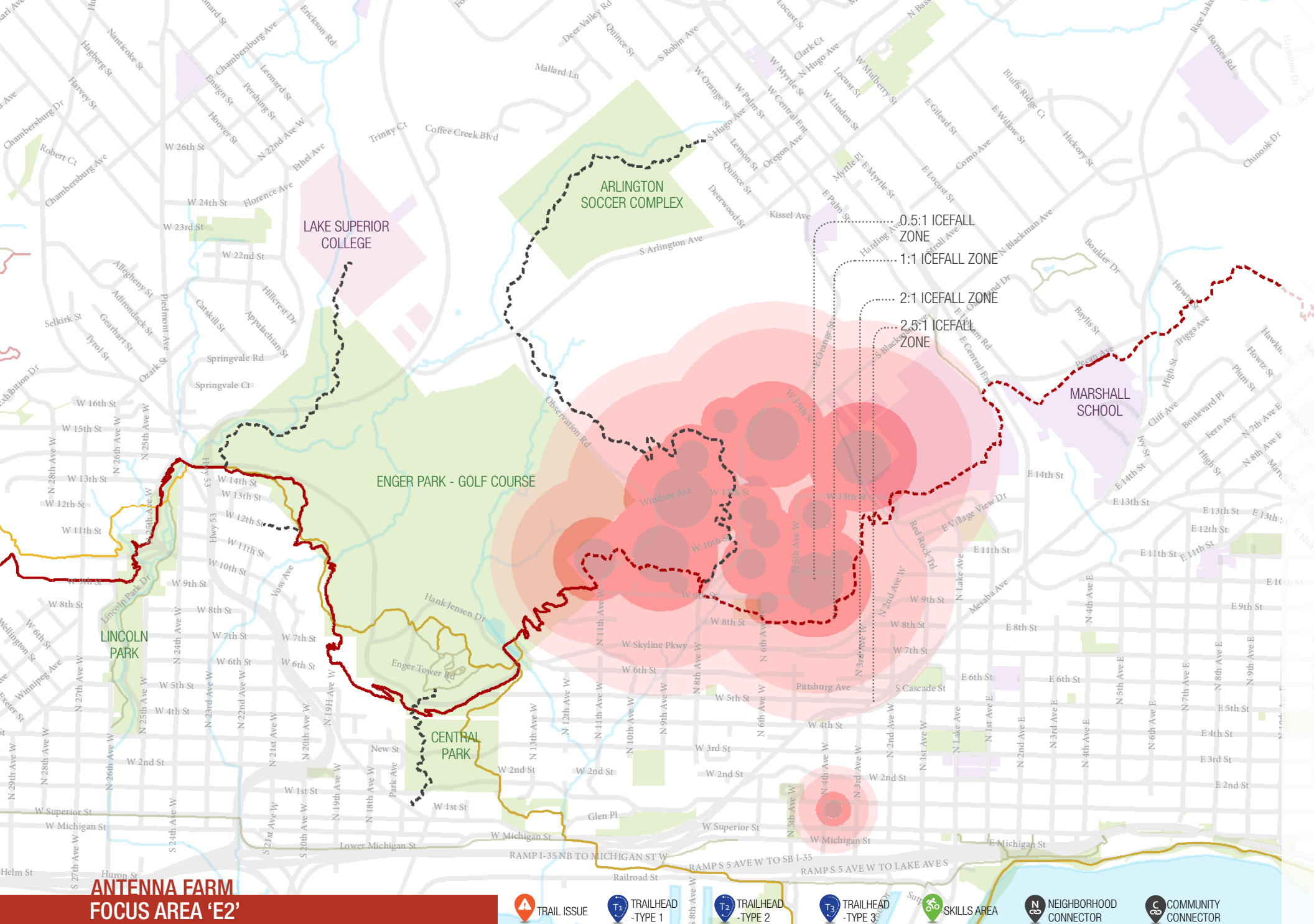
Central Park represents a key opportunity for connectivity from the Central Hillside communities to the Duluth Traverse and could provide for short multi-use trail opportunities to enhance these communities. A connection to the Duluth Traverse from Piedmont Avenue (near Garfield Avenue) should be explored and continue down to the Lincoln Park Business District.



» Lincoln Park



» Friend Ride, Photo Credit: COGGS





ANTENNA FARM

A large antenna farm sits Northeast of Enger Park and golf course and presents unique challenges to trail routing in this focus area. There are currently no regulations on distance from communication towers in which public amenities, such as trails, are located. There are committees and groups within OSHA that are working towards standardizing these guidelines, specifically for ice falls from towers. The city should continue to monitor the development of guidelines as alternate routes are explored in the Antennae Farm area. There are general recommendations for setbacks that were followed for the route identified in this plan, but will be explored in more detail.

