ST. LOUIS RIVER CORRIDOR TRAILS PLAN

UPDATE TO THE 2011 DULUTH TRAIL AND BIKEWAY PLAN

DULUTH, MINNESOTA

FINAL DRAFT

Hoisington Koegler Group Inc.

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DULUTH PARKS

Hoisington Koegler Group Inc.

Consultant Team:

Hoisington Koegler Group, Inc.

Bryan Harjes, Landscape Architect, PLA
Kevin Clarke, Planner
Sarah Evenson, Landscape Architect, PLA
Gabrielle Grinde, Landscape Architect, PLA

Master Plan Project Manager:

Andrew Slade

City of Duluth Parks and Recreation
411 W. 1st Street
Duluth, MN 55802
Phone: (218) 730-4301
Email: ASlade@DuluthMN.gov

Trail and Bikeway Coordinator:

Judy Gibbs

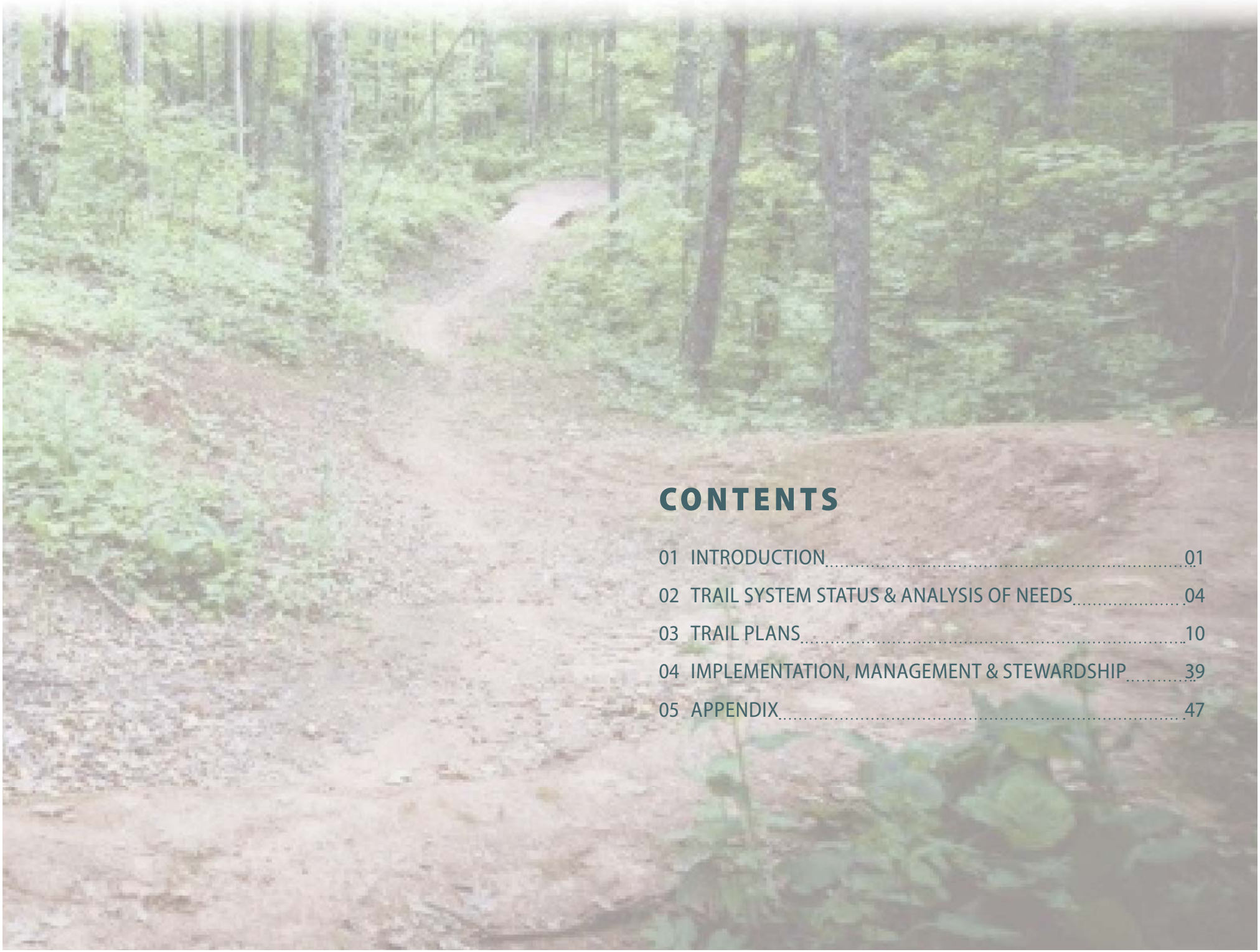
City of Duluth Parks and Recreation
411 W. 1st Street
Duluth, MN 55802
Phone: (218) 730-4308
Email: JGibbs@DuluthMN.gov

Parks and Recreation Commission Members:

Edwin Hall
John Schmidt
Patric Contardo
Lindsay Dean
Amanda Crosby
Tjaard Breeuwer
Tiersa Wodash
Jon Welles
Michael Schraepfer
Erik Torch
Jodi Tervo Roberts
Joel Sipress
Frank Jewell
Art Johnston
Lindsay Dean, Manager, Parks and Recreation

City Council Members:

Zack Filipovich
Jay Fosle
Howie Hanson
Barb Russ
Joel Sipress
Elissa Hansen
Noah Hobbs
Gary Anderson
Em Westerlund



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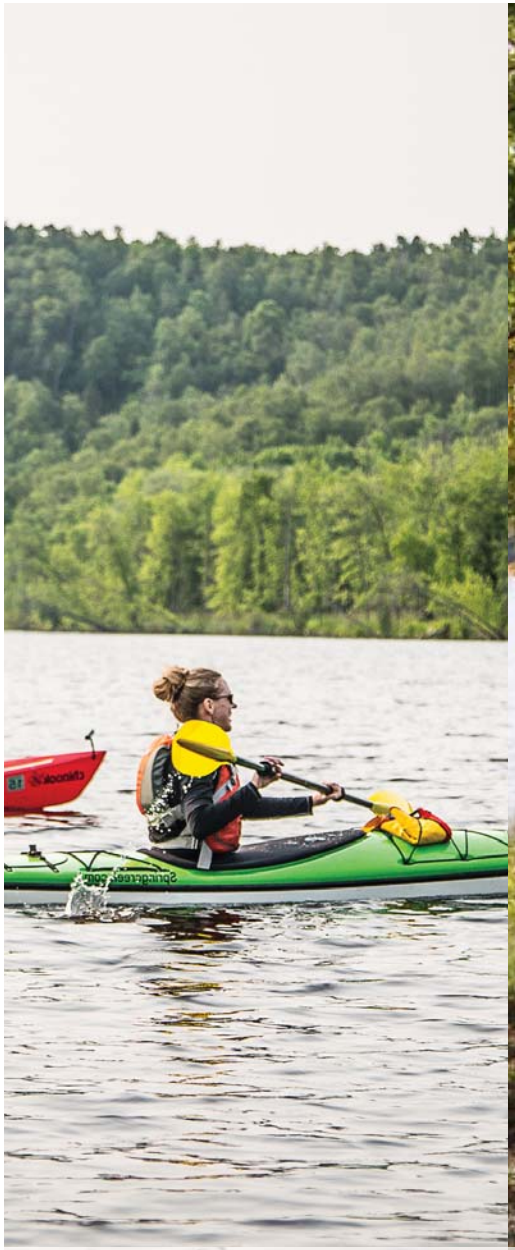


01. INTRODUCTION

Purpose of the Trails Plan Update

The purpose of this document is to set forth the overall principles of trail and bikeway development and management in Duluth's St. Louis River Corridor (SLRC). This plan will provide guidance towards a 'Trail City' status for Duluth in the next five years. It validates past planning efforts and will help the City move forward with future Mini Master Plans. In concert with the 2011 Trail and Bikeway Plan, the 2017 SLRC Trails Plan guides future decisions about appropriate use of specific trails and trail systems. It identifies gaps in trail resources and, to the greatest extent possible, proposes new trails or upgraded uses that will fill those gaps. The plan considers the percentage of trail users from out of the area as well, so Visit Duluth and other tourist organizations can provide valuable insights to guide trail users from near and far. Additionally, with an aging population there is increasing need for universally designed trails in Duluth, which this plan begins to address.

BACKGROUND AND NEED

In 2011, Duluth adopted a comprehensive trail and bikeway plan that outlined a vision to become the premier trail destination in North America. The 2011 plan provides a framework and guide for achieving that goal and addresses development and management of Duluth's trails and bikeways to create a comprehensive, connected and sustainable system serving residents, business and visitors.

In the five years since the 2011 plan was adopted, there have been a number of changes to trails and trail planning in the area of western Duluth known as the St. Louis River Corridor. While there have been great successes like the public embrace of mountain bike ride centers at Chambers Grove, Spirit Mountain and Brewer/Piedmont, there have also been substantial challenges. The 2012 Flood caused significant damage to the trail system and necessitated significant trail rerouting and reconstruction. Major portions of this plan will be implemented thanks to the "Half-and-half" fund, the $18 million initiative focused on Corridor parks and trails improvements.

New plans, along with new funding, call for new and renewed trails, trail and bikeways connectors, and trail access points, many of which will be substantially different than originally envisioned in the 2011 Trail and Bikeway Plan.

This update to the 2011 plan focuses on the St. Louis River Corridor in order to ensure continued coordination and communication among trail user groups and the City of Duluth as it continues on its path to be a premier trail city in North America with the SLRC as one of the main attractions.

Definitions:

Natural Surface Trails: Trails that are not paved. Within this definition there are multiple trail types:

» Hiking only trails like the Superior Hiking Trail are designed and built sustainably to handle foot traffic

» Purpose-built Bike Optimized Trails that are designed with obstacles, features, and flow to sustainably handle bicycle use. These trails may be single or double track.

» Crushed rock (generally limestone) trails like Western Waterfront Trail; typically 8'-10' wide and built to ADA standards wherever possible.

» Groomed cross-country ski trails for winter use only. Cross-country ski trails are not necessarily maintained for summer use.

Paved Trails: Bituminous or concrete surface trails

» Multi-use paved trails such as the Cross City Trail

» Paved trails may be plowed in the winter, depending on use

Accessible Trails: Trails that meet ADA and/or ABA standards

» ADA Trails comply with the Americans with Disabilities Act

» ABA Trails comply with the Architectural Barriers Act

Water Trails: Public, established water routes that facilitate the use and passage along waterways by small watercraft such as boats, canoes, and kayaks

» Example: The St. Louis River State Water Trail and the proposed St. Louis River National Water Trail

Grant in Aid Trails: Trails with funding administered through the DNR. Special requirements may need to be met in order to receive funds.

» Snowmobile GIA Trails are funded from state gas taxes. Registration fees and grooming costs are partially reimbursed to designated clubs.

» Cross-country Ski GIA Trail grooming costs are partially funded through the Great Minnesota Ski Pass

» ATV GIA Trails are funded through vehicle registrations, gas taxes, and trail passes. The DNR also operates a OHV Damage account to repair damage caused by OHV use.

Seasonal Trails: Roads like Skyline Parkway are closed in the winter and used as trails for snowmobilers.

02. TRAIL SYSTEM STATUS & ANALYSIS OF NEEDS

Status of the St. Louis River Corridor Trails

The St. Louis River Corridor Trail Plan Update represents a vision and action plan designed to make Duluth the premier trail city in North America for outdoor enthusiasts; however, there are challenges to the realization of this vision. Funding for maintenance, ordinance enforcement, and construction is tight. The current trail system, while robust, lacks safe and convenient connections to on-street bikeways and off-street paved trails.

Fortunately, Duluth has mobilized significant community support for access to the City's natural amenities via trails, which far outweighs the challenges of knitting together the system. This Plan builds on existing resources and includes exciting plans for new trails and trail access improvements. It will take time, commitment, and resources to implement this plan, but the benefits justify the effort. Much progress has been made since the 2011 Duluth Trail and Bikeway Master Plan (see below), and additional site-specific planning and design actions needed to implement the St. Louis River Corridor Trails Plan are detailed in this chapter and can be seen in the "proposed" trail linework on the maps in Chapter 3.

RELEVANT PLANS THAT HAVE BEEN COMPLETED SINCE THE 2011 DULUTH TRAIL AND BIKEWAY MASTER PLAN:

- Nordic Ski Trail Master Plan
- Lincoln Park Small Area Plan
- Gary New Duluth Small Area Plan
- Equestrian Feasibility Study and Plan
- Morgan Park Small Area Plan
- Irving Sustainable Neighborhood Action Plan
- Riverside Small Area Plan
- Western Waterfront Trail Renewal Plan
- DWP Feasibility Study with cost estimates
- Skyline Parkway Plan Update
- Grand Avenue Nordic Center Plan
- Looped Hikes from the Superior Hiking Trail
- Quarry Park Plan

PLANS UNDERWAY AS OF THE WRITING OF THIS MASTER PLAN UPDATE:

- The Cross City Trail Master Plan
- DWP Trail Master Plan
- ATV Trail Feasibility Study
- St. Louis River Water Trail Master Plan
- The Western Waterfront Trail Extension
- The St. Louis River Recreational Corridor Master Plan
- Gate, Wayfinding, and Signage Master Plan

CONSTRUCTION PROJECTS COMPLETED OR UNDERWAY:

- Cross City Trail (CCT) from Canal Park to Lincoln Park
- Cross City Trail (CCT) from 63rd Ave. W to the Zoo
- 80% of the Duluth Traverse

PROJECTS CURRENTLY IN THE DESIGN PHASE:

- Equestrian Trail: Phase 1
- Clyde Connector Trail

CURRENT ISSUES WITH THE SLRC TRAIL SYSTEM:

- Lack of connectivity between trails
- Lack of a Complete Streets policy
- Lack of accessibility in existing trails and from parking areas to trails
- Lack of parks and trails designated as "regionally significant" by the Greater Minnesota Regional Parks and Trails Commission
- Absence of lighted Nordic ski trails or snowmaking
- Lack of affordable Nordic ski trails
- Limited access to, and protection of, the shore of the St. Louis River
- Limited neighborhood access to some trail and bikeway facilities on the ridgeline
- Lack of long term maintenance or asset management planning
- Lack of off-leash dog trails
- Uncertain long term status of recreationally important tax forfeit land on the hillside throughout the corridor
- Lack of bicycle and pedestrian connections among popular recreational activity nodes in the St. Louis River Corridor area. These include but are not limited to:
  - *Heritage Sports Center*
  - *Wade Stadium/Wheeler Sports Complex*
  - *Lincoln Park*
  - *Fairmount Park/ Indian Point Campground and the Lake Superior Zoo*
  - *Spirit Mountain*
  - *Irving Park and Keene Creek*
  - *Memorial Park*
  - *Riverside Park*
  - *Gary New Duluth*
  - *Fond du Lac*
  - *Chambers Grove*
  - *Lakewalk to Munger Trail*
  - *Morgan Park*

Analysis of Needs

There are several pending plans for new trails or trail extensions that, once completed, will greatly improve the connectivity of the SLRC trail system. Other existing trails need improvements that will repair rundown segments or allow expanded uses. Overall improvements to the trail system include accessibility upgrades, improved trail access via trailheads and connector trails, and implementation of a coherent system of wayfinding and signage.

It is recommended that the cost of trail maintenance be factored into every project going forward, with funding sources identified for ongoing maintenance. It is critical to take care of what exists in addition to planning for what is proposed.

NEEDS

Need 1: Complete the Multi-use Trails System

1. *Extend the Western Waterfront Trail from its current terminus in the Riverside neighborhood to Chambers Grove Park in the Fond du Lac neighborhood, pending the 2017 Mini-Master Plan.*

The Western Waterfront Trail (WWFT) is an existing mostly crushed stone surface trail that travels from Spring Street to S. 63rd Avenue West. It is recommended that the City restore the existing trail and extend the trail west to Chamber's Grove Park. The city commenced a Mini Master Plan in 2016. New sections of the WWFT should be designed and built to ABA trail standards.

The trail would extend west along the city-owned waterfront. The master planning process underway in this area will determine the route's alignment, as the rail right-of-way is owned by the City and currently in use by the nonprofit Lake Superior and Mississippi Railroad excursion train. This was the first rail line into Duluth and holds significant historic value. It continues to serve as an accessible method to tour the scenic route. Expected 2018 completion of cleanup on the waterfront will create an opportunity to extend the trail from its current Riverside neighborhood terminus across the US Steel site's waterfront to Boy Scout Landing in the Gary/New Duluth neighborhood. Extension of the trail from there to Chambers Grove Park and Jay Cooke State Park will require acquisition of some portions of the former rail line that are now in private hands. Extension of the WWFT east from Stryker Bay to Grassy Point has been discussed. The City should determine whether, when or how to create that connection pending 2017 results of the Western Port Area Neighborhood plan. At present, brownfield, rail and active industrial sites make development of this connection problematic, although neighborhoods are seeking to make connections with the waterfront.

2. *Complete the Cross City Trail (CCT), a paved off-road trail corridor for non-motorized trail users of all ages and abilities. The trail will provide a connection from the Willard Munger State Trail to the Duluth Lakewalk and fill a gap in a significant state trail route from central Minnesota to the North Shore of Lake Superior.*

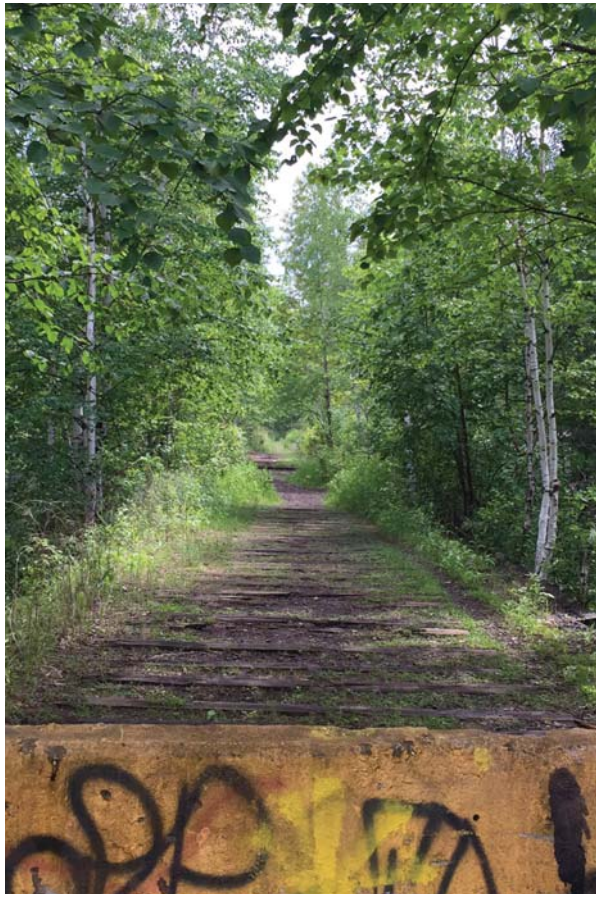
The first leg of the Cross City Trail, a paved, 10' wide, off-street multi-use trail from Duluth's Lakewalk to Carlton Street, was completed in 2014. An additional section, between I-35 and Kingsbury Creek, was built in 2016. One of the main objectives of the master planning process was to determine a route for the second phase of the trail, from Carlton Street to Keene Creek Park. A route along the river was chosen, and is slated to be constructed in 2017.