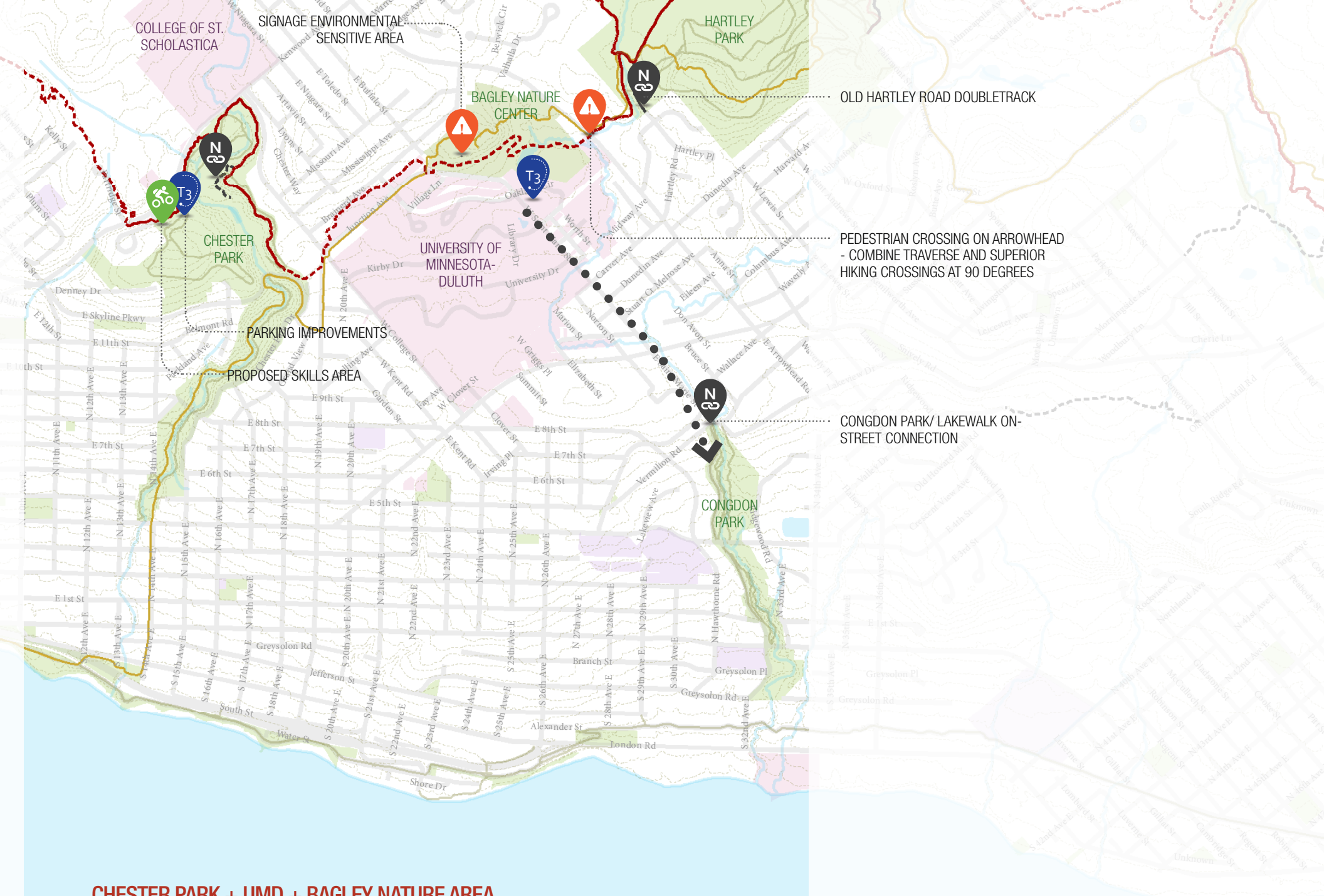
A 1:1 ratio of tower height to setback is the minimum recommendation noted from multiple sources and was used as a guide in this master plan. A 0.5:1 is the approximate existing condition for all other infrastructure in the area. Additionally, trail closures are highly recommended during portions of the year when ice buildup is prevalent, typically in the late fall and the early spring when there are warm temperatures during the day and freezing conditions at night. Signage and trail barricades are critical

when in the setback zone, to communicate trail closures during the riskiest times of the year. Ice fall direction and distance completely rely on wind speed and wind direction and can be unpredictable, further emphasizing the need for seasonal closure.

A key recommendation in this focus area is the 2+ mile neighborhood connection to Arlington Soccer Complex that will need to pass through the Antenna Farm in order to connect to the Duluth Traverse. This spur would connect an underserved neighborhood to the Traverse, as well as provide a connection to existing parking facilities that would take pressure off of existing trailheads in the area that are often overflowing with vehicles. The City should begin the process of easement and rights acquisition, as well as continue to develop the setback policy for trail routing through the Antenna Farm.