From Keene Creek Park west, two parallel trail corridors connect to the Lake Superior Zoo/Munger Trailhead area. The northwestern Cross City Trail Phase 3 segment was built from 63rd Avenue to the Lake Superior Zoo/Fairmount Park in early 2016. A trail connection through Fairmount Park (to be coordinated with the Fairmount Park project), will connect the Cross City Trail to Fairmount Park and the Lake Superior Zoo in 2018. An opportunity for a loop trail segment follows a Burlington Northern rail bed that the City is seeking to acquire, and has a longer timeframe of implementation.

3. *Complete the Duluth, Winnipeg, and Pacific (DWP) Trail System. The DWP trail will offer safe access to distinctive natural areas in western Duluth, presenting exceptional views of the St. Louis River Corridor and estuary.*

The city-owned, abandoned, DWP railroad corridor is currently used as an informal trail. The 100-ft. wide corridor (wider in some locations) runs continuously for about 10 miles from 63rd Street West to Becks Road, and eventually under I-35 to Proctor. The DWP is a very scenic route high above the river and the Munger Trail with several stone, steel, and wooden trestles and a tunnel under Ely's Peak. The corridor would provide an excellent unpaved multi-use regional trail. Significant restoration and repair is needed on the trestles, rail bed, and tunnel. Because of the wide right-of-way, the hardened nature of the former rail bed and its gentle grade, the DWP corridor is potentially suitable for biking, hiking/

running, cross-country skiing, scenic slow-speed snowmobiling, and snowshoeing. If a parallel and adjacent trail can be constructed for bicyclists and hikers, the rail bed could be sufficiently hardened to also accommodate equestrian use. The DWP acts as a spine for planned western Duluth trail networks, being one of the few places that these user groups can traverse Magney Snively Natural Area without damaging the sensitive ecosystem. Future planning for the Duluth Traverse and the DWP will consider two options through the Magney Snively Natural Area in the context of the DT EAW: 1) combining all trail usage on the existing DWP corridor; and 2) building a low-impact bike-optimized trail close to the DWP corridor. Outside of the Natural Area, the two-trail option is preferred.



This plan considers the Clyde Connector as a potential dividing point of allowed uses on the DWP. Potentially, equestrian and snowmobile use could be allowed west of the Clyde Connector, and disallowed east of it. Future DWP Trail master planning will work with all interested user groups to determine the use of the trail between the Lake Superior Zoo and Becks Road.

4. Complete the Duluth Traverse

This is a mountain bike optimized multi-use trail system that will travel across the City of Duluth from Chambers Grove Park on the far west side to Lester Park on the far east side. Completion may include a bike-optimized multi-use trail in the DWP corridor.

Even though much of the trail is already built, COGGS and the City of Duluth have agreed to pursue a Mini Master Plan for the Duluth Traverse in 2017. This will include details on maintenance and trail usage as well as finalizing trail alignments for remaining construction.

Need 2: Work with Specific User Groups to Complete New Trails or Improvements to Existing Trails

1. **Mountain Bikers:** *Study the feasibility of advanced level mountain bike trails and other trail development in the Elys Peak area.*

Elys Peak is a rocky summit with dramatic overlooks of the entire St. Louis River corridor. The cliffs and rock formations around Elys Peak have long been a regional rock climbing and berry picking destination. The Superior Hiking Trail reaches the summit and is currently the only formally authorized trail in that area.

The Elys Peak area is potentially a site for an advanced mountain bike trail. The SHT is also considering a new loop trail in the region, and the Duluth Climbers Coalition is considering improvements to the existing social trails that reach climbing and bouldering sites. Before proceeding on this new trail development, the City will engage all stakeholders to ensure that the natural environment is protected, trail conflicts are minimized, and neighborhood interests are addressed. A master plan for the Duluth Traverse is tentatively scheduled for 2017 and should include detailed public review of all newly proposed trails. The Master Plan should also include detailed strategies for addressing user conflicts on the Traverse, so that all users are welcome and hiker-biker conflicts are reduced or eliminated city-wide.

2. **Hikers:** *Add several hiking experiences in some of the favorite hiker destinations: Bardon Peak, Elys Peak, Spirit Mountain, and Brewer Park.*

The primary investment in hiking trails includes four relatively short, destination-quality ridgeline hikes that will become signature outdoor experiences in Duluth. These four destination loop hikes provide access to Duluth high points: 1) Bardon Peak; 2) Elys Peak; 3) Spirit Mountain; and 4) Brewer Park. Loop routes for each will be created by connecting existing segments of the Superior Hiking Trail (SHT) with short segments of new trail. In addition to adding hiking loops, restoring several deteriorated segments of the SHT will improve the quality of the trail system for hikers. The Brewer Park loop was completed in 2016 and Spirit Mountain loop is planned for

construction in 2017. The proposed SHT loop at Elys Peak will be included in the Duluth Traverse Master Plan as it looks at sensitive development of that fragile natural area.

3. **Equestrians:** *Expand and reestablish equestrian trails, including improving the Elys Peak ski trail loop to accommodate sustainable equestrian usage.*

In 2014, the City of Duluth completed a feasibility study of potential Duluth horseback trail locations in collaboration with the Duluth Area Horse Trail Alliance (DAHTA). Since the 2012 flood, the only Duluth trail in the St. Louis River Corridor that has been both passable and approved for horseback riding has been West Skyline Parkway between Spirit Mountain and Becks Road, a route with limited appeal for horseback riders. Based on the feasibility study, new equestrian trails should include one or more of the following:

» Multi-use trail access points with provision for horse use near the intersection of West Skyline Parkway and Becks Road.

» A 4.8 mile Jay Cooke Connector from the Becks Road access center to the Jay Cooke State Park horse trail system.

» Significantly improved trail on the Elys Peak loop of the Magney Snively trail system, connected to the DWP by the Clyde Connector.

These new and significantly improved trails would connect with the DWP, which will be improved for use by multiple user groups. This will allow a loop of ten to twelve miles either from the Becks Road trailhead or from west Skyline's Magney Snively parking lot.

4. **Cross-country Skiers:** *Complete cross-country ski trails and amenities including the Grand Avenue Nordic Center.*

State-of-the-art snowmaking and lighting at the planned Grand Avenue Nordic Center will provide a dependable season-long venue for recreational skiing, youth activities and regional high school events, including the potential for hosting Statewide Nordic finals. The project will become a regional center of activity for cross-country skiing by extending early and late season skiing, and making skiing possible whenever there is inadequate natural snow. The 3.3 km snowmaking-supported loop will be connected via a 1.5 km trail to 33 km of existing ski trails. Lighting provides the opportunity for early morning, after school, and night skiing during a time of year when natural light is limited.

The trail will wind up and down through forested land along the St. Louis River valley, above and below the former Duluth, Winnipeg and Pacific (DWP) Railway grade providing an aesthetic winter experience and magnificent views.

Pending completion of the Spirit Mountain Master Plan, and fundraising by the Duluth Cross Country Ski Club, the City of Duluth plans to break ground on Phase I of the Grand Avenue Nordic Center Trails in 2017, to be ready to open for the 2017-2018 winter ski season.

5. **Snowmobilers:** *Complete snowmobiling trail network improvements. The City will work with snowmobile clubs to repair Kingsbury and Knowlton Creek bridges and restore traditional trail corridors.*

6. **Disabled Trail Users:** *Complete accessibility improvements to the SLRC trail system.*

An accessible trail is defined as a trail that is accessible to and usable by people with disabilities, and meets minimum guidelines established by the United States Access Board. Generally, accessible trails must have slopes of less than 5% (up to 12.5% is acceptable for short distances with landings), not include barriers (such as stairs, curbs, or elements that block a wheelchair), be wide enough for wheelchair passage, and be made of a firm and stable material so as to be navigable by wheelchair and powered personal transporters. There are locations in the park and trail system where geology, purpose, and construction impediments make accessible trails infeasible.

Safe and well-marked navigation routes should also be implemented between accessible trails. Access routes from the SLRC's upper trails to its river trails should be universally accessible wherever possible.

The City has been working to identify accessibility issues on the trail system and desires to increase incrementally accessibility on both new and existing trails. The City is committed to develop a new policy on accessible trails that can be used city-wide. The policy should address which trails and which trail types should be developed to what standard. Generally speaking, for example, most paved trails should be ADA accessible except in problems spots, and crushed stone trails should meet ABA wherever possible.

Trailhead facilities are in need of improvement across the river corridor, and there are multiple opportunities for accessible loop trails that should be studied and planned for in coming years.

7. **ATV Trail Users:** *Prepare and submit All-Terrain Vehicle (ATV) concept plan for environmental and public review in collaboration with stakeholders and the DNR. ATVs are not currently allowed on trails , roads or public property in the City of Duluth.*

8. **Other Motorized Trail Users:** *The City of Duluth should create a policy regarding motorized or electric bikes (E-bikes) and other forms of personal transportation.*

9. **Off Leash Dog Walkers:** *The new trail proposed along Sargent Creek should be planned as a potential off-leash dog trail, under the terms of City Council resolution 08-0341R. This trail potentially could connect with the multi-use trail systems at the upper end of Sargent, using Birchwood Park (and Boy Scout Landing) as trailheads. Current planning for Quarry Park also includes off-leash dog trails that might connect to multi-use trail systems.*

10. **Boaters and Paddlers:** *Develop paddle sports access and interpretation to the St. Louis River as a National Water Trail.*

The St. Louis River Water Trail Master Plan envisions the estuary as a premier small watercraft, canoeing, and kayaking destination that provides a rich variety of day and multi-day paddling experiences for a wide range of skills and interests. There will be no changes or restrictions on motorized use, just an additional emphasis on paddle sports, access, and wayfinding. Currently, the absence of any facilities tailored to paddlers or easily accessible visitor information has made the river an undiscovered paddling gem. The City of Duluth's water trail master plan will be submitted for City Council approval in 2017 after which the project will be submitted to the National Park Service for designation as a national water trail.

Much of the implementation work required to get the St. Louis River Water Trail established requires further development of partnerships with users and local, state, federal, and nonprofit agencies to design, fund, construct, and maintain facilities tailored to paddlers, including carry-in access, campsites, rest areas, overlooks, and portages.

Need 3: Further Connect Users to the St. Louis River Corridor Trail System

1. *Build ridge-to-river connector routes at:*

» Lincoln Park (from CCT through Lincoln Park)

» Lincoln Park School/ Wade/ Cross City Trail (unplanned)

» Between CCT and Denfeld High School

» Between CCT and Spirit Valley

» Fairmount Park and Kingsbury Creek (through Fairmount Park and Indian Point Campground planning)

» Spirit Mountain (based on Proctor and Hermantown planning)

» Stewart Creek Area (the planned Clyde Connector)

2. *Connect western Duluth neighborhoods to the SLRC trail system per direction from Small Area Plans and WPAN planning currently underway.*

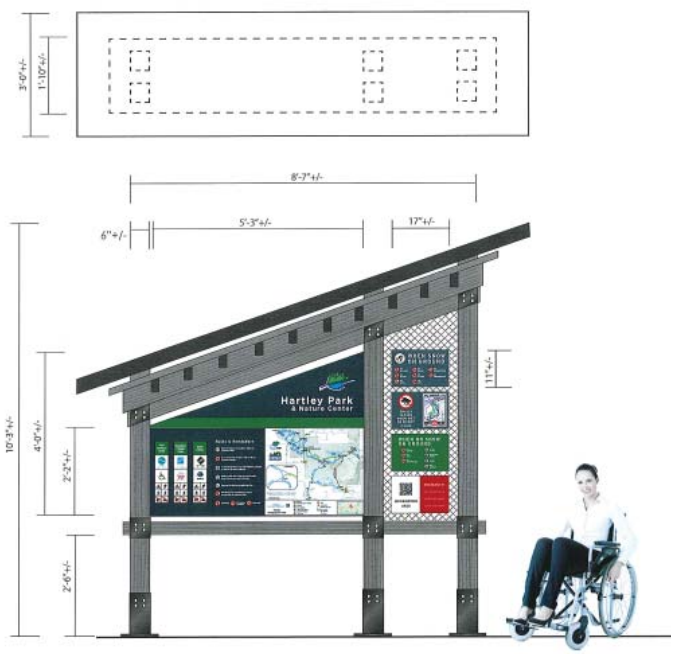
From June 2013 to February 2014, the City of Duluth worked with community members on a Small Area Plan and Health Impact Assessment for Gary New Duluth. As part of this planning process, residents identified better pedestrian and bicycle connections to the St. Louis River, the Munger Trail, Grand Avenue, and the Duluth Traverse as priorities. The Merritt neighborhood, including both public and private schools, should also be connected to the CCT.

3. *Close the "Adventure Gap" through active partnerships with community organizations that engage diverse populations, and by integrating park and trail planning with community planning and economic development.*

Need 4: Improve Trail Access

1. *Implement new trailheads as proposed. Trailheads need to have accessible facilities and ADA wayfinding information detailing trail length, location, and other details of the accessible trails system.*

2. *Implement the 2016 Gate, Wayfinding, and Signage Master Plan once approved.*



03. TRAIL PLANS

VISION

The St. Louis River Corridor Trails Plan Update builds on the Vision of the 2011 Duluth Trail and Bikeway Master Plan to make Duluth the premier trail city in North America.

Approach to this Plan Update

In order to achieve the more comprehensive vision of the 2011 document, this master plan update should be used in conjunction with the bicycle planning initiatives under development by the Metropolitan Interstate Council (MIC). This document focuses on the off-road trail network for a multitude of trail users, while Duluth's MIC work is geared specifically toward on-road bikeways, including lanes, boulevards, and sharrows.

Guiding Principles

The St. Louis River Corridor Trail System should be:

» **ACCESSIBLE & SAFE**
- *Create more universal accessability to outdoor natural spaces and amenities wherever possible.*

» **SUSTAINABLE**
- *Demonstrate high levels of sustainability in siting, construction, maintenance and operations.*

» **EQUITABLE**
- *Ensure equitable access to quality parks and trails in all areas of the River Corridor for people of all ages, backgrounds, and incomes.*

» **SENSITIVE**
- *Protect environmentally sensitive areas and critical habitats.*

Best Practices for a Sustainable Trail Network

One of the fundamental guiding principles for Duluth's trail system is sustainability. Sustainablity is considered throughout the trail planning and construction process and beyond, from siting, to the construction, maintenance, and operations of the trails. The following guidelines, adapted from DNR Trail Planning, Design and development Guidelines, are recommended to ensure system sustainability. They can be used as a checklist when making decisions about building new trails or decommissioning old trails. Further information on Best Practices for Sustainable Trails can be found in the 2011 Duluth Trail and Bikeway Plan.

1. Avoid environmentally sensitive areas and critical habitats

All development, including trail development has an impact on natural systems. This includes the impact from the trail itself and alteration of drainage, erosion, invasive species migration, and habitat fragmentation. When locating trails it is best to avoid high quality and sensitive (steep slopes, wet areas, fragile soils) natural areas. When trails travel at the edge of sensitive ecological or water systems, buffers should be provided to minimize impact. New trail routes should not be considered until the City completes identification and mapping of natural areas that may contain critical habitats that should be protected from and avoided by trails.

2. Offer different user experiences

Designing trail networks that cater to specific user groups and abilities can keep people on the 'official' trail network and keep visitors coming back to Duluth for trail related recreation. For each trail type, the City will strive to present clearly the skill level required. For example, the Cross City Trail is a beginner bike trail, but *not* a beginner mountain bike trail.

3. Sustainable trail design

This includes purpose built trails with tread, width, and terrain characteristics suitable for the intended use (keep water off trails, close fall line trails, 10% or less average grade, half –rule, etc.)

4. Keep users on the official designated trails.

Keeping users on the trail will minimize the impact of trails and trail users on the environment. Clear signage/wayfinding, high quality purpose-built sustainable trails, and offering connections to where people naturally want to go will all help to keep users on designated trails. In addition, closing and restoring unsustainable trail corridors is necessary to prevent continued use of historic and 'unofficial' alignments.

5. Commitment to management and maintenance

Trail management procedures, responsibilities, and cost of ongoing maintenance are important to consider before a trail is closed, built, or added to the trail network. This will mean a commitment to ongoing maintenance. Fewer, better maintained trails are more desirable than more poorly maintained trails.

UNIVERSAL ACCESSIBILITY

Universal accessibility, by nature, provides opportunities for persons of all abilities to experience the benefits of the outdoor experience. For people who do not traditionally pursue outdoor activities to feel comfortable in the outdoors, a few conditions must be met. They must first know that they are welcome and have some knowledge that their physical needs will be accomodated. Items such as access to bathrooms, parking, curb cuts, adequate trail widths and surfacing, and signage indicating trail grade and or difficulty all assist in providing reassurance. There also needs to be promotion of the accessible features through strategic community partnerships with NPO's that provide services to people with disabilities. Without thorough promotion of the St. Louis River Corridor's accessible features, it will be unlikely that a significant number of people with disabilities will begin to use the trail system and amenities.

ENVIRONMENTALLY SENSITIVE AREAS AND CRITICAL HABITATS

Western Duluth is home to abundant undeveloped lands. The ecological quality of these lands range from brownfields to some of the highest quality natural areas in the State. With this in mind, it is important to remember that not all trails are appropriate in all contexts. Trail based recreation does have an environmental impact and even the most sustainable footpaths cause erosion and habitat fragmentation. Existing high quality natural areas require special consideration to ensure the existing high quality natural resources are preserved for future generations. When restoring trails, the City will strongly encourage intentional restoration to pre-settlement plant communities that may be of higher value to diverse wildlife and pollinator populations, potentially more resilient in a changing climate, and more beautiful in proximity to the trails.

Magney Snively Forest (Magney Snively Natural Area and Portions of the Spirit Mountain Recreation Area)

The 1800-acre Magney Snively Forest is the largest contiguous tract of ecologically significant City-owned land and is located in Magney Snively Forest and portions of the Spirit Mountain Recreation Area. The forest features extensive northern hardwoods, old growth forest, and is habitat for a variety of migratory songbirds, mammals, raptors, and rare plant species. Today, areas of high ecological quality are increasingly rare, and worthy of protection.

The portion of Spirit Mountain Recreation Area northwest of Skyline Parkway and east of Russell Road is part of the Magney-Snively old growth forest. The 2011 Forest Management Plan for the Spirit Mountain Recreation Area recommends that this area be considered for special protection. This area has shallow and sometimes saturated soils above bedrock. The Forest Management Plan recommends that new trail development in this area be very limited, and if new trails are placed, they be narrow with as little opening of the tree canopy as possible to restrict the spread of exotic plants.

Any trails that travel through Magney Snively for connectivity, such as the Duluth Traverse or a potential equestrian connector in the vicinity of Stewart Creek, should work to avoid areas of rare natural resources. Potential trails on soils that are very limited for development should anticipate added costs for soil corrections and expect higher maintenance needs.