» credit COGGS



CHESTER PARK + UMD + BAGLEY NATURE AREA FOCUS AREA 'F1'

0 0.25 0.5 MILES



TRAIL ISSUE



TRAILHEAD
-TYPE 1



TRAILHEAD
-TYPE 2



TRAILHEAD
-TYPE 3



SKILLS AREA



NEIGHBORHOOD
CONNECTOR



COMMUNITY
CONNECTOR

DULUTH TRAVERSE SPINE
— EXISTING — PROPOSED

MULTI-USE BIKING / HIKING TRAILS
— EXISTING — PROPOSED

NEIGHBORHOOD CONNECTOR TRAILS
— EXISTING — PROPOSED

SUPERIOR HIKING TRAIL

OTHER TRAILS



CHESTER PARK

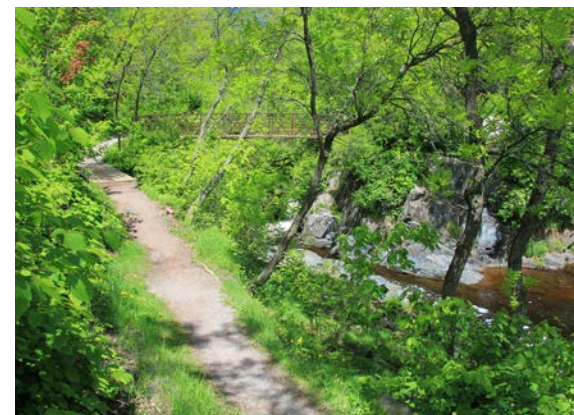
Chester Park's existing Mini-Master Plan takes precedence over the recommendations found in this master plan. Prior to implementation, any recommended improvements to Chester Park will need to be coordinated through a public process to capture input and desires of the numerous stakeholders including local neighbors and university entities. Recommendations for Chester Park include:

- Improve connectivity and access for adjacent under-served communities; this could include infrastructure improvements and programs to support youth and community engagement
- Exclusion of bike use below Skyline Parkway
- Connection of the Chester Bowl Chalet to the Duluth Traverse
- Develop a skills area and trailhead off of Kenwood to increase access and youth/beginner skills development.

UMD – BAGLEY NATURE AREA

Proposed development of the Duluth Traverse through the University of Minnesota Duluth (UMD) and Bagley Nature Area will provide connectivity through this focus area. Coordination of trail development needs to incorporate UMD programmatic and student needs and desires for activity and access. The primary recommendations through UMD and Bagley include:

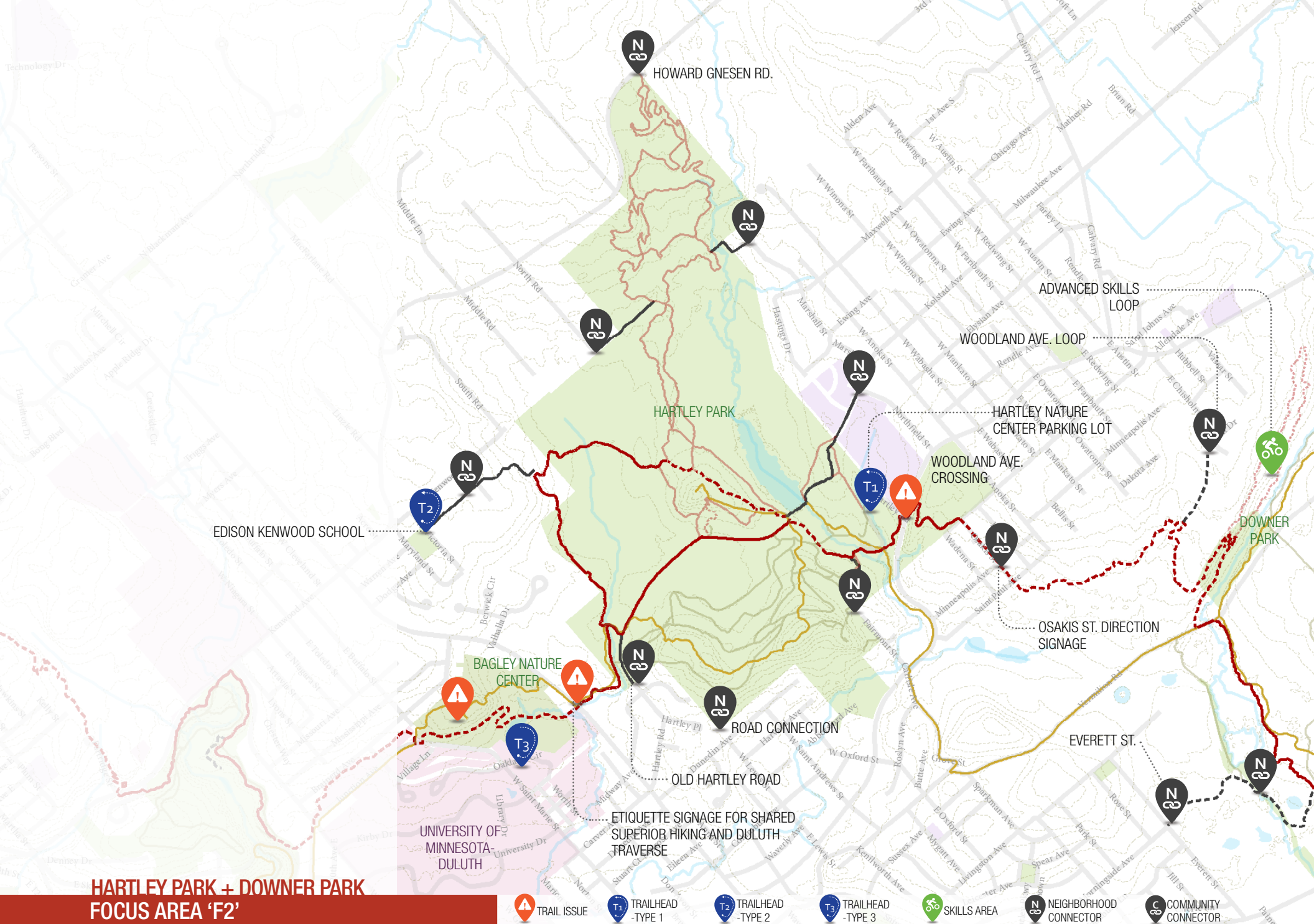
- Improvements to the crossing of West Arrowhead Road through development of a single shared, 90 degree SHT/Duluth Traverse crossing. This crossing is needed to improve safety and user experience.
- Provide support and assistance for the development of a bike park on UMD campus.
- Provide signage to indicate users are entering Bagley Nature Area. Include related educational and regulation information necessary to achieve conservation and preservation goals of the Nature Center and provide interpretation and education for trail users.



» Chester park trail



» Bagley Nature Center from SHT





HARTLEY PARK

The Hartley Park Mini-Master plan takes precedence over recommendations of this master plan. All trails impacted by the July 2016 storm will be restored and repaired as tree clearing and clean up efforts continue in the northwest hills (likely winter of 2017-18). The target of the following recommendations are focused on additional improvements and connections to improve the experience and safety of this popular trail center.

A proposed 2.5 mile addition to the Duluth Traverse will improve access and connectivity through and within the park. Two adjacent portions of the Duluth Traverse are proposed connecting Northeast towards Hawk Ridge and South towards University of Minnesota Duluth and Chester Park. The existing northeastern connection is 1.65 miles long connecting Allendale Avenue to the Hartley Nature Center parking lot near Amity Creek and Carlisle Avenue. The southern connection is 1.25 miles long and connects to an existing portion of the Duluth Traverse at Hartley Park (West Arrowhead Rd), and at Chester Park Drive below the University of Minnesota Duluth.

Hartley Park is in need of trailhead improvements for signage and wayfinding because it is such a high traffic area for multiple user groups. An additional trailhead at the Edison Kenwood Site would alleviate parking pressure on the Hartley Nature Center lot, as well as lots at UMD. Additional parking at West Victoria Street could be developed and connected to the Duluth Traverse via existing multi-use trail.

*Public Process and coordination with the Hartley Park Mini Master Plan is needed prior to further implementation.