DNR Trout Streams

Duluth contains 16 designated trout streams. New trail development in in the vicinity of trout streams should also be limited. When needed for connectivity purposes, a riparian buffer, as dictated by the City of Duluth Shoreland Overlay Zones, will be maintained to limit loss of tree cover near trout streams and prevent erosion. New trails must be designed in coordination with the Minnesota DNR. The planned Clyde Avenue Connector will reduce runoff into a tributary of Stewart Creek by restoring the old corridor.

Trail Use

To become a premiere trail city, Duluth seeks to provide quality trail experiences for a variety of users within the City. This will be achieved with a combination of multi-use trails and dedicated single use trails. Within the City, hiking, walking, on and off-road biking (at a minimum), in-line skating, horseback riding, downhill skiing, cross country skiing, paddle sports, and snowmobiling will all be accommodated. The City is also currently exploring the addition of ATV use in some areas in western Duluth. For multi-use trails, compatibility of use depends on user volumes, trail width, sight lines, and season. In dry areas, snowmobile and equestrian uses have the potential to share uses, as the trail width needed is similar and use occurs at different times of the year. Often walking and biking are compatible uses, provided width and sight lines are adequate. In high use areas, separated walking and biking trails may be desired. Some areas need to be dedicated to one use, such as one-way single track mountain bike trails, where the terrain is highly technical and sight lines may not be adequate to see or avoid other users. Similarly, when equestrians share trails with other uses, long sightlines are desired to avoid startling horses. Educational and wayfinding signage to teach people about how to approach and pass horses safely will be critical.

Trail Standards and Destination Characteristics

New trail construction should not only follow sustainable trail design standards, but should also be purpose built to fit the desired trail use. Figures on this and the next pages illustrate the MnDNR's recommended trail widths, recovery zones, and grades based on use.

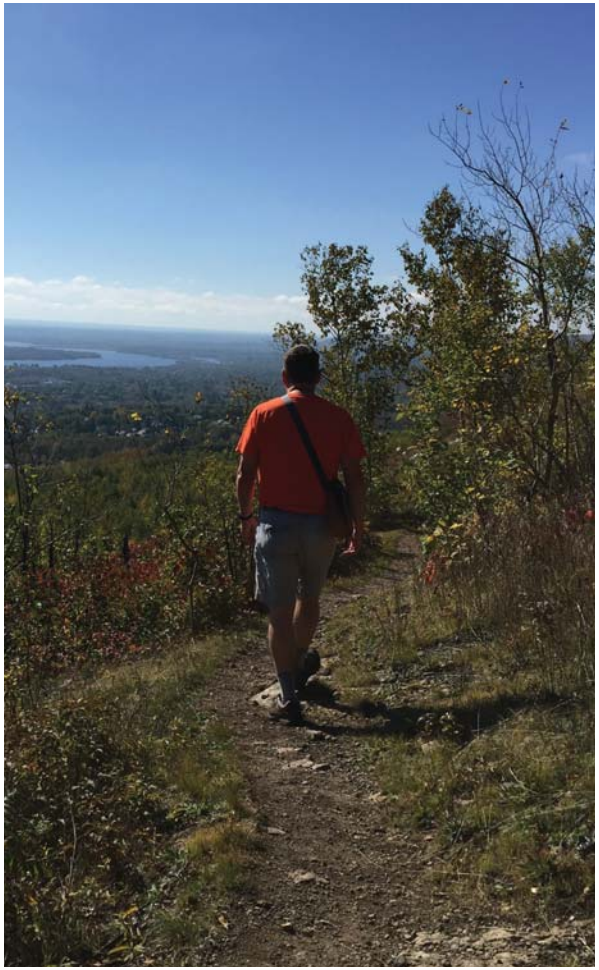
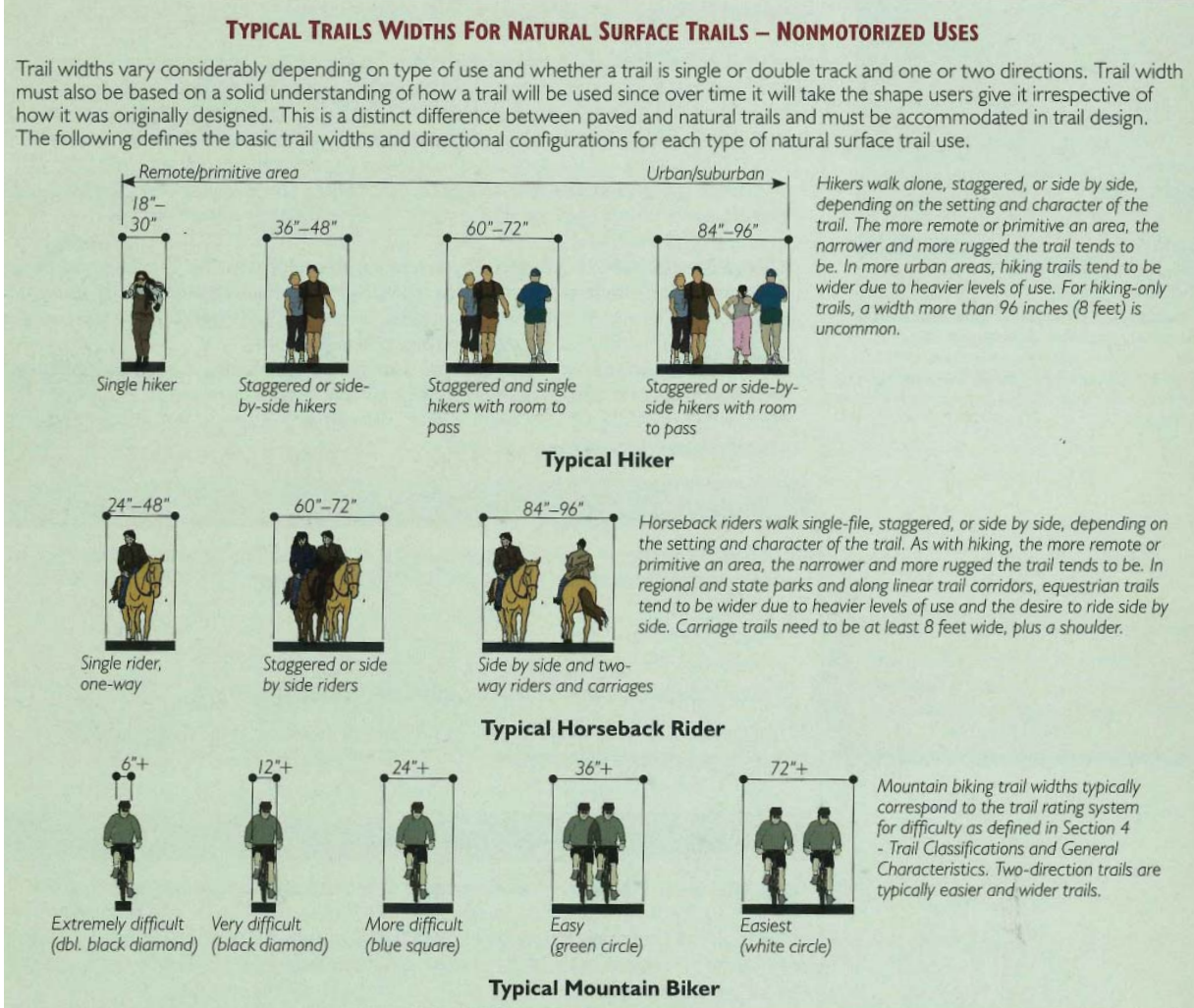
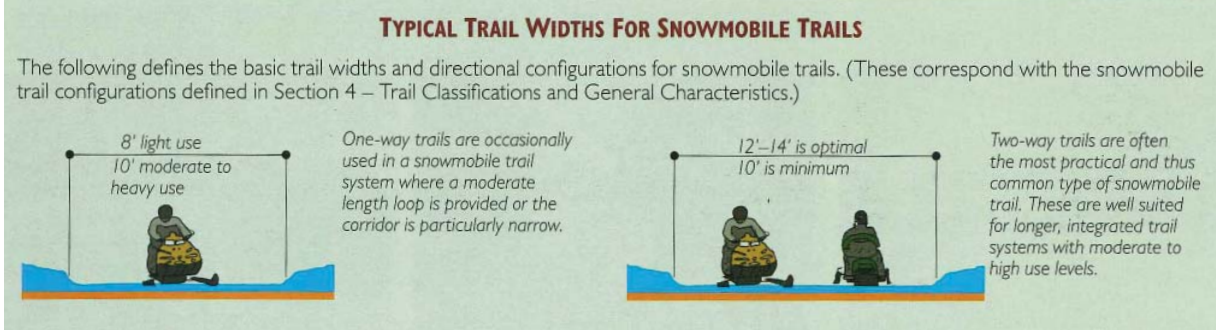


Photo Credit: Sally Rauschenfels





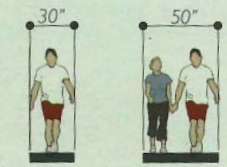
Source: MnDNR Trail Planning, Design, and Development Guidelines

Relationship Between Trail Users and Trail Widths on Multipurpose Paved Trails

Basic Trail User Space Requirements

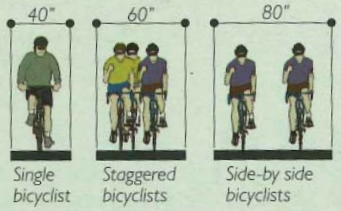
The typical space requirements for common trail uses are shown below. The dimensions denote operating space, which includes the physical space needed for basic maneuvering.

Typical Pedestrian (Walker/Jogger)



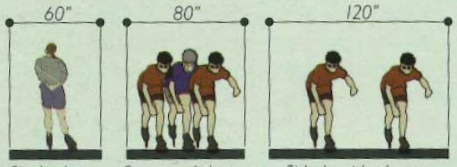
Walkers either walk alone or side by side. Typically, they do not have to markedly change position on paths 10 feet or wider when approaching opposing walkers.

Typical Bicyclist



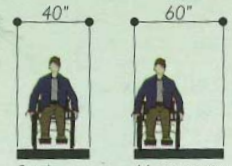
Bicyclists ride alone or side by side. It is also very common for bicyclists to ride in a staggered pattern to take up less space and be ready to maneuver for oncoming traffic.

Typical In-line Skater



In-line skaters skate alone or side by side. It is also very common for skaters to use a staggered pattern to take up less space, draft, and be ready to maneuver for oncoming traffic. Note that dimensions are at full stride, with a "passing stride" being closer to 36" when approaching oncoming traffic.

Typical Wheelchair User



In addition to suitable grades, the most critical aspect for wheelchairs is having enough maneuvering spaces on the trail and landings at road crossings and curb cuts.

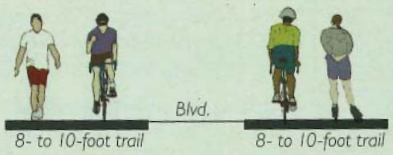
Trail Widths Required to Accommodate Various Combinations of Trail Users

Trail widths should be based on the public values offered and a clear understanding of the type of users that will be drawn to it and accommodated. For example, if the setting is scenic, location convenient, and/or length is suitable for elite users, the trail will likely attract many types of users with various skill levels. The trail's width *must* be based on these realities if the trail is to be successful. Doing otherwise could lead to higher levels of conflict, an increased propensity for accidents, and general visitor dissatisfaction – none of which is a desirable end.

Typical Two-Directional Trails at Various Widths

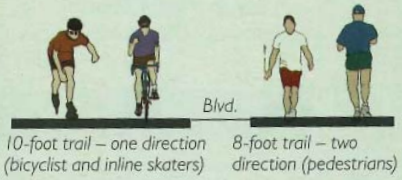
As trails widen, people begin to use them differently. Understandably, the most successful trails are those that accommodate the patterns of use people are inclined toward. At a neighborhood level, a "strolling width" is appropriate. On a major trail, the expectations of more specialized users and higher volumes of use should rightfully be accommodated.

Typical Shared-use Separated Trails



The first level of separated directional trails has shared uses going in a common direction, as illustrated. This is most common in wide-open areas with moderately heavy use patterns.

Typical Designated Use and Direction Trails

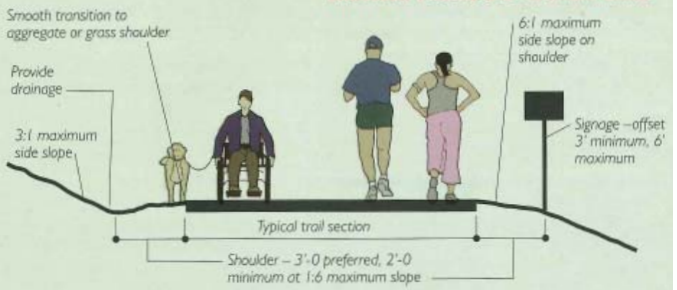


The second level of directional trails separates bicyclists and in-line skaters from walkers and joggers. Bicyclists and in-line skaters are limited to one direction. This is most common around an urban recreational lake or loop within a popular park where users can return to their starting point.

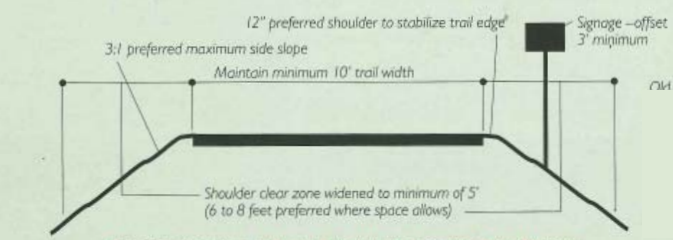
Typical One- and Multi-Directional Trails – Designated Use

The third level of directional trails continues to separate bicyclists and in-line skaters from walkers and joggers. Bicyclists and in-line skaters are separated but can go both directions. This is typically used to create a bicycle "freeway" in major urban areas where use levels are high and space is less limited.

Shoulder Widths and Recovery Zones

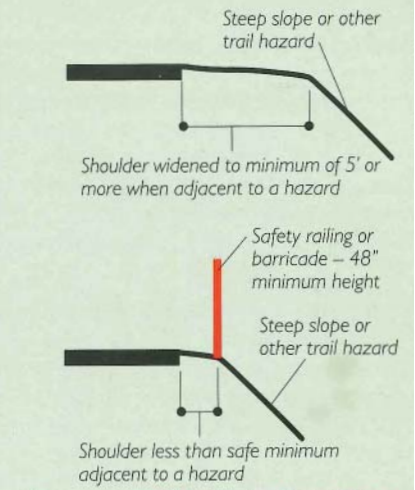


Shoulders for a Typical Trail Section



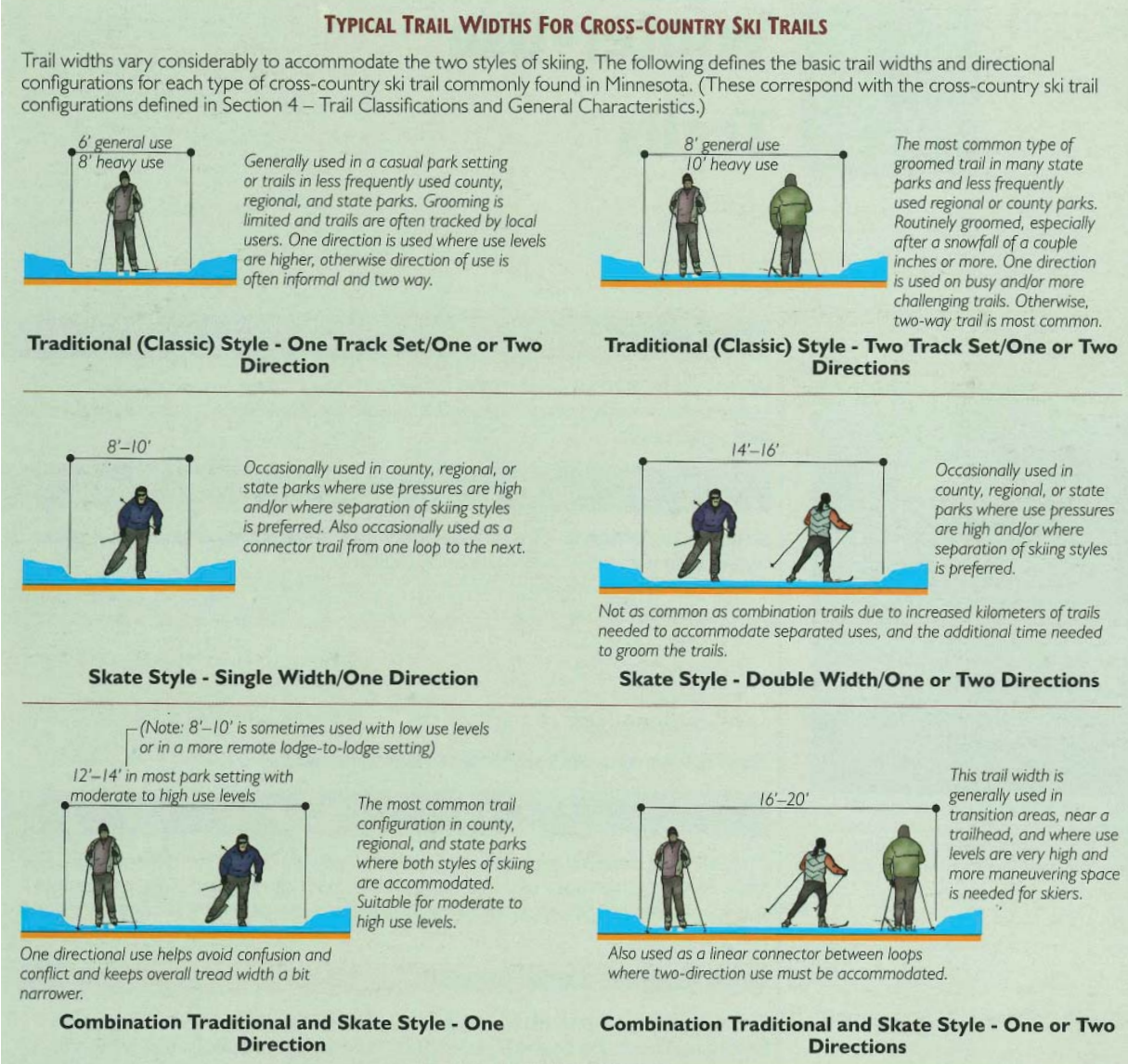
Shoulders for a Rail Bed With Limited Top Width

Old rail beds with a limited top width pose a unique circumstance often requiring modified shoulder widths. Since the grade adjacent to the trail is in excess of 6:1, a wider shoulder is desired to allow enough space for recovery if a bicyclist or other user slips off the edge of the trail due to lack of attention or to avoid a collision. This approach should be used when it is impractical to widen the top of the rail bed.