DOWNER PARK

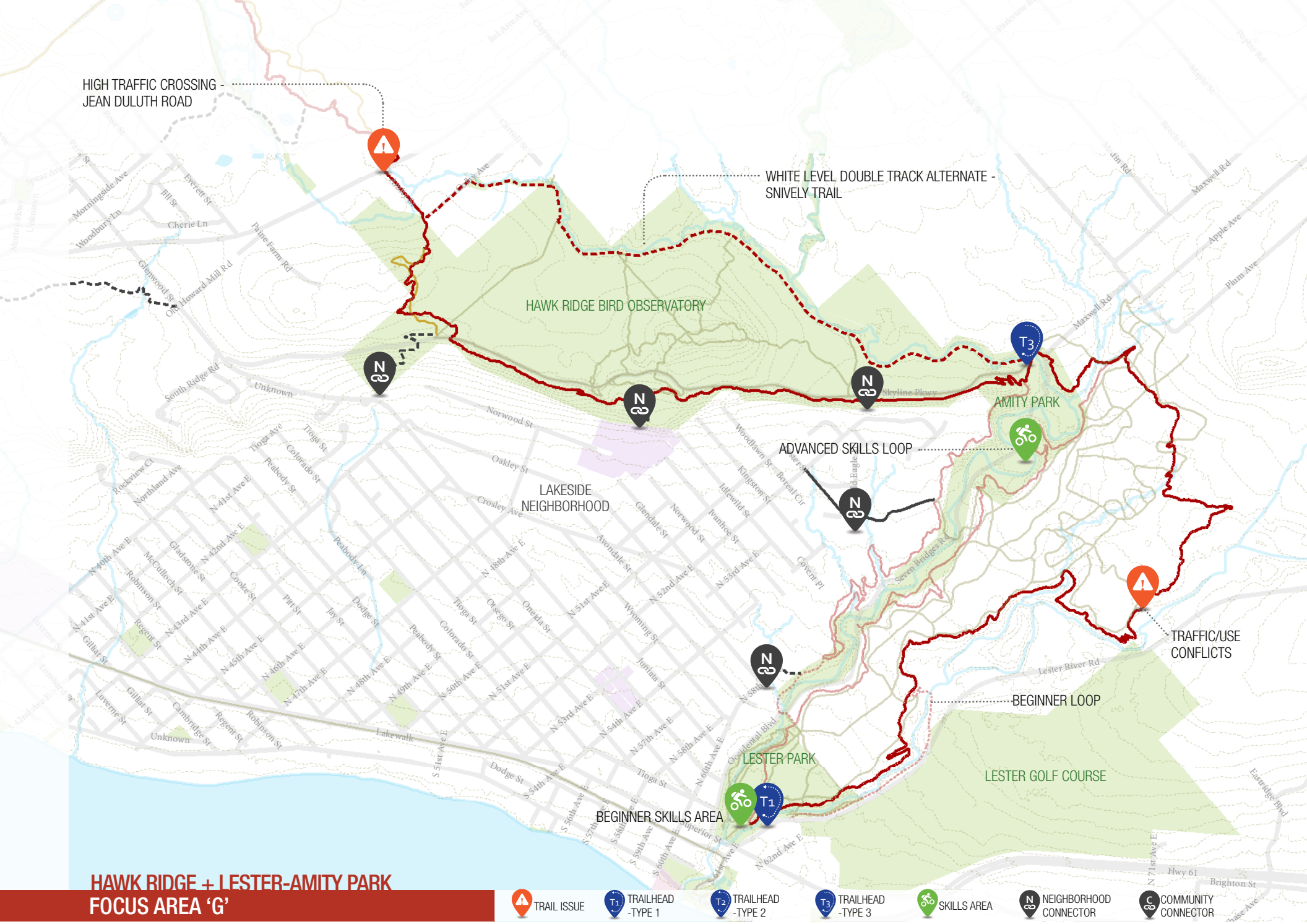
A proposed piece of the Duluth Traverse is necessary to provide connectivity between Hawk Ridge Bird Observatory and Hartley Park. This portion of the Duluth Traverse descends across the park and connects to the existing trail near Amity Creek. An advanced loop option is recommended in Downer Park, per community input, for additional advanced to expert trail options for users on the east side of town. Several neighborhood connectors are recommended to increase connectivity to neighborhoods to the south and north.



» Family Ride, Photo Credit: Tjaard Breeuwer



» Hartley Park Tunnel Trail



HAWK RIDGE + LESTER-AMITY PARK FOCUS AREA 'G'

0 0.25 0.5 MILES

DULUTH TRAVERSE SPINE
— EXISTING — PROPOSED

MULTI-USE BIKING / HIKING TRAILS
— EXISTING — PROPOSED

NEIGHBORHOOD CONNECTOR TRAILS
— EXISTING — PROPOSED

SUPERIOR HIKING TRAIL

OTHER TRAILS



TRAIL ISSUE



TRAILHEAD
-TYPE 1



TRAILHEAD
-TYPE 2



TRAILHEAD
-TYPE 3



SKILLS AREA



NEIGHBORHOOD
CONNECTOR



COMMUNITY
CONNECTOR



HAWK RIDGE BIRD OBSERVATORY

Any improvements or alterations to trails within Hawk Ridge Bird Observatory should be undertaken through a public process bringing together stakeholders and land managers from this region of the Duluth area. Support for additional bike trails through the observatory is limited, but the proposed double track route would utilize an existing equestrian trail and take bike traffic off of Skyline Parkway. Skyline is currently being used as a white level connector around this difficult section of the Duluth Traverse below the Hawk Observation area. Recommended improvements for the observatory include:

1. Trail based connections downslope to the Lakeside-Lester Park neighborhoods
2. Dedicate bike useage on the old Snively Trail/Skyline Parkway corridor as a multi-use connector providing a white level bike option for Duluth Traverse connectivity. The current trail alignment does not meet the intent of the Duluth Traverse as it is highly technical and only accommodates skilled riders. This will increase safety, decrease user conflicts, and provide a safer route for beginner to novice riders. The existing trail is an

equestrian trail and close coordination through a separate public process will be required to re-route and modify trails in this area. Safety and etiquette measures would be required in this section to accommodate multiple uses.