Shoulders Next to Hazards

Source: MnDNR Trail Planning, Design, and Development Guidelines

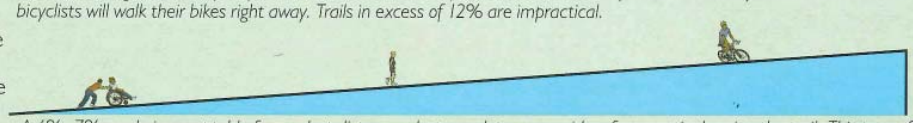


Source: MnDNR Trail Planning, Design, and Development Guidelines

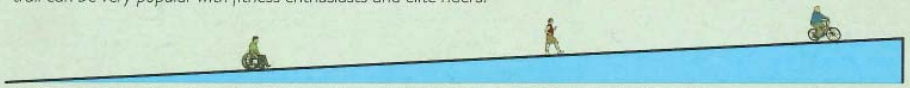
Gradient Comparisons

These grade comparisons illustrate the relative difference between grades. Although visually not overwhelming, in reality a percent or two change in gradient will significantly affect people's ability and desire to use a trail. Notably, it is also appropriate to have a balanced system where some trails are purposefully more challenging to appeal to a broader set of users.

At 8%–10% grades, many bicyclists will walk their bikes after a limited distance (100–300' or less). Above 10%, most bicyclists will walk their bikes right away. Trails in excess of 12% are impractical.



A 6%–7% grade is acceptable for modest distances, but can deter some riders from routinely using the trail. This type of trail can be very popular with fitness enthusiasts and elite riders.



A 5% grade is suitable for long distances for most bicyclists and in-line skaters, with 3% preferred.

Ramp up to old rail grade. *Although this ramp exceeds 5 percent, it is short enough for most people to negotiate. This could have been improved by providing larger landing areas at top and bottom.*

Steep grades alters use. *This trail climbs at up to 10 percent through a ravine. At this grade, bicyclists will often use the adjoining road to go faster on the downhill than the trail would accommodate.*

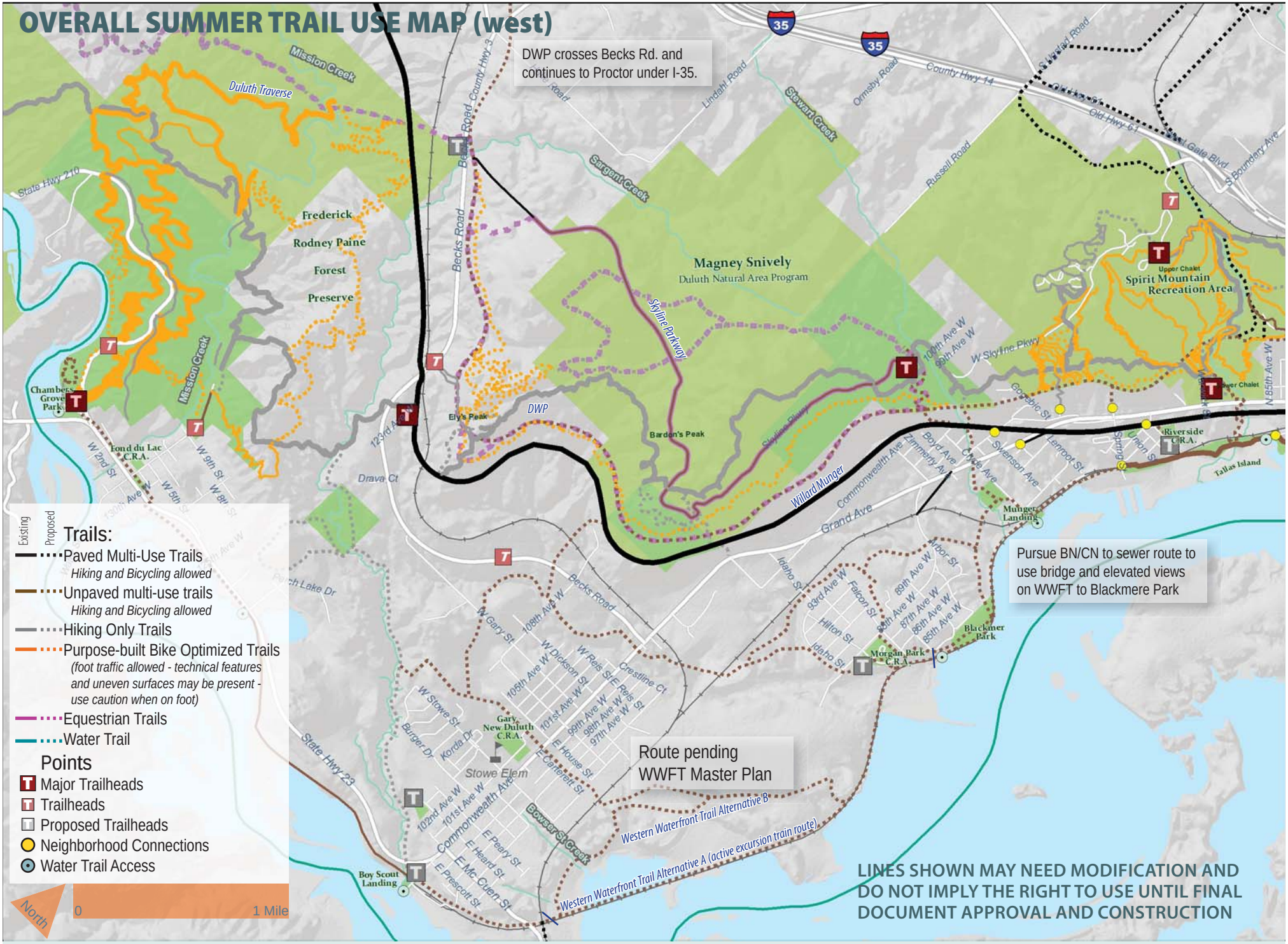
Winding up the grade. *By traversing up a steeper grade with modest switchbacks and landings, this trail is less imposing (and more fun) than it might otherwise be if the trail climb were more direct.*

Source: MnDNR Trail Planning, Design, and Development Guidelines

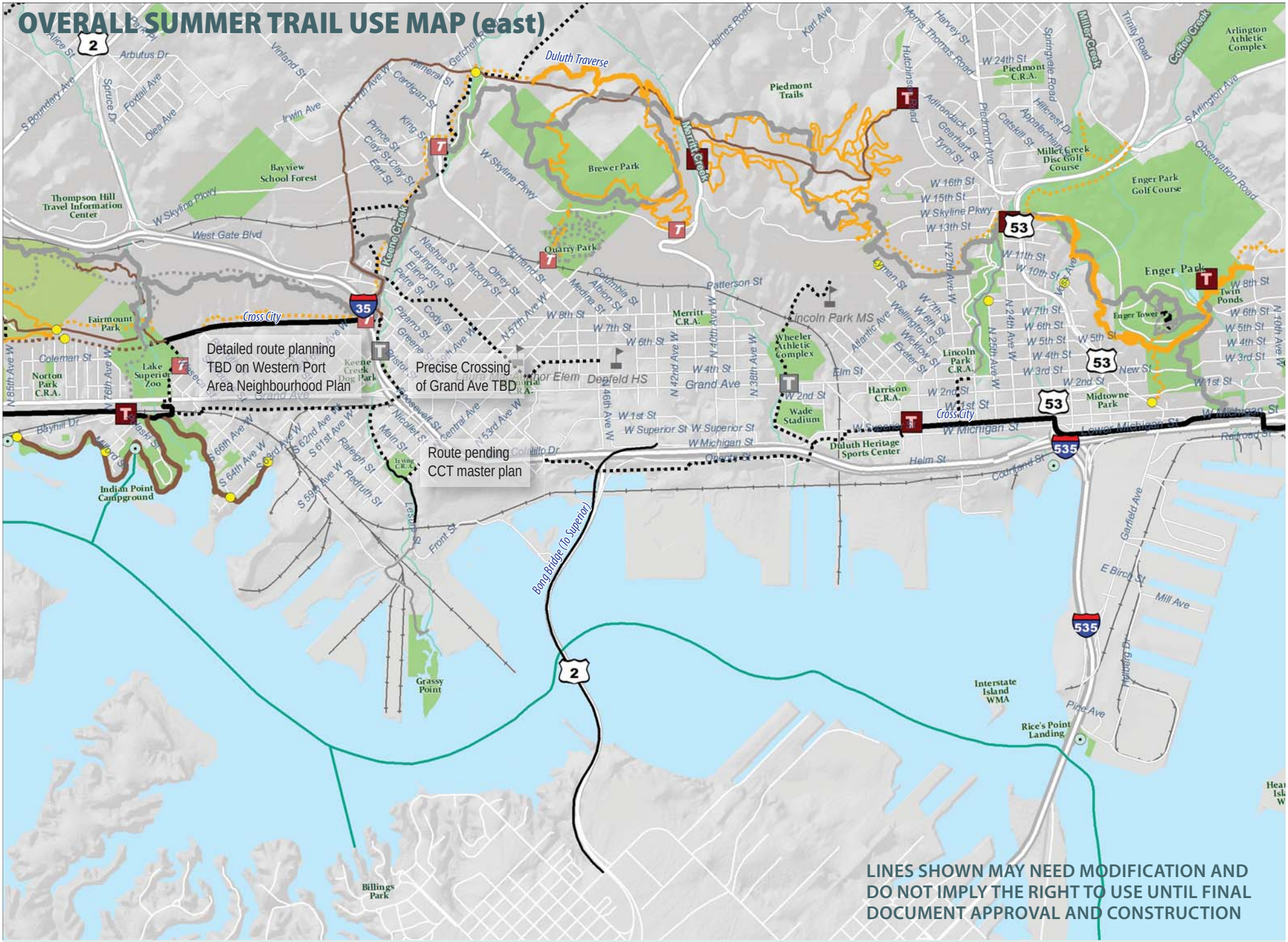
Source: http://wheelchairwandering.blogspot.com/

The following pages showcase updated trail maps that reflect the existing and proposed network of acceptable trail uses by season. The trail standards outlined in each of the individual trail use maps are intended to supplement those included in the 2011 Duluth Trail and Bikeway Plan.

OVERALL SUMMER TRAIL USE MAP (west)

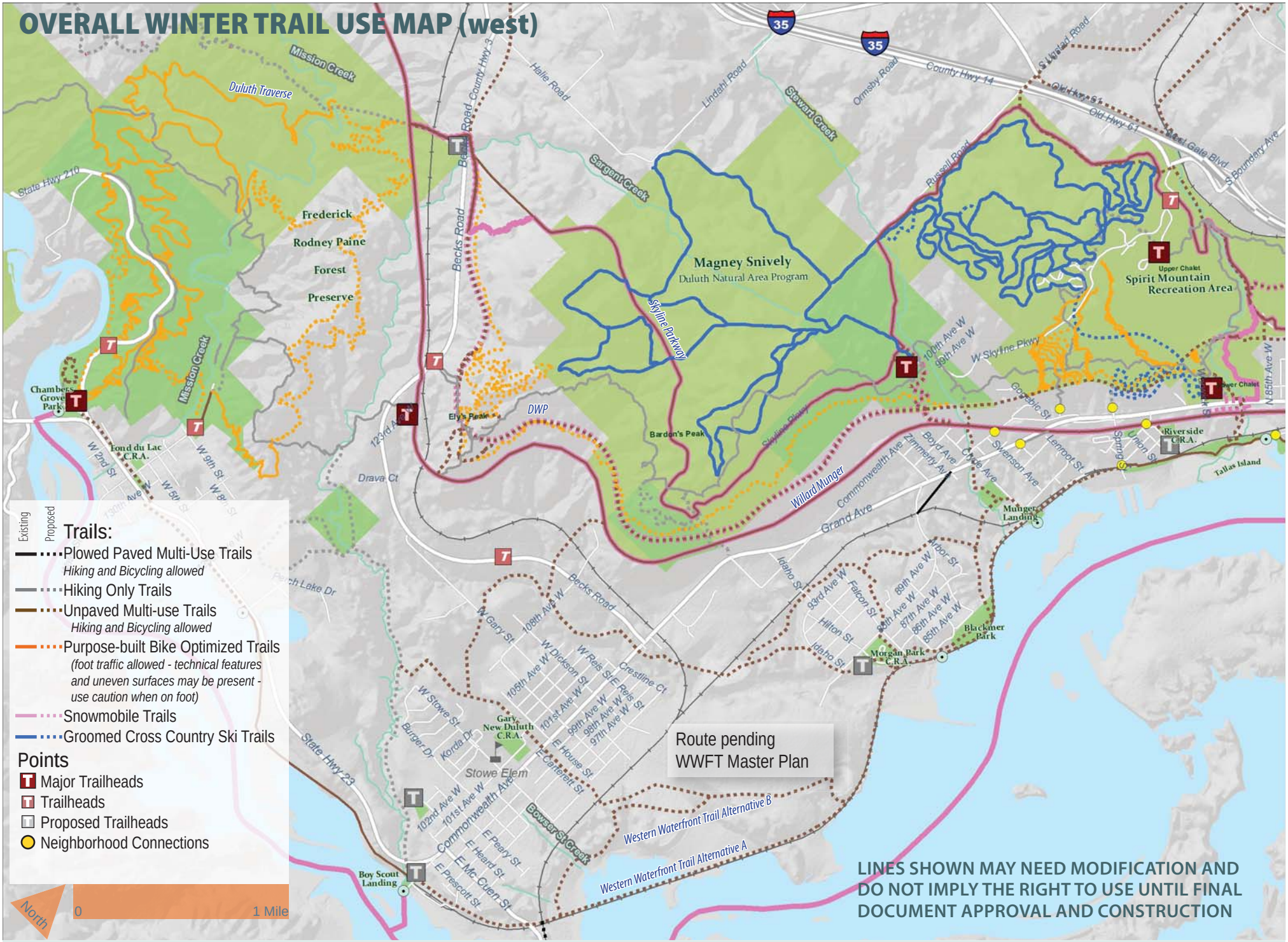


OVERALL SUMMER TRAIL USE MAP (east)

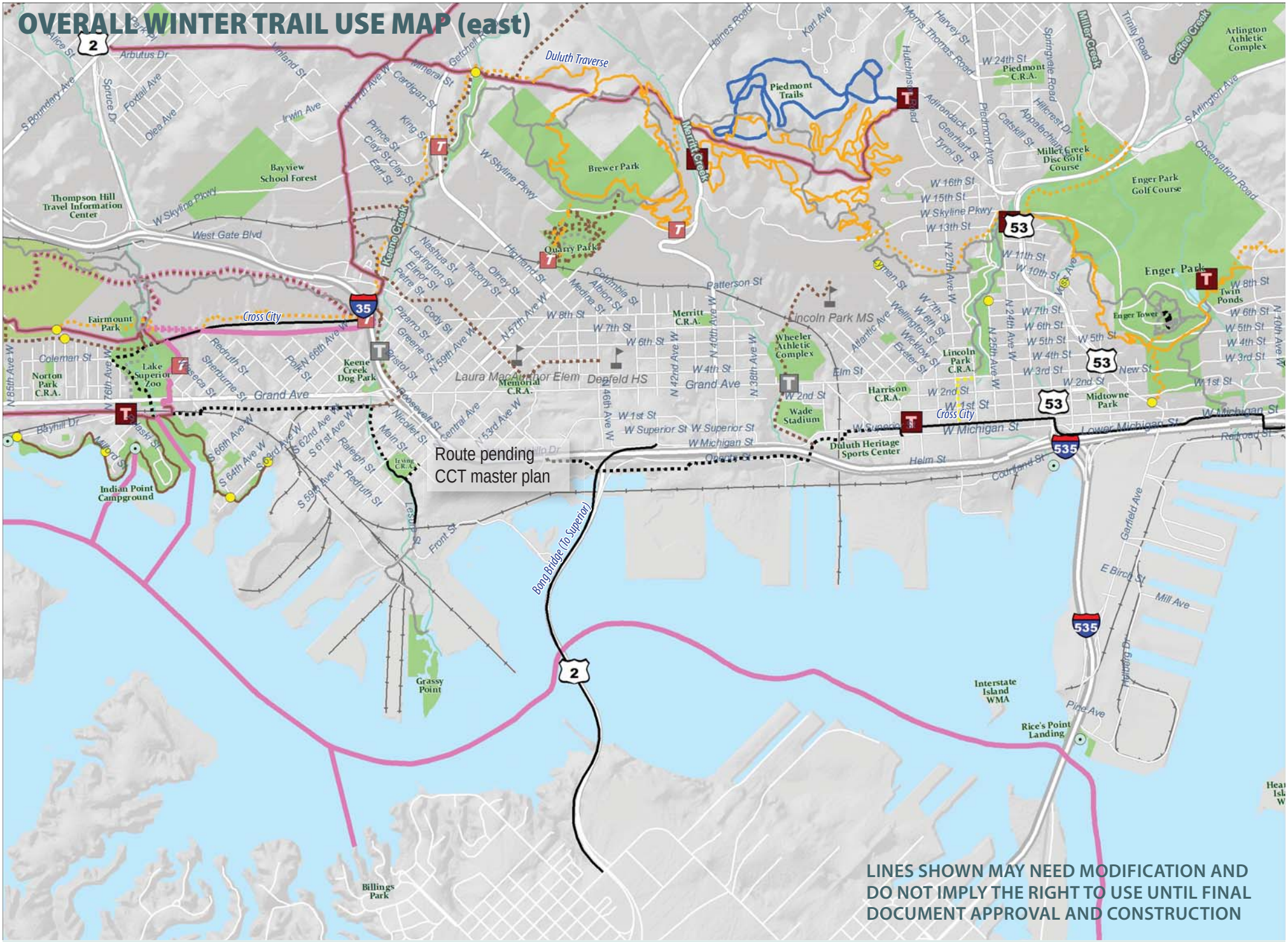


LINES SHOWN MAY NEED MODIFICATION AND DO NOT IMPLY THE RIGHT TO USE UNTIL FINAL DOCUMENT APPROVAL AND CONSTRUCTION

OVERALL WINTER TRAIL USE MAP (west)



OVERALL WINTER TRAIL USE MAP (east)



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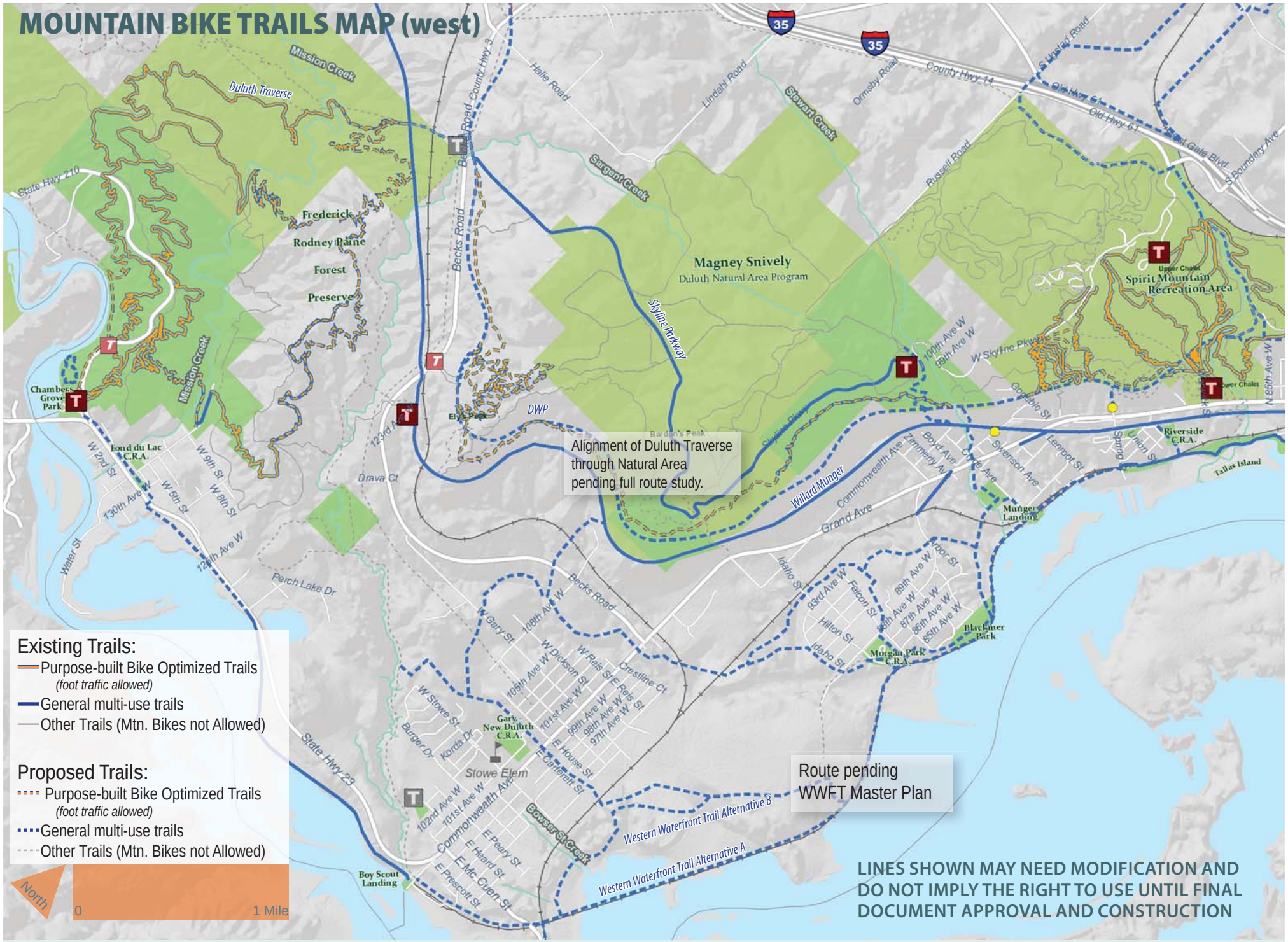
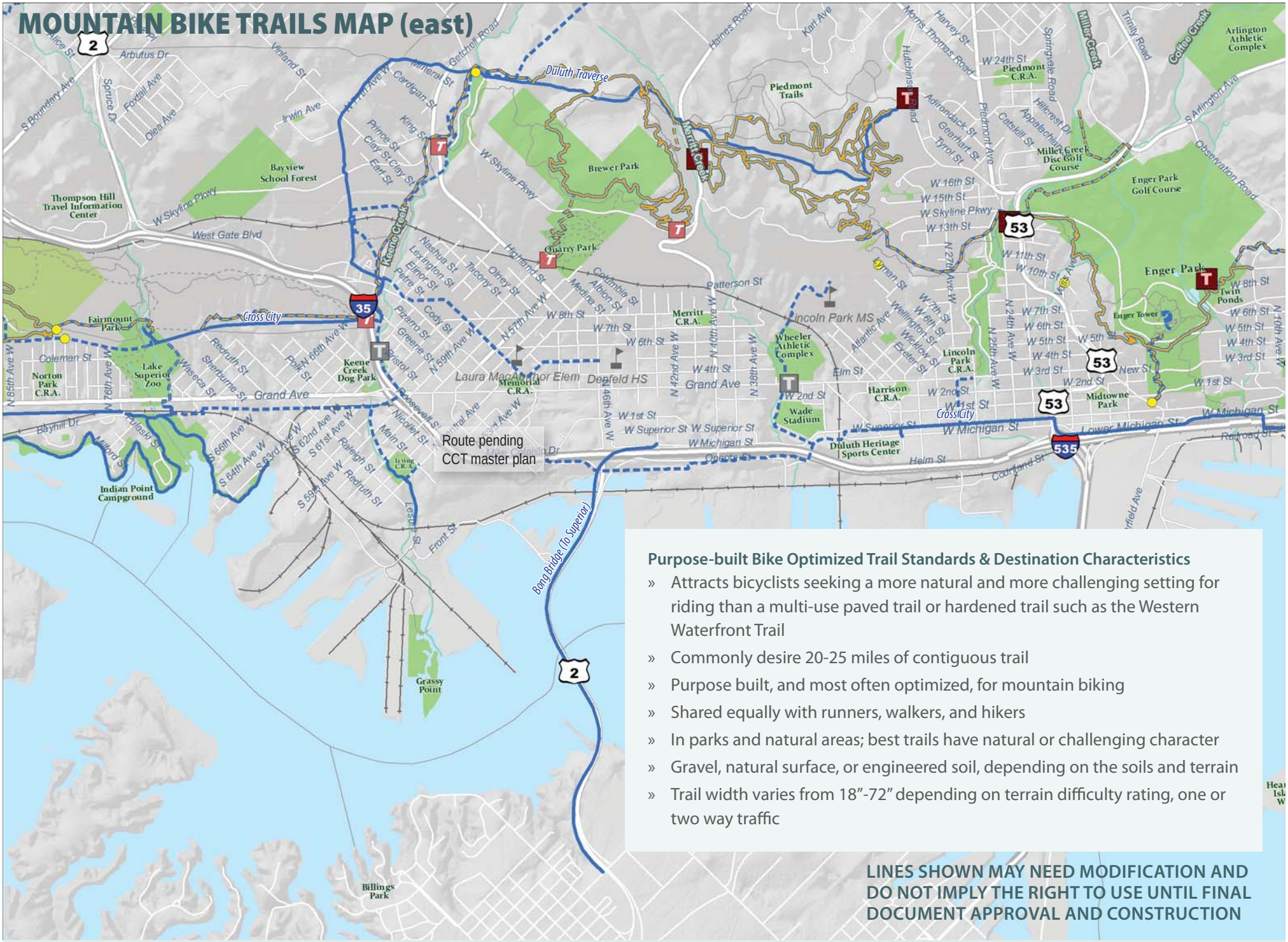
MOUNTAIN BIKE TRAILS MAP (west)



MOUNTAIN BIKE TRAILS MAP (east)



Purpose-built Bike Optimized Trail Standards & Destination Characteristics

- Attracts bicyclists seeking a more natural and more challenging setting for riding than a multi-use paved trail or hardened trail such as the Western Waterfront Trail
- Commonly desire 20-25 miles of contiguous trail
- Purpose built, and most often optimized, for mountain biking
- Shared equally with runners, walkers, and hikers
- In parks and natural areas; best trails have natural or challenging character
- Gravel, natural surface, or engineered soil, depending on the soils and terrain
- Trail width varies from 18"-72" depending on terrain difficulty rating, one or two way traffic

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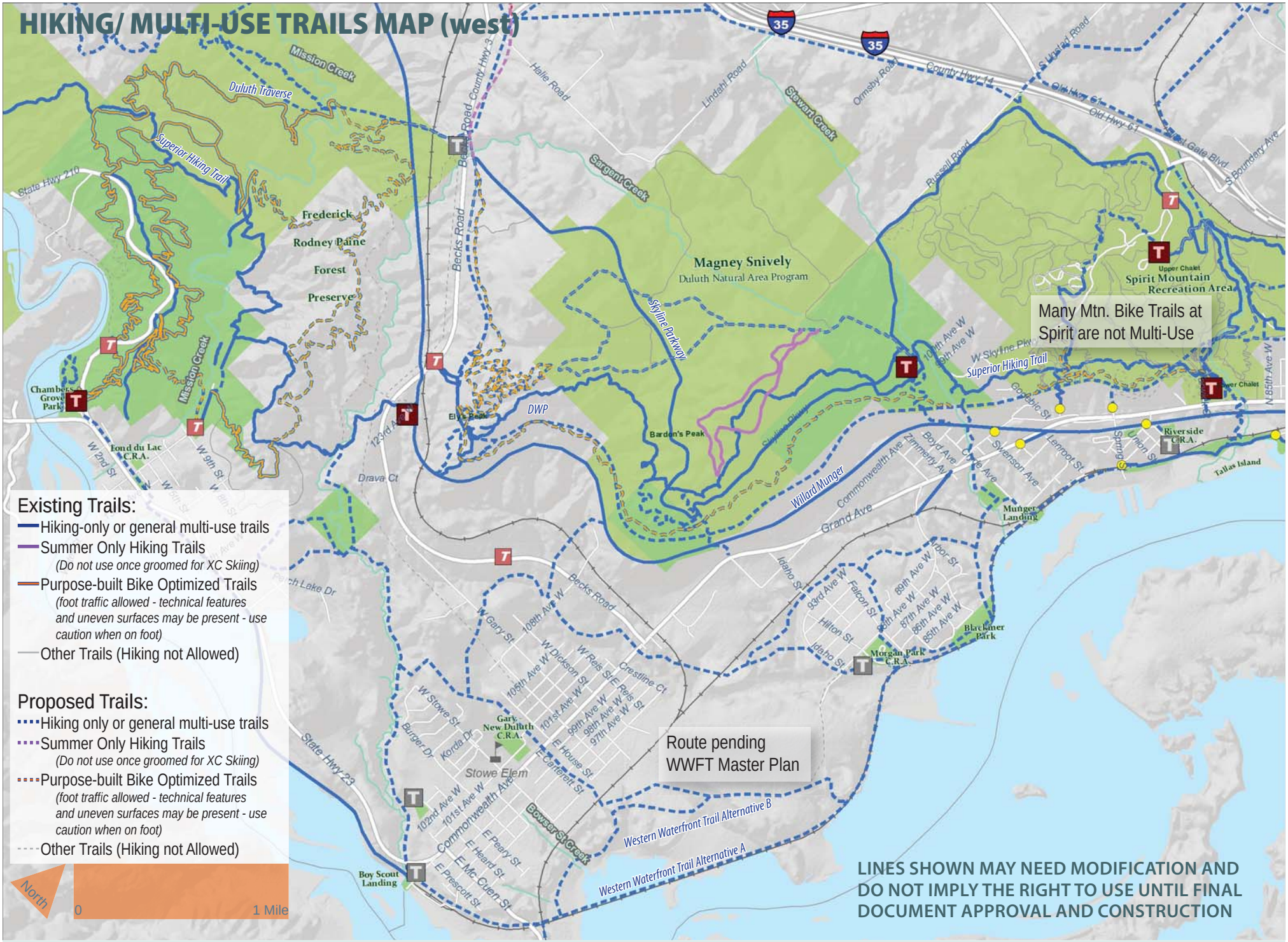
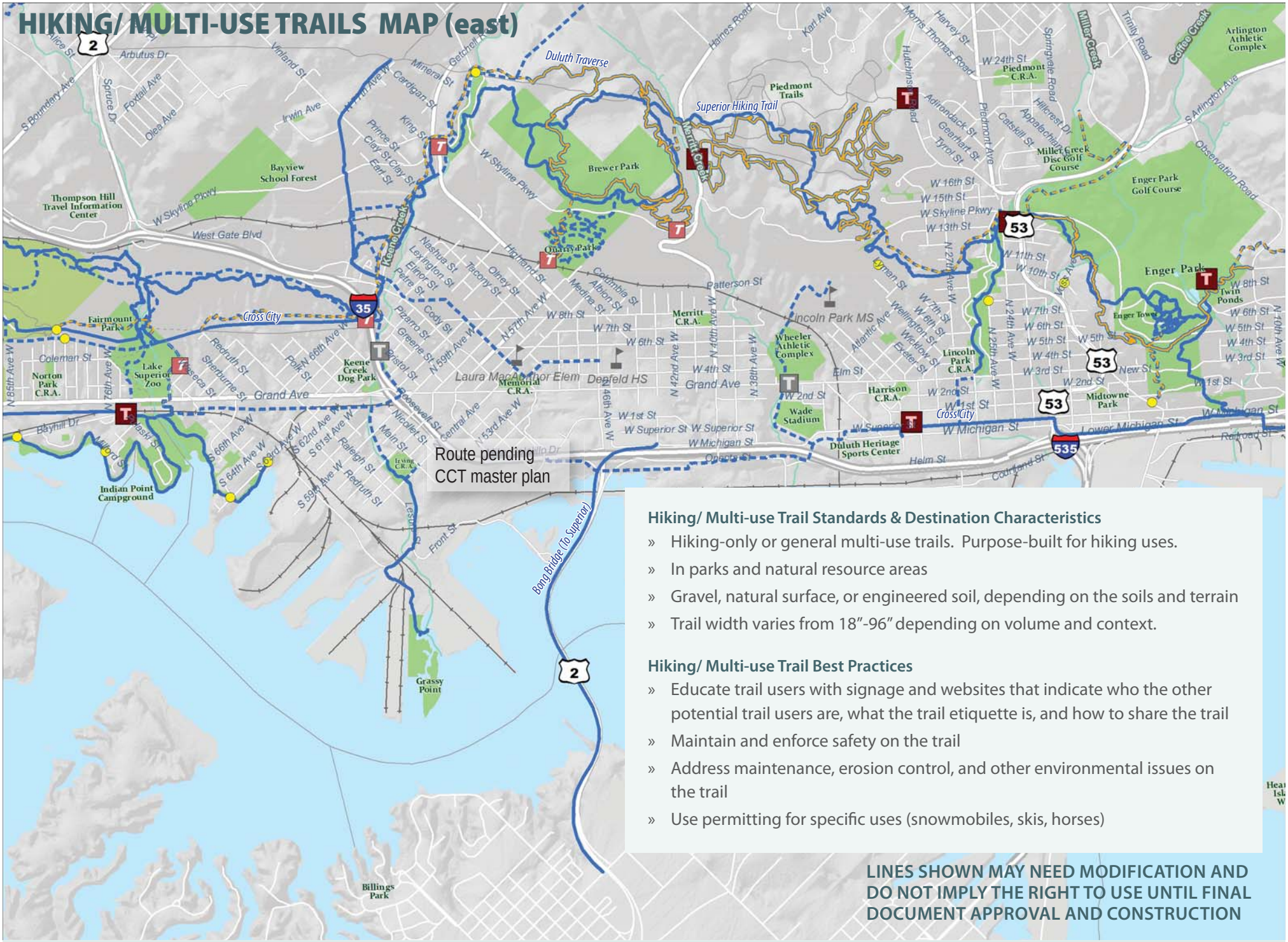
HIKING/ MULTI-USE TRAILS MAP (west)



HIKING/ MULTI-USE TRAILS MAP (east)



Hiking/ Multi-use Trail Standards & Destination Characteristics

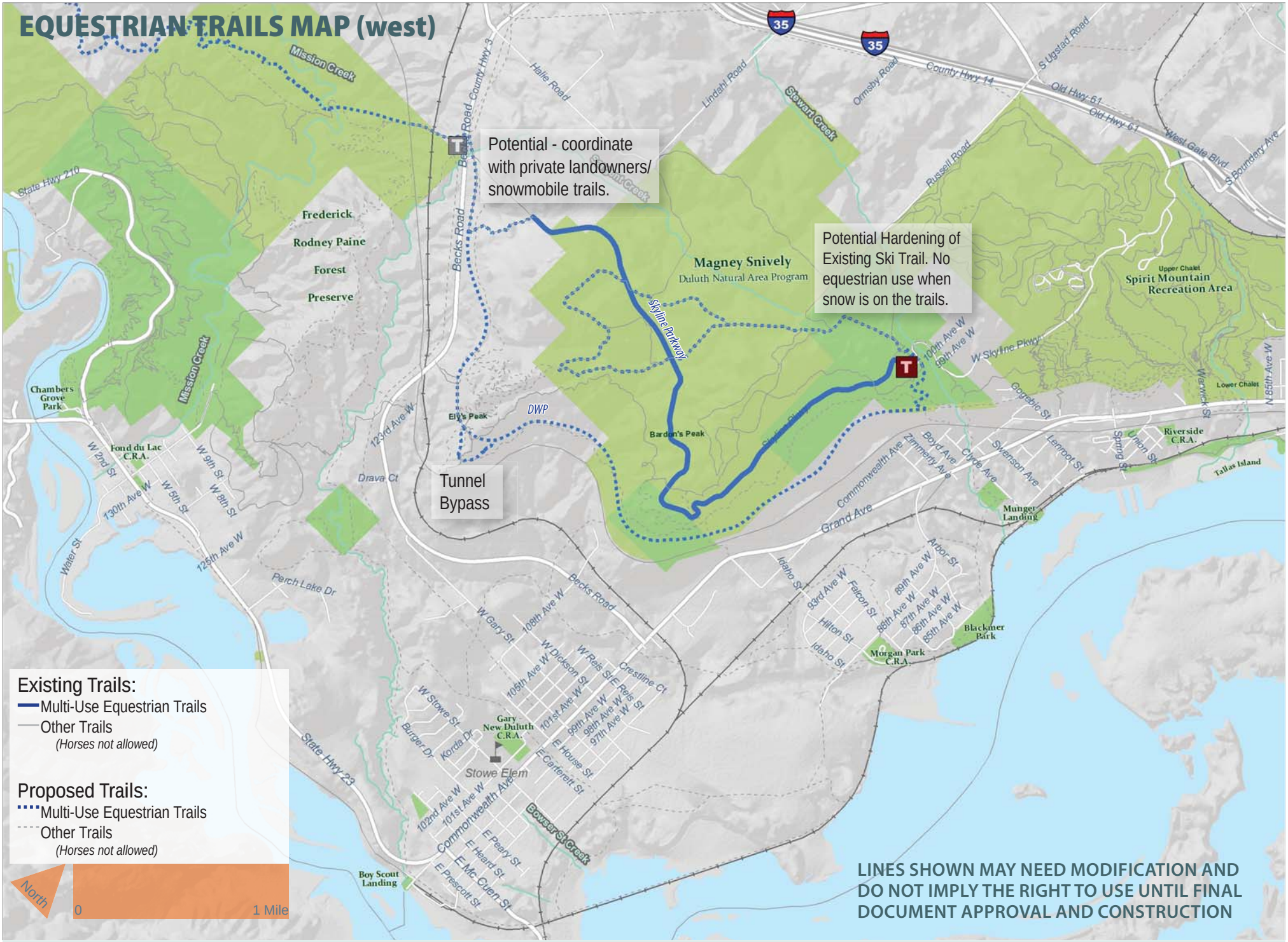
- Hiking-only or general multi-use trails. Purpose-built for hiking uses.
- In parks and natural resource areas
- Gravel, natural surface, or engineered soil, depending on the soils and terrain
- Trail width varies from 18"-96" depending on volume and context.