LESTER - AMITY PARK

Two additional multi-use trail segments totaling 1.0 mile are proposed by the public that will improve connectivity along the Lester River, between the Lester River and Lester River Road. A neighborhood connector near 58th Ave. E. will need public engagement and agreement. There is also the need to provide a trail opportunity for advanced users. The location of an advanced trail is likely in the Amity-East area, but will need to be determined through further public processes and will require equal amounts of trail closure due to the over-saturation of trails in this area.

At the bottom of Lester Park, there is an opportunity for Bike Skills Development area. Such an area should interface with the exiting trail system, and provide amenities for families and novice cyclists to develop the skills needed across the Duluth Traverse and associated multi-use trails. Trailhead improvements with signage and

maps indicating the terminus of the Traverse, and providing information about the greater trail system and connectivity should be developed. This signage provides additional opportunity to educate users on trail etiquette and should include messaging on Strava type applications in prohibited areas of this park. Other specific recommendations for improvement include:

1. Development of steps to provide hiker "shortcuts" through the switchback sections near Lester River.
2. Development of a trailhead along the Skyline Parkway/Snively Trail.
3. A beginner loop near Lester River Road to provide requested loops for less skilled riders in the community. This will require further public engagement since this is currently used primarily as a hiking trail.
4. Develop a youth focused skills area at the bottom of Lester for beginning riders that fits into the overall fabric of the park.

A person is mountain biking down a trail at sunset. The sun is low on the horizon, creating a strong orange and yellow glow. The rider is in the foreground, silhouetted against the bright light. The trail is rocky and surrounded by tall grass and shrubs. In the background, there are trees and a body of water.

5.

CONCLUSION

+ IMPLEMENTATION



The Duluth Traverse spine is over 82% complete at the writing of this master plan. However, there are several recommendations, based on community engagement and input, that will enhance the trail system and make it more sustainable for the long-term. The prioritization of the projects focuses on the priorities community, sustainable maintenance needs, and incremental improvements as funding and timing allow. The following prioritization allows the Duluth Traverse to accommodate the expected high traffic volumes and grow into the fabric of the community to be a sustainable destination mountain biking center that serves the local community first, but becomes a statewide treasure and secures Duluth as the premier trails city in the country.

NEIGHBORHOOD CONNECTORS 11.3 MILES

Gary-New Duluth	Congdon park
Morgan park	Hartley Park (8)
Clyde Connector	Osakis St.
Penton Blvd.	Woodland Ave.
Kingsbury Creek	Everett St. (2)
59th Avenue	Hidden Valley
Lincoln Park Middle School Loop (3)	Glenwood St.
Lincoln Park Business	Lakeside School
W. 12th St.	N. 52nd. Ave. E.
Central - Hillside	Bald Eagle Dr.
W. 9th St.	N 58th St. E.
Arlington Soccer Complex	
Chester Chalet	

INTER COMMUNITY CONNECTORS

Jay Cooke State Park	Hermantown - Keene Creek Park Connector
Esko	
Proctor	

PROJECT PRIORITIZATION

[FOR LONG-TERM SUSTAINABILITY]

01

COMPLETE AN OPERATIONS AND MANAGEMENT PLAN

- a. Prioritize sustainability improvements
- b. Direct maintenance procedures
- c. Guide long term issue conflict resolution strategies

02

IMPLEMENT SIGNAGE + WAYFINDING DESIGN RECOMMENDATIONS

- a. Prioritize trailhead wayfinding and social etiquette posting
- b. User conflict reduction and best practice recommendations
- c. On-trail wayfinding signage
- d. Safety & emergency usage signage
- e. Street navigation to trail/ park facilities

03

COMPLETE UNFINISHED SECTIONS OF THE DULUTH TRAVERSE WITH PREVIOUSLY APPROVED ROUTE

- a. Apply for Legacy Grant funding, and other funding sources to complete DWP section.

04

ESTABLISH NEIGHBORHOOD CONNECTORS IN UNDER-SERVED NEIGHBORHOODS

- a. Neighborhood Connectors connect residents within the City of Duluth.
- b. Community Connectors connect residents outside the City of Duluth.

05

TRAIL CORRIDOR PROTECTION FOR PERPETUITY

- a. Complete an ownership study of parcels that the trail passes through
- b. Work with the County to secure permanent easements or ownership of County parcels
- c. Establish permanent easements through parcels not owned by the City
- d. Establish a corridor protection overlay of 250' to maintain the character of the trail and designate that corridor as official protected green-space, preservation space or park space

06

CONTINUE REFINING EMERGENCY RESPONSE STRATEGY. INCORPORATE INFORMATION INTO TRAILHEAD KIOSKS

- a. Limited cell phone service and access issues present new challenges to Emergency Responders

- a. DWP Corridor
- b. Lester River Trails
- c. Keene Creek Trail
- d. High volume road crossings – work with the County on improvement plan.
- e. Woodland
- f. Arrowhead
- g. Jean Duluth
- h. It should be noted that signalized intersection are statistically more dangerous and not the recommended solution for these busy crossings

**ADDRESS HIGH PRIORITY TRAIL CONFLICT ISSUES THAT
FOCUS ON SAFETY**

07

- a. Strengthen the collaboration between the City, Spirit Mountain, COGGS, and others.

**FORMALIZE OPERATIONS & MANAGEMENT PLAN AND
AGREEMENTS WITH PROJECT PARTNERS AND IMPLEMENT
CONTENT OF THAT AGREEMENT**

08

- a. Trailheads and traffic should be evaluated as the trail system is completed and becomes more popular with residents and tourists.

**RE-EVALUATE PARKING AND TRAILHEAD NEEDS AFTER FULL
TRAIL BUILD OUT, AND IMPLEMENT IMPROVEMENTS**

09

- a. Youth & Beginner focused skills areas should be prioritized. The following parks were identified by the consultant team as excellent opportunities for skills areas – Lester Park, Chester Park, Lincoln Park, and Lincoln Park Middle School.

**PRIORITIZE SKILLS AREA DEVELOPMENT BETWEEN
STAKEHOLDERS, CITY, AND THE PUBLIC. THIS WILL LIKELY
REQUIRE A PUBLIC PROCESS AND COMMUNITY INPUT.
IMPLEMENT APPROVED SKILLS AREA PLANS**

10

- a. Collaboration and partnerships can build better trail systems for all.

**WORK WITH SUPERIOR HIKING TRAIL TO ADDRESS
CONFLICTS AT SHARED TRAILHEADS AND MULTIPLE TRAIL
CROSSINGS, AS WELL AS WORKING TO FIND SOLUTIONS FOR
REDUCED VISUAL IMPACTS TO TRAILS**

11

- a. Community Connector potential to Jay Cooke State Park, City of Proctor, Keene Creek Park - Hermantown, City of Esko.

**PURSUE INTER COMMUNITY CONNECTORS WITH THE
FOLLOWING PRIORITIES**

12

BUDGET ESTIMATES



» Future DT Stewards, Photo Credit: Tjaard Breeuwer



» Trail Work, COGGS & Minnesota Power

DWP Trail Restoration	High	Low
Phase 1	\$ 725,500	\$ 705,500
Phase 2	\$ 250,000	\$ 250,000
Phase 3	\$ 643,500	\$ 631,500
Phase 4	\$ 973,000	\$ 754,500
Phase 5	\$ 439,000	\$ 333,500
Sub- Totals	\$ 3,031,000	\$ 2,675,000

Trailhead Typologies	Each (High)	Each (Low)	Quantity	High	Low
Type 1 -	\$ 15,500	\$ 8,000	8	\$ 124,000	\$ 64,000
Type 2 -	\$ 30,000	\$ 17,000	11	\$ 330,000	\$ 187,000
Type 3 -	\$ 57,000	\$ 30,000	7	\$ 399,000	\$ 210,000
Sub- Totals	\$	\$	\$	\$ 853,000	\$ 461,000

Proposed Trail Segments	cost per mile	miles	Total
Duluth Traverse Spine Singletrack	\$55,000	8.59	\$ 472,450
Duluth Traverse Spine Doubletrack (excluding DWP)	\$25,000	1.89	\$ 47,250
Neighborhood Connections	\$50,000	11.3	\$ 565,000
Proposed Multi-Use Trails	\$55,000	12.3	\$ 676,500
Proposed Spirit Mountain Trails	\$60,000	9.12	\$ 547,200
Sub-Total		43.2	\$ 2,308,400

Signage Cost Estimates (not including trailhead kiosks and all new signs)	Each	Number	Total
Type B1 - Primary Directory (Trail Centers)	\$ 19,000	15	\$ 285,000.00
Type B6 - Small Map/ Emergency	\$ 400	60	\$ 24,000.00
Type C1 Trail Marker - Carsonite	\$ 30	300	\$ 9,000.00
Type C2 Trail Marker - 4 sided	\$ 30	150	\$ 4,500.00
Type F3.AA - Not ATV's & OHVs	\$ 500	10	\$ 5,000.00
F3.2 - No Cell Service	\$ 500	5	\$ 2,500.00
F3.H + F3.J - Trail User Guide - Respect Other Visitors	\$ 400	60	\$ 24,000.00
F3.K-F3.M - Information	\$ 400	60	\$ 24,000.00
F1 - Trail Regulatory	\$ 500	60	\$ 30,000.00
F2. - Vehicular Information and Crossings	\$ 550	65	\$ 35,750.00
Trail Counters	\$ 5,500	5	\$ 27,500.00
Sub-Total			\$ 471,250.00