Hiking/ Multi-use Trail Best Practices

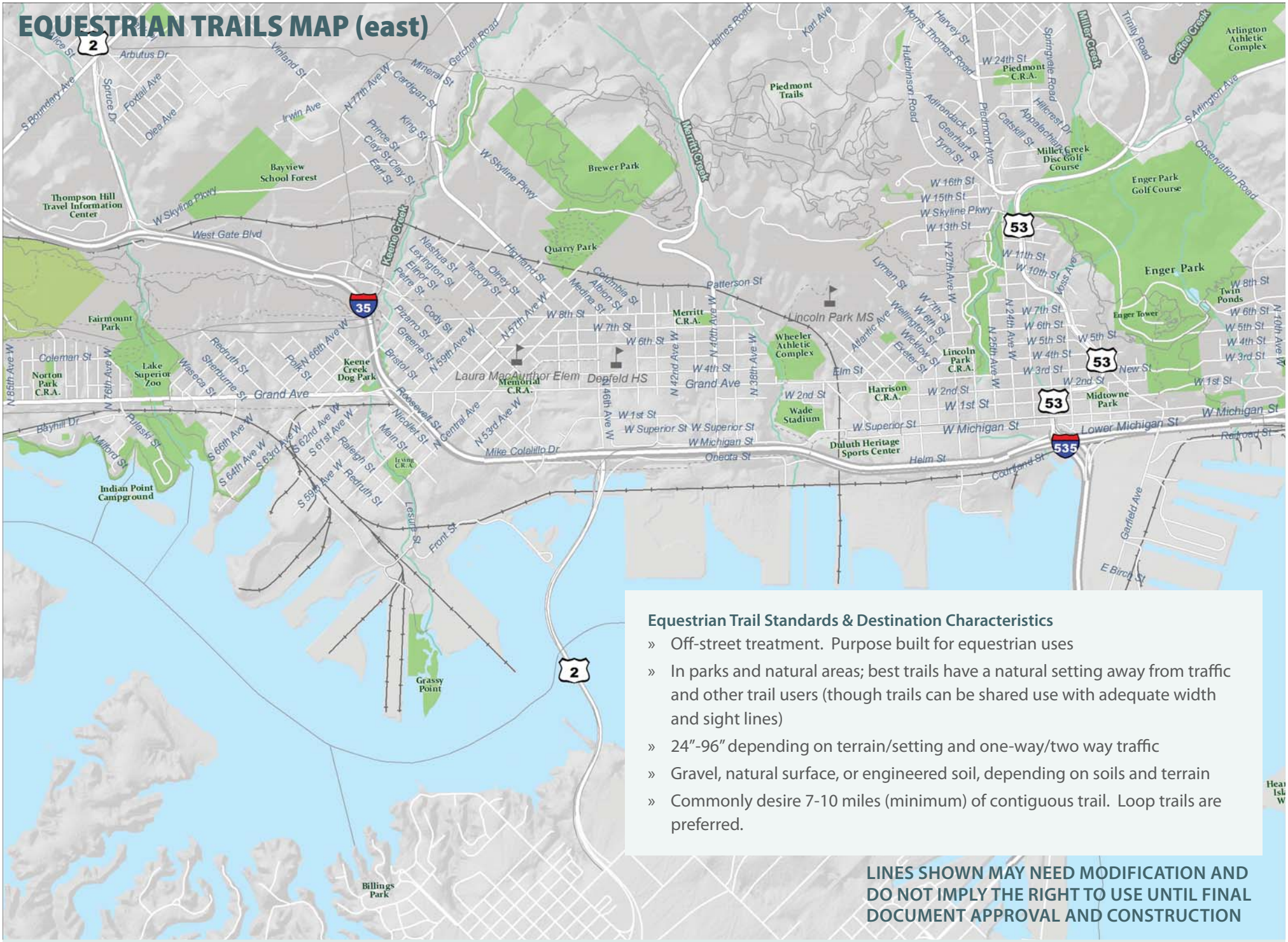
- Educate trail users with signage and websites that indicate who the other potential trail users are, what the trail etiquette is, and how to share the trail
- Maintain and enforce safety on the trail
- Address maintenance, erosion control, and other environmental issues on the trail
- Use permitting for specific uses (snowmobiles, skis, horses)

LINES SHOWN MAY NEED MODIFICATION AND DO NOT IMPLY THE RIGHT TO USE UNTIL FINAL DOCUMENT APPROVAL AND CONSTRUCTION

EQUESTRIAN TRAILS MAP (west)



EQUESTRIAN TRAILS MAP (east)



Equestrian Trail Standards & Destination Characteristics

- Off-street treatment. Purpose built for equestrian uses
- In parks and natural areas; best trails have a natural setting away from traffic and other trail users (though trails can be shared use with adequate width and sight lines)
- 24"-96" depending on terrain/setting and one-way/two way traffic
- Gravel, natural surface, or engineered soil, depending on soils and terrain
- Commonly desire 7-10 miles (minimum) of contiguous trail. Loop trails are preferred.

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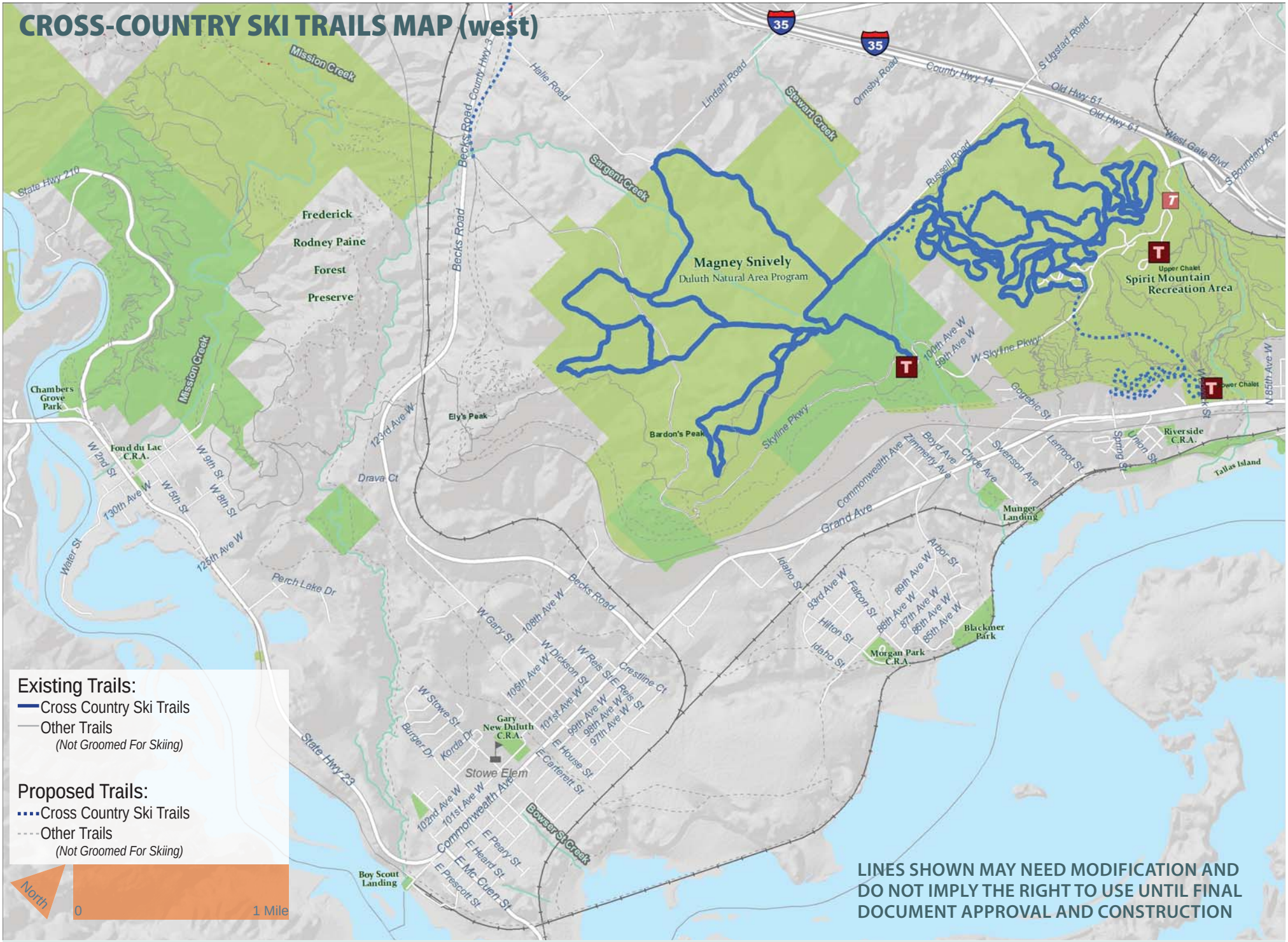
CROSS-COUNTRY SKI TRAILS MAP (west)



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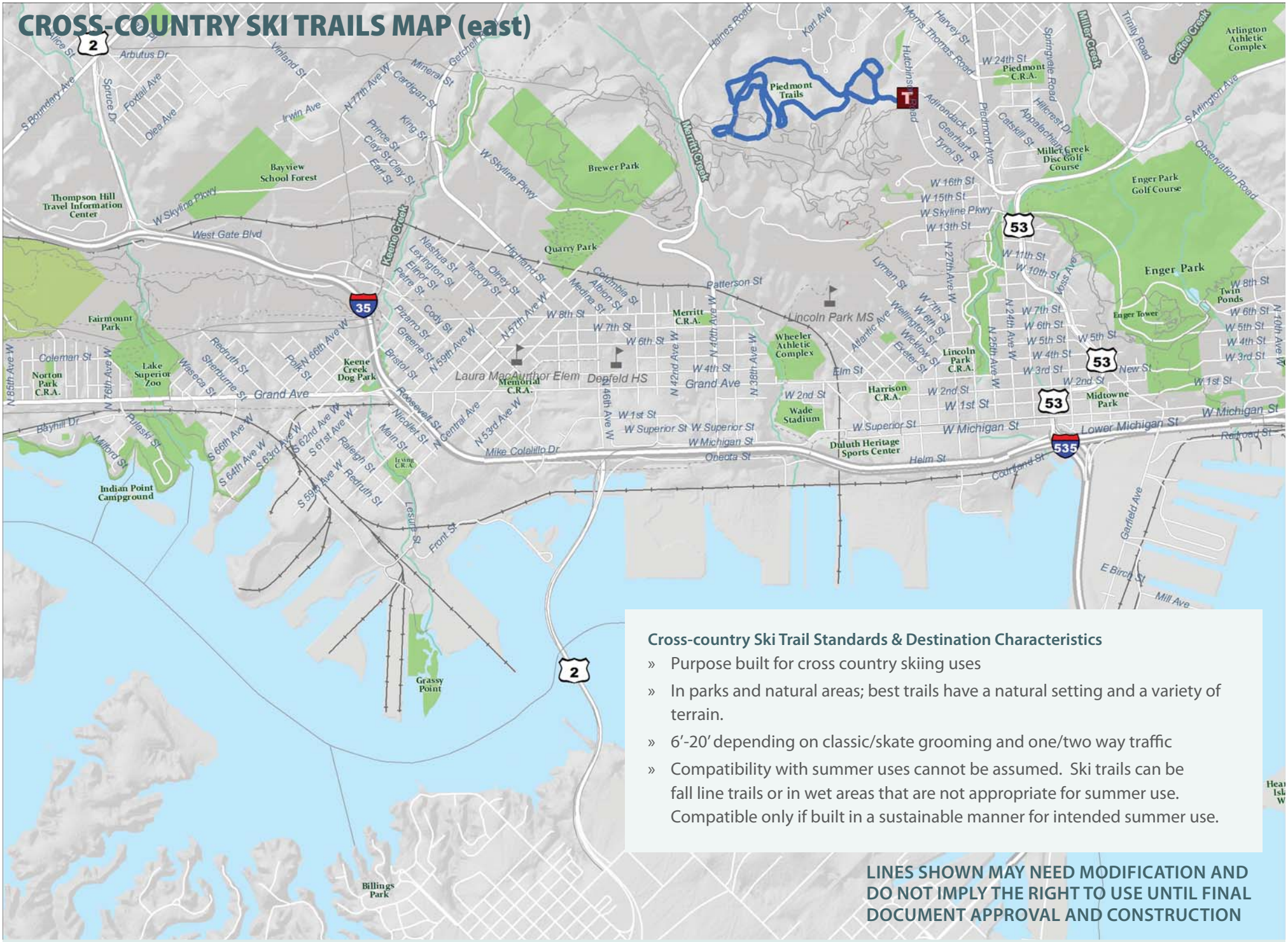
CROSS-COUNTRY SKI TRAILS MAP (east)



Cross-country Ski Trail Standards & Destination Characteristics

- Purpose built for cross country skiing uses
- In parks and natural areas; best trails have a natural setting and a variety of terrain.
- 6'-20' depending on classic/skate grooming and one/two way traffic
- Compatibility with summer uses cannot be assumed. Ski trails can be fall line trails or in wet areas that are not appropriate for summer use. Compatible only if built in a sustainable manner for intended summer use.

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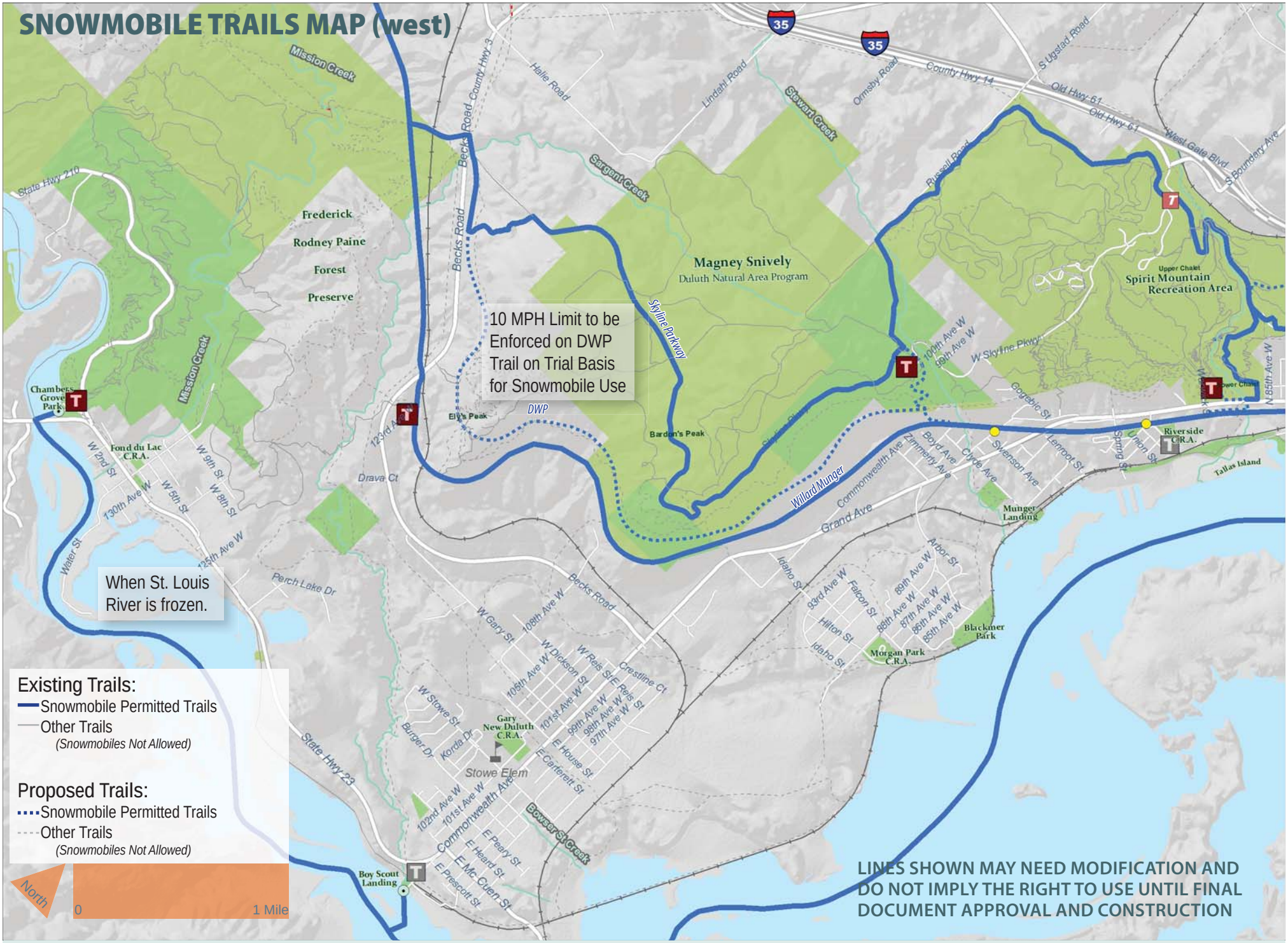
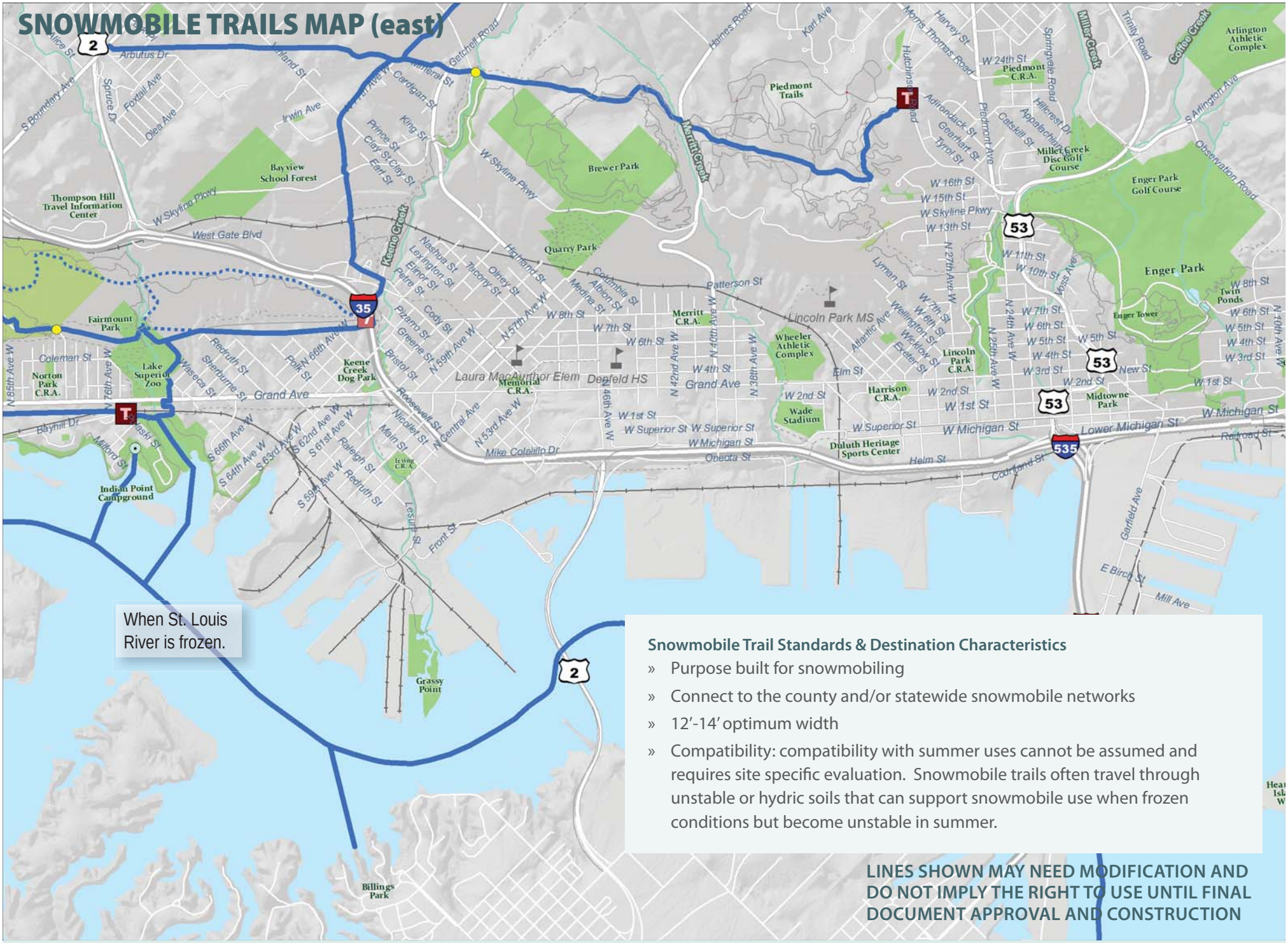
SNOWMOBILE TRAILS MAP (west)



SNOWMOBILE TRAILS MAP (east)



When St. Louis River is frozen.