	High	Low
Construction Totals	\$ 6,663,650	\$ 5,915,650
	High	Low
Final Design/ Engineering (15%)	\$ 999,547.50	\$ 887,347.50
Totals	\$ 7,663,198	\$ 6,802,998

LONG TERM MAINTENANCE COSTS

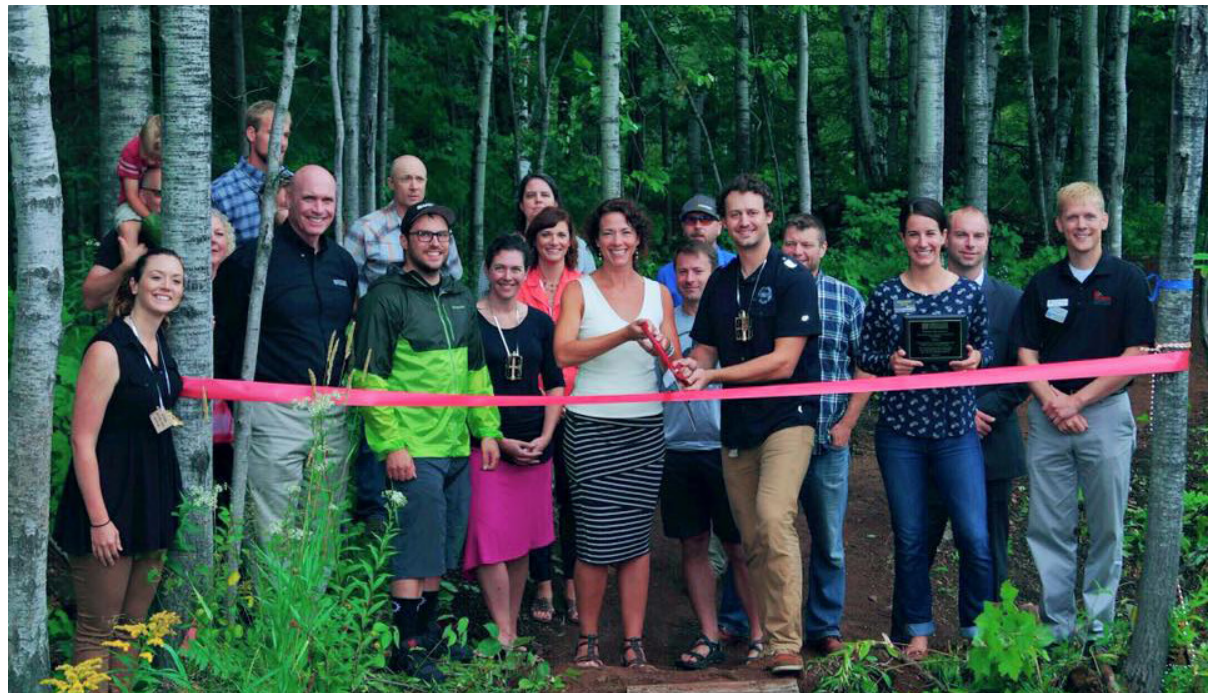
*As projects are proposed and brought forth, long term operation and management-project costs must be included in the proposal for City review and considerations.

FUNDING

The Duluth Traverse has already received a number of grants from public agencies and non-profit groups such as Bikes Belong. There will need to be additional funds collected to complete the trail and elements of this master plan. The Duluth Traverse is expected to continue looking for outside funding sources and in-kind donations for capital improvements as well as operations and maintenance. COGGS will continue to be a critical partner and play an important role in these efforts. Potential funding sources that will likely be pursued for implementation funding include:

- Clean Water, Land and Legacy Amendment funding
- Minnesota Department of Transportation
- Minnesota Department of Natural Resources
- Foundations and Non-profits
- 1/2 and 1/2 tax
- Private donations - COGGS
- Statewide Health Improvement Programs
- Duluth-Superior Metropolitan Interstate Council

Operations and maintenance will be the City and COGGS responsibility with annual operating costs funded through the city's annual budget and private efforts, including significant input from COGGS.



» Photo Credit: COGGS

NEXT STEPS + RESEARCH

The Duluth Traverse will participate in the Greater Minnesota Regional Parks and Trails Commission's research efforts, and have already discussed data collection such as visitation counts, a recreation demand study, user profiles, and trend surveys. We recommend counts throughout the trail for all users, and specifically in the DWP to understand how many bikers, equestrian users, and walkers are using this corridor.

An Operations and Management Plan and City/COGGS user agreement are in the process of being developed. These documents will be refined based on the information generated in this master plan.

Additionally, the Duluth Traverse system will be observed over time and the on-line Social Pinpoint tool will be used to collect community feedback for this master plan. The on-line tool is being considered for operations, maintenance, and continuing public engagement.



» Photo Credit: Bent Paddle Brewing Company