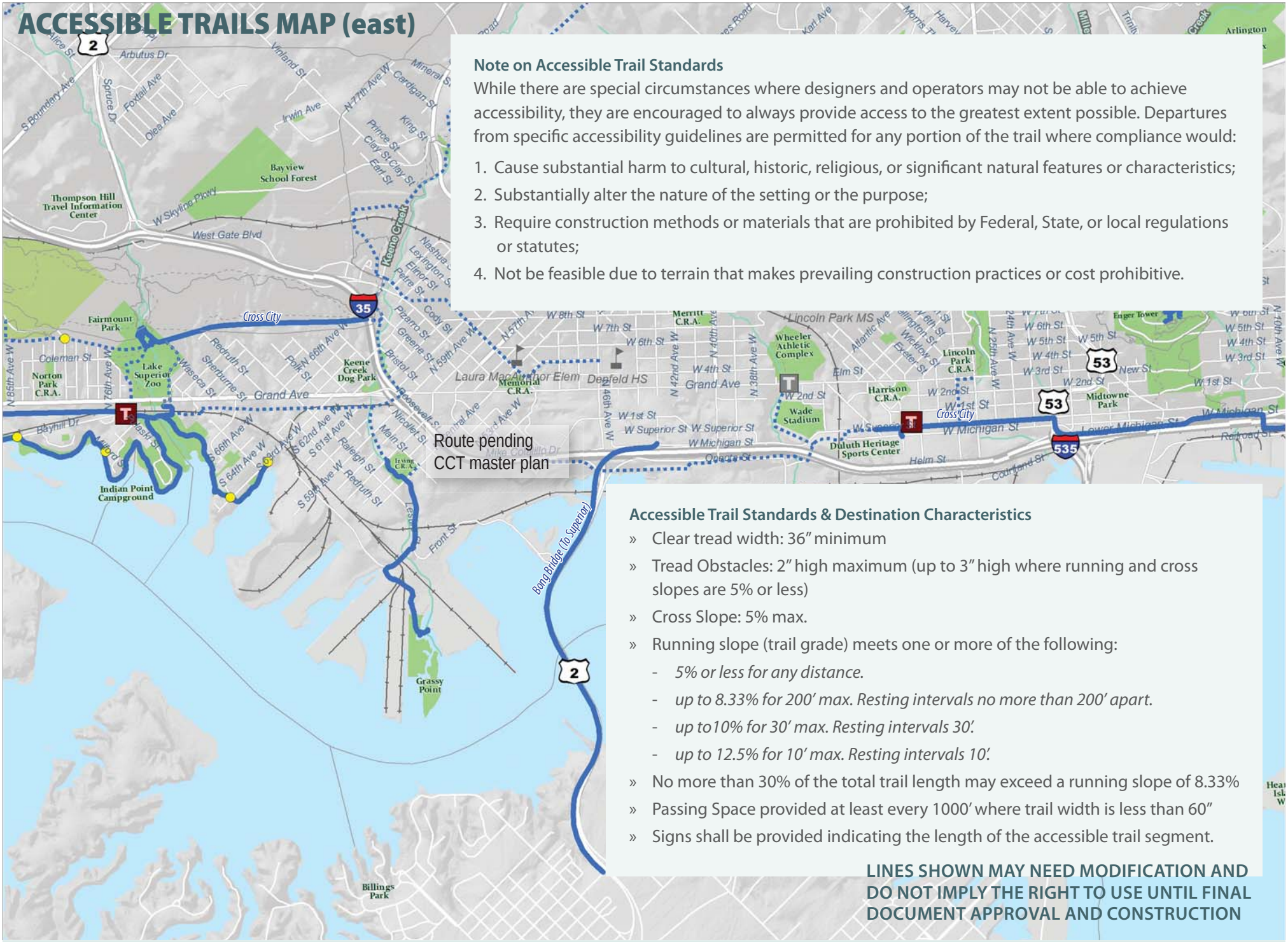
Snowmobile Trail Standards & Destination Characteristics

- Purpose built for snowmobiling
- Connect to the county and/or statewide snowmobile networks
- 12′-14′ optimum width
- Compatibility: compatibility with summer uses cannot be assumed and requires site specific evaluation. Snowmobile trails often travel through unstable or hydric soils that can support snowmobile use when frozen conditions but become unstable in summer.

LINES SHOWN MAY NEED MODIFICATION AND DO NOT IMPLY THE RIGHT TO USE UNTIL FINAL DOCUMENT APPROVAL AND CONSTRUCTION

ACCESSIBLE TRAILS MAP (west)

ACCESSIBLE TRAILS MAP (east)



Note on Accessible Trail Standards

While there are special circumstances where designers and operators may not be able to achieve accessibility, they are encouraged to always provide access to the greatest extent possible. Departures from specific accessibility guidelines are permitted for any portion of the trail where compliance would:

1. Cause substantial harm to cultural, historic, religious, or significant natural features or characteristics;
2. Substantially alter the nature of the setting or the purpose;
3. Require construction methods or materials that are prohibited by Federal, State, or local regulations or statutes;
4. Not be feasible due to terrain that makes prevailing construction practices or cost prohibitive.

Accessible Trail Standards & Destination Characteristics

» Clear tread width: 36" minimum

» Tread Obstacles: 2" high maximum (up to 3" high where running and cross slopes are 5% or less)

» Cross Slope: 5% max.

» Running slope (trail grade) meets one or more of the following:

- *5% or less for any distance.*
- *up to 8.33% for 200' max. Resting intervals no more than 200' apart.*
- *up to10% for 30' max. Resting intervals 30'.*
- *up to 12.5% for 10' max. Resting intervals 10'.*

» No more than 30% of the total trail length may exceed a running slope of 8.33%

» Passing Space provided at least every 1000' where trail width is less than 60"

» Signs shall be provided indicating the length of the accessible trail segment.

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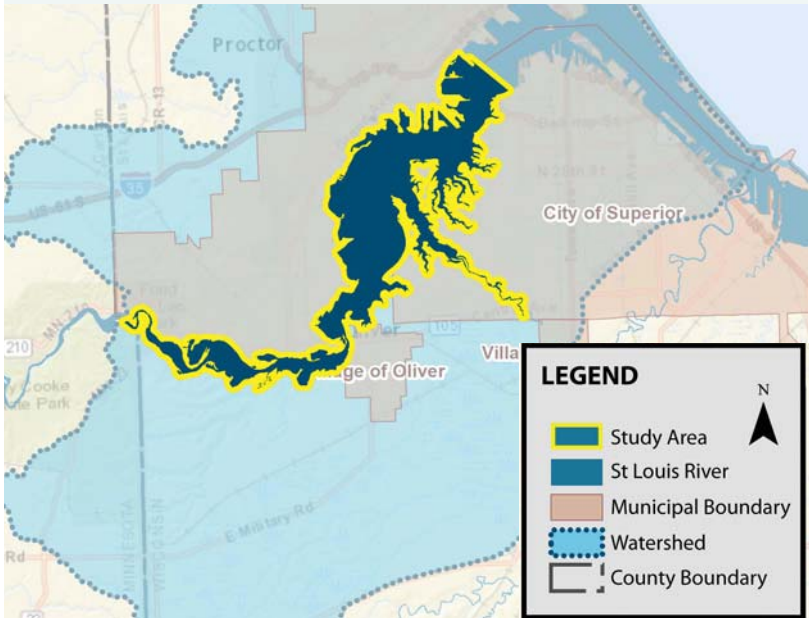
WATER TRAIL MAPS

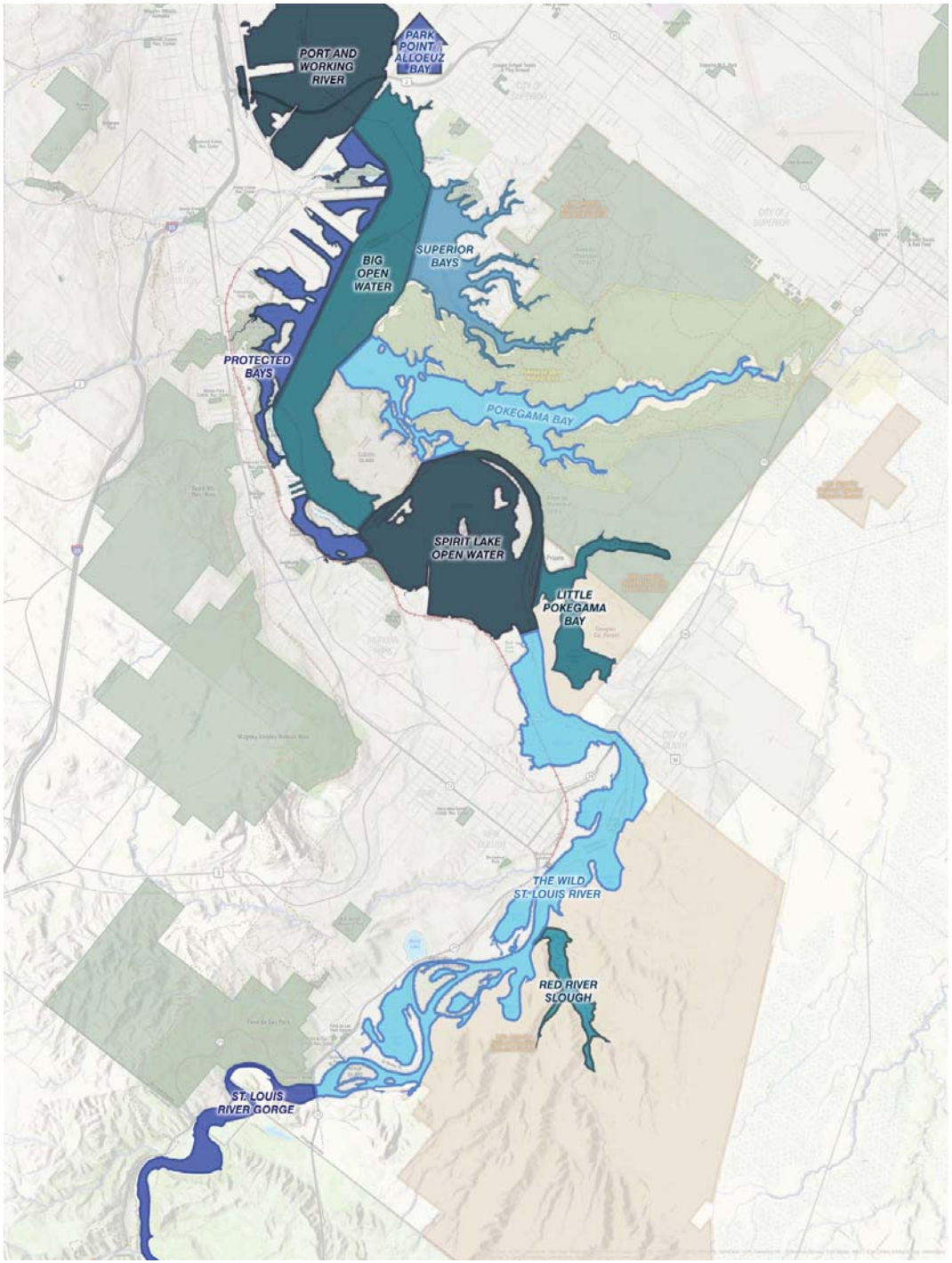
Water Trail Standards & Destination Characteristics

The following Water Trail maps have been excerpted from the St. Louis River Estuary National Water Trail Master Plan. For more information and further descriptions of the identified water trail route characteristics and skill and interest level pairings, consult the St. Louis River Estuary National Water Trail Master Plan.

- Maintains all existing motorized usage of the St. Louis River Estuary
- Provides access to blue-ribbon walleye and muskie fisheries
- Offers backcountry camping in a wilderness-like setting
- Rail/paddle and bike/paddle loop opportunities
- Learn-to-paddle opportunities in protected bays
- Challenging crossings and fast water for advanced paddlers
- Paddle-in islands with natural swimming beaches
- Explores historic paths of the voyageurs, the Ojibwe migration, and the first railroad into Duluth

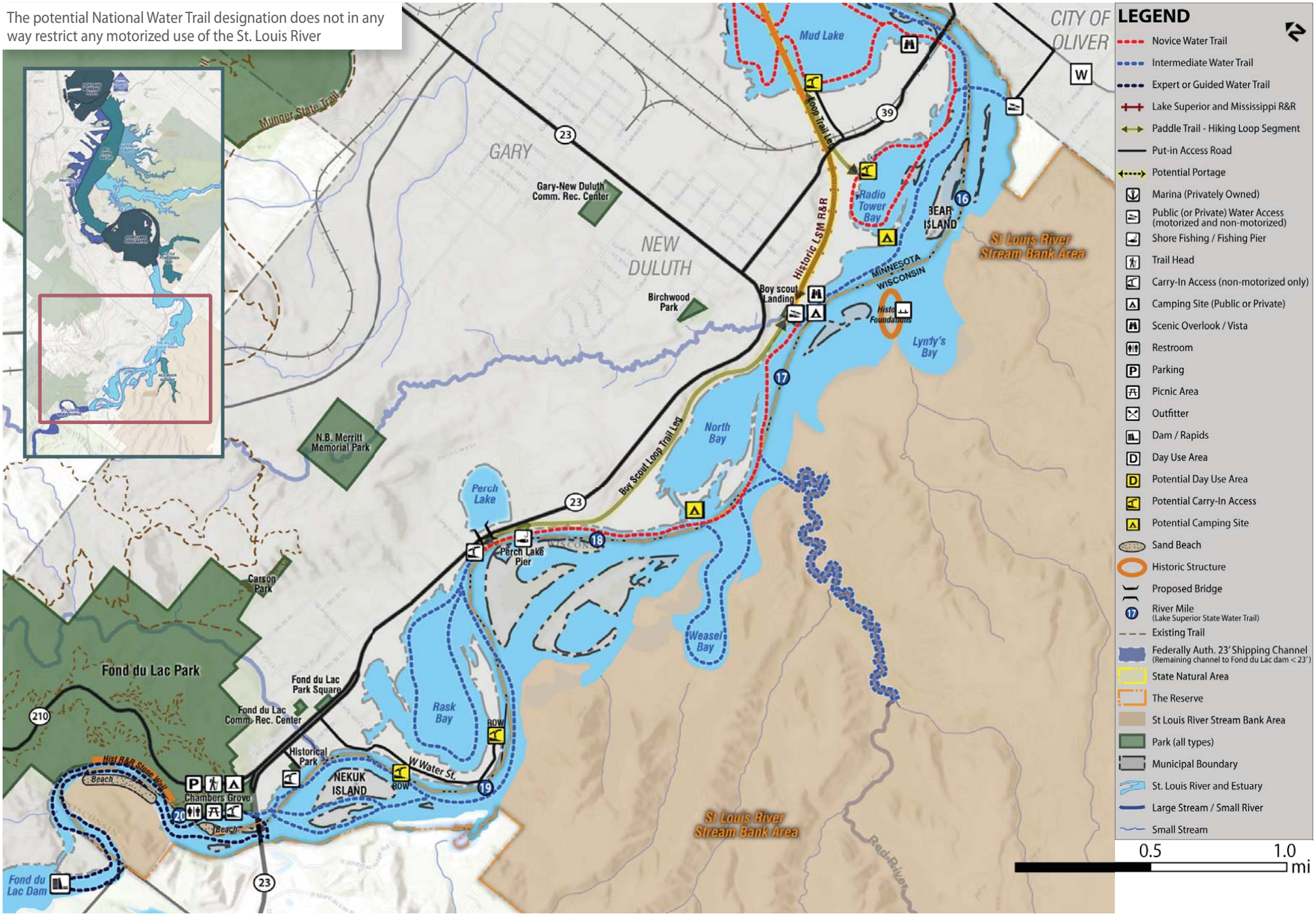


National Water Trail Study Area



Experiential Zones throughout the St. Louis River Estuary

The potential National Water Trail designation does not in any way restrict any motorized use of the St. Louis River



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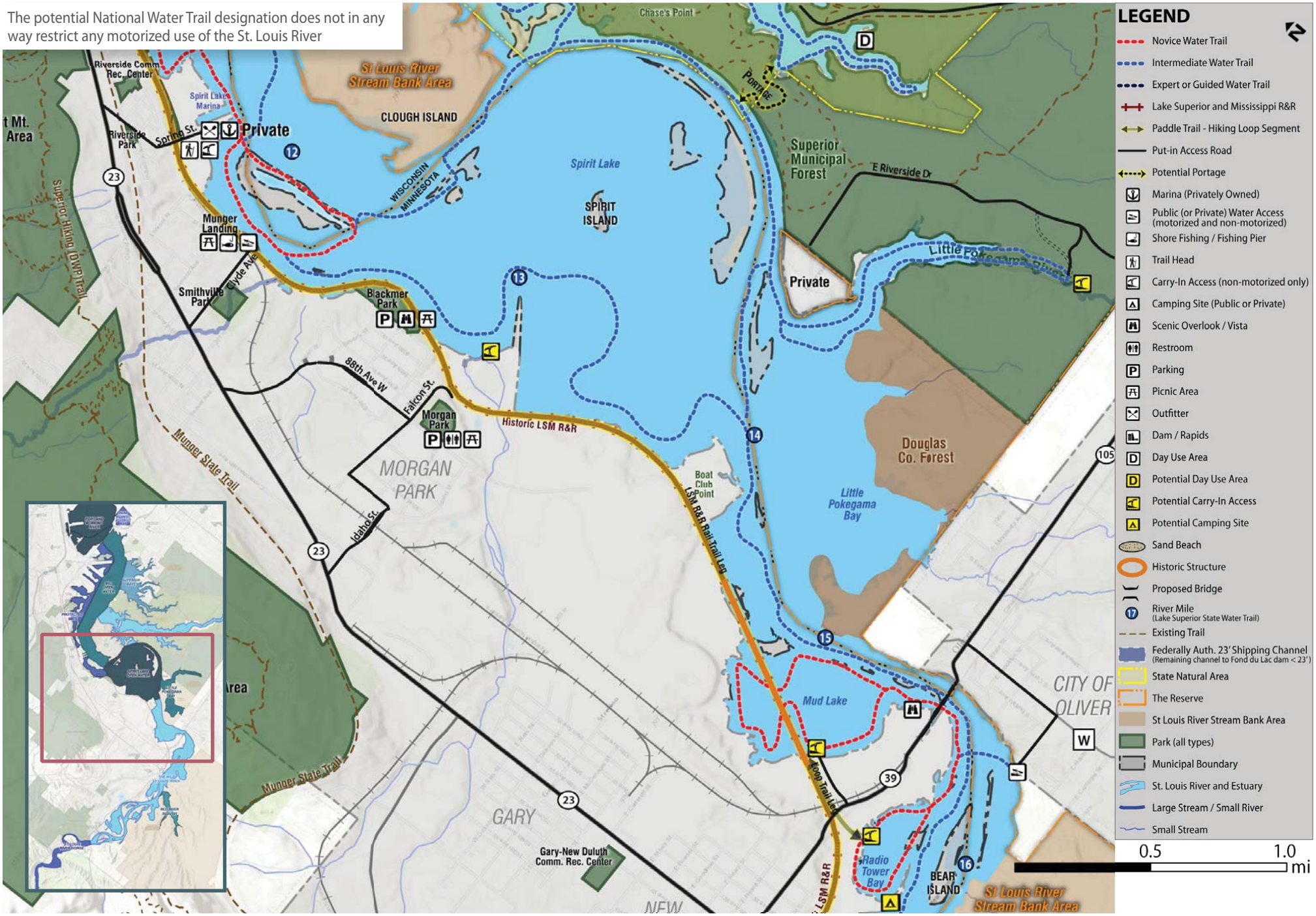
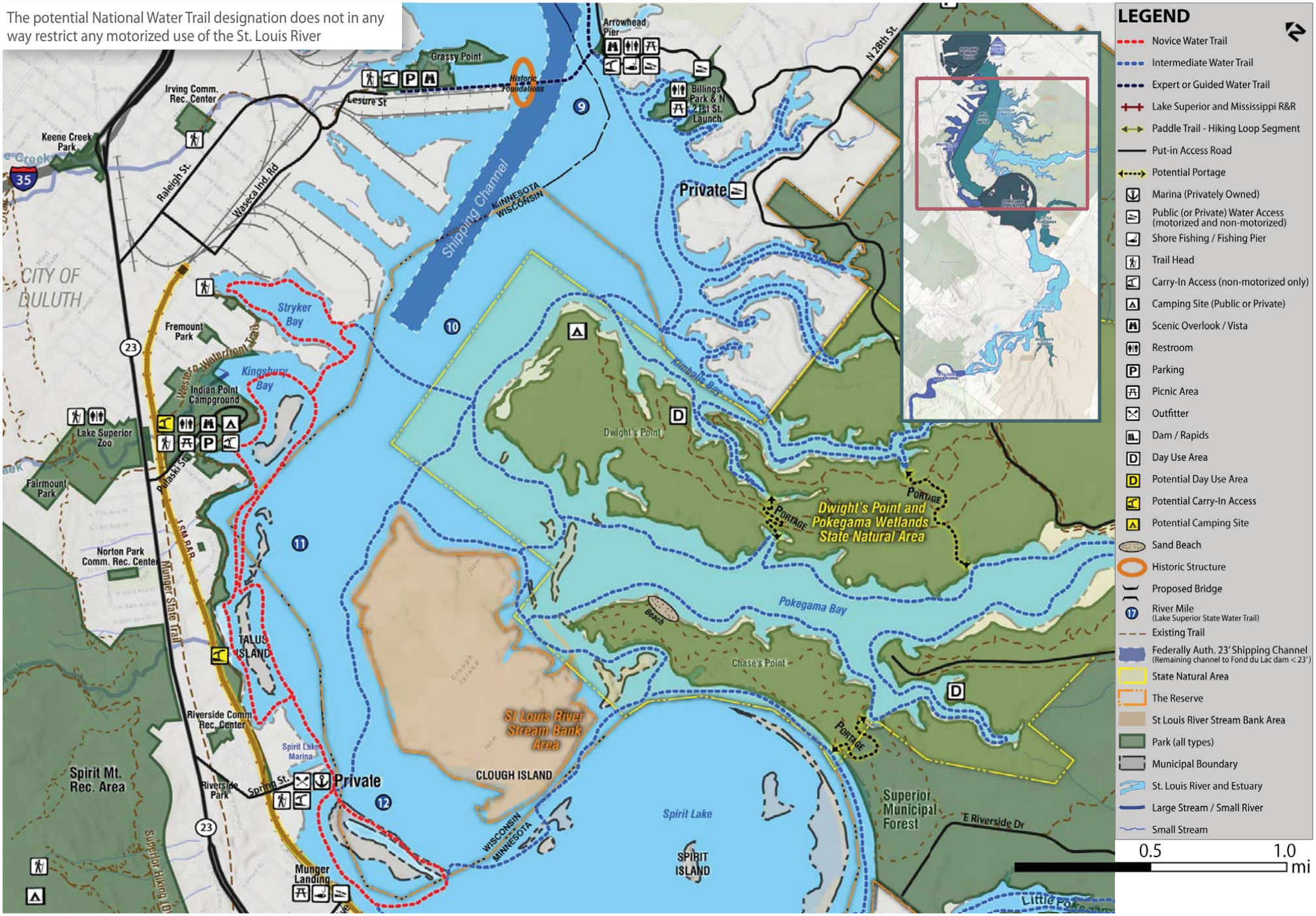


The potential National Water Trail designation does not in any way restrict any motorized use of the St. Louis River



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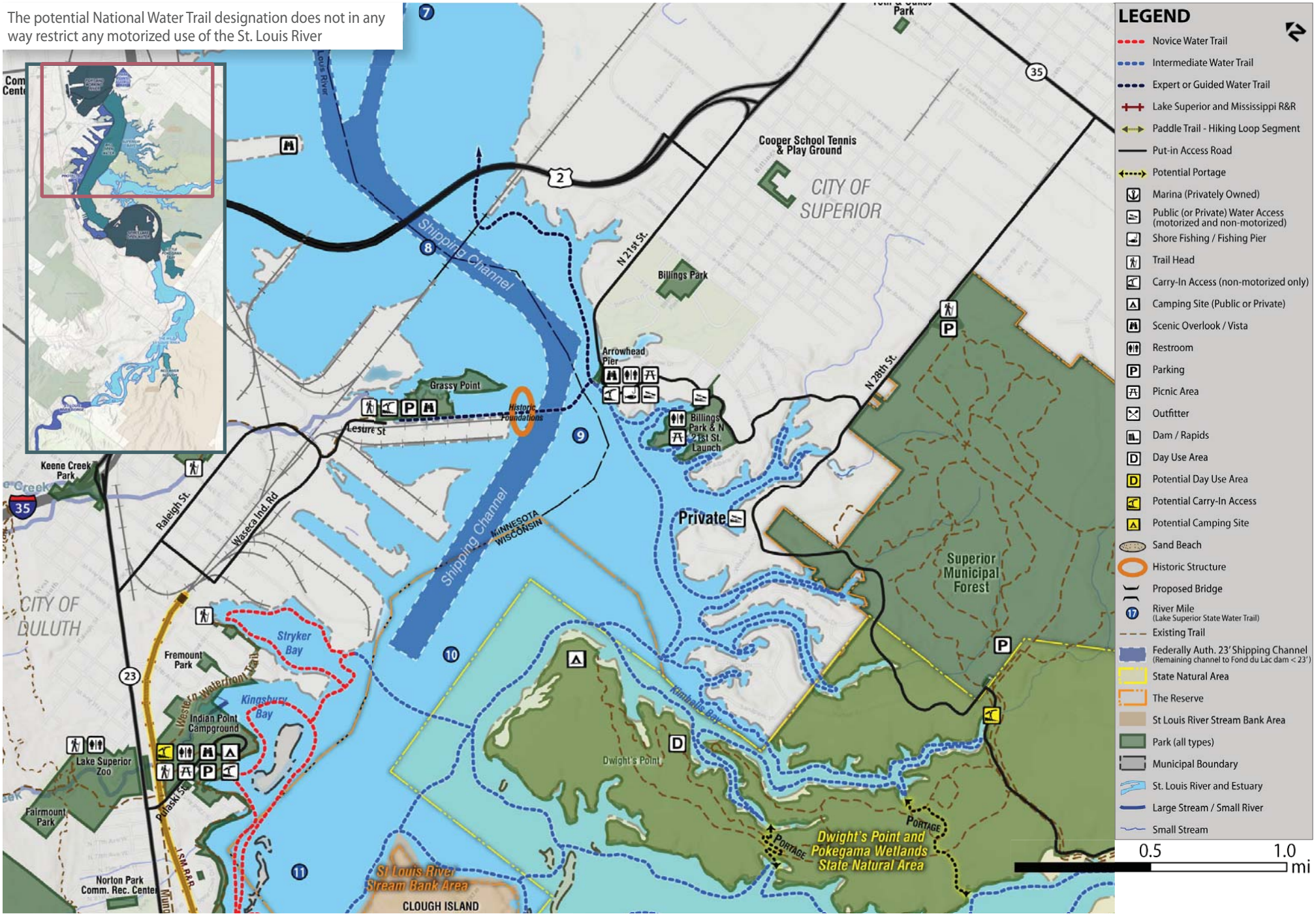


04. IMPLEMENTATION, MANAGEMENT, & STEWARDSHIP

Trail Development Process

Development and maintenance of Duluth's Trail and Bikeway network is and will continue to be a collaboration between the City and partner organizations. City and volunteer roles, as outlined in the 2011 Trail and Bikeway Plan, are:

CITY RESPONSIBILITIES:

- Trail and bikeway planning, funding, construction, maintenance (with volunteers and organizations), and management
- Trail and bikeway life-cycle management program
- Trail corridor inspection, mowing, and clearing
- Vandalism control.
- Trail and bikeway pavement management.
- Ski trail grooming
- Trailhead maintenance – plowing, pavement management, signage, bathrooms/portable toilets, shelters, trash collection and water
- Maintenance communication/information on: trail maintenance hierarchy/expectations on natural surface trails, trail etiquette/use, and trail conditions/closures/use restrictions
- Volunteer coordination and recognition
- "Adopt a trail" program
- Trail and bikeway maintenance need/reporting process
- Enforcement of and education about all applicable ordinances

VOLUNTEER GROUP AND ORGANIZATION RESPONSIBILITIES:

- Organized involvement in trail and bikeway planning, development, maintenance and operations
- Strong and focused group involvement- COGGS, Superior Hiking Trail Association, Duluth XC Club, Over the Hill Night Riders Snowmobile Club, Duluth Area Horse Trails Alliance (DAHTA), etc.
- Member outreach and advocacy for trail development, maintenance and etiquette
- Park and Recreation Commission Trails Committee oversight

Priorities

2016

Planning

1. Plan Phase I of Grand Avenue Nordic Center trails and infrastructure

Implementation

1. Build Duluth Traverse from Enger to Spirit Mountain and build out trail center at Mission Creek.
2. Finish final design of the Magney ski loop
3. Build SHT loop at Brewer
4. Assess SHT each year and prioritize sustainability upgrades to be performed annually.
5. Restore Western Waterfront Trail

2017

Planning

1. Complete 2016 Cross City Trail System Master Plan
2. Complete Western Waterfront Trail MMP
3. Complete and submit St. Louis River National Water Trail Master Plan
4. Complete All-Terrain Vehicle (ATV) feasibility study
5. Indian Point MMP, to include Munger Trail trailhead as an accessible trailhead
6. Duluth Traverse MMP
7. Develop strategy for DWP in light of other trail plans.
8. Study connections through Lincoln Park from CCT to Skyline Drive.
9. Plan hiking and biking trails to connect neighborhoods in Quarry Park, Norton Park and Riverside/Smithville.
10. Develop ATV concept plan
11. Finalize planning of Ely Peak expert-only mountain bike trails

Implementation

1. Assess SHT each year and prioritize sustainability upgrades to be performed annually.
2. Begin construction of CCT in the River Route corridor
3. Complete Elys Peak loop equestrian improvements
4. Build Clyde Connector and the Magney ski loop equestrian connection
5. Reopen snowmobile trail bridge at Kingsbury
6. Build SHT loop trail at Spirit Mountain

2018 AND BEYOND

The following are recommended initial (2017-2020) priority actions to implement the Trail and Bikeway Plan. These are not ranked by priority.

NEED 1: COMPLETE THE MULTI-USE TRAILS SYSTEM

Acquire and preserve right of way/corridors for trails and bikeways identified in this Plan through the subdivision, land dedication process, donations, easements, conveyance, and purchase. Examples include: trail access to Lincoln Park Middle School, Cross City and Western Waterfront Trail extensions, riverfront tax forfeit property, etc.

Secure long term public access to County tax forfeited land such as the Piedmont ski trail area which currently contains actively used public trails, and identify and secure all other potential recreation and trail corridors, such as the area between 63rd Avenue West and Spirit Mountain and the Zoo.

Identify funding partners and submit repeated requests for Legacy Funds for additional regional trail projects.

Complete the Cross City Trail. Add two miles of paved trail per year until the planned off road paved trail network is complete.

Complete Western Waterfront Trail from Spring Street to Boy Scout Landing. Add four miles of unpaved multi-use trail per year until the planned unpaved off road trail network is complete.

Install wayfinding signage on a test section of City trails within two years.

Develop a tiered approach to distinguishing trails according to the maintenance each receives

NEED 2: WORK WITH SPECIFIC USER GROUPS TO COMPLETE NEW TRAILS OR IMPROVEMENTS TO EXISTING TRAILS

Further develop partnerships with local user groups and assist in their capacity building to co-fund, co-create and co-manage trails and bikeways.

Build commitment (political, staff, tourism partners, public and funding) for implementation of bikeway improvements. Develop a relationship to help with capacity building with bikeway advocacy group Duluth Bikes (similar to COGGS, DXC and SHTA) to help foster funding, development and operations of on-street bike facilities

Complete Grand Avenue Nordic Center

Make Skyline Parkway safer and more pleasant for equestrians, pedestrians, and bicyclists (more parkway like character).

Restore legal and sustainable snowmobile connector routes, including trails on top of Fairmount Park.

Assess SHT each year and prioritize sustainability upgrades to be performed annually.

Conduct a feasibility study on the question of restoring non-car uses to Mission Creek Parkway, including hiking, biking, equestrian, snowmobiles, and ATVs.

Continue to plan and expand where possible the equestrian network to possibly include DWP trail and connector trail to Jay Cooke.

Prioritize maintenance projects and seek funding through the grant-in-aid program and other sources.

Build off-leash dog trail along Sargent Creek area to connect Gary New Duluth with the Munger Trail and the DWP.

Enhance trail sustainability by eliminating erosion problems and repairing/restoring of two miles of trail per year.

Increase enforcement of trail use regulations, i.e. illegal ATV use, off leash dogs, dumping, and vehicle break-ins.

Cross City Trail River Route: to be implemented in 2018

NEED 3: FURTHER CONNECT USERS TO THE ST. LOUIS RIVER CORRIDOR TRAIL SYSTEM

Design and implement a way-finding system for Duluth's trails and bikeway in 2016-17. Wayfinding is to consist of, but is not limited to: trail and bikeway system maps at trailheads, on-line and at key community places, directional signage along the trails and at trail intersections and more Parks and Trailhead traffic informational signs.

Connect underserved neighborhoods with trail systems, including trails to connect Morgan Park and Gary New Duluth with the Munger Trail and DWP, including potential off-leash dog trail in Sargent Creek area. Work with Proctor and Hermantown to plan and build the Proctor-Hermantown spur trail connection to the Willard Munger State Trail. Build hiking and biking trails to connect neighborhoods in Quarry Park, Norton Park and Riverside/Smithville.

Work with the Metropolitan Interstate Council on finalizing the City's road bike network plan. Add two miles of bikeway facilities (striped bike lanes, sharrows, climbing lanes and bike boulevards) per year until the on-road network is complete.

Create two new trail centers and two new/renovated trailheads within the next five years.

Develop Fairmount Park as a trail center and make the key additional trail connections. Connect the Munger Trail to the Cross City Trail.

Complete the Duluth Traverse, including neighborhood connections. Implement bridge and tunnel work on DWP

Study and improve connectivity to the Cross City Trail to and from:

» Lincoln Park School/Wade/Wheeler/Cross City
» Harrison Community Center.
» Lincoln Park

NEED 4: IMPROVE TRAIL ACCESS

Develop a coordinated marketing and promotions strategy for Duluth's trails by partnering with the Minnesota Land Trust and Visit Duluth.

Continue to implement the recommendations of the Wheels on Trails study to enhance accessibility of existing and planned trails.

Improve trailheads to achieve sustainable trail use. Also plan for and create new trailhead parking at places like Becks Road, Base of Spirit Mountain, Fairmount Park and Indian Point and the Lake Superior Zoo. Continue to make accessibility improvements on trails by creating a minimum of two more miles of accessible trails each year and adding or upgrading at least one trailhead per year to include handicapped accessible toilets.

Develop city-wide accessible trail policy and seek to designate and improve trails to increase accessibility.

Skyline Parkway

Funding Sources Update

The quality of a city's trail and bikeway system is a reflection of the community's ability to strategically leverage existing internal and external resources. Similar to roads, a long-term funding strategy that is updated annually is needed to design, build and maintain the trail and bikeway system. Creating a multi-year funding strategy can be useful in identifying when funding should be solicited so it is available when the City would like to do the project.

Since 2011's Plan, the City has identified and prioritized trail segments for a myriad of trail and bikeway projects. Small Area Plans in Gary New Duluth and Lincoln Park identified the need for connectivity to existing and planned trail and bikeway infrastructure. The Metropolitan Interstate Council in 2016 began expanding its 2013 Bikeway System recommendations as a result of the completed area plans.

Another key to success in securing funding for trail systems is developing community partnerships to participate in the fundraising for projects, through additional grant writing, through fundraising, or in in-kind efforts.

FUNDING SOURCES

Parks Fund

In 2011, the Citizens of Duluth passed the Park Referendum which allowed for the dedication of funds to be set aside to pay for Parks staff, but to also provide for seasonal park maintenance staff and supplies.

The Parks Fund is also used as matching grant dollars for many state, federal and local grants. Neighborhood grant matching program is given in both spring and fall and a total grant no more than $5000 per application.

General Fund

General funds can and should be used to develop and maintain the trail and bikeway system. These funds are best used for smaller projects within the already developed portion of the City such as completing short sidewalk gaps on local streets that may not be eligible for grants. General funds are the primary funding source for on-going trail maintenance, bikeway striping, snow plowing and sweeping. The City of Duluth dedicated one new staff person and general fund dollars to trail and bikeway maintenance beginning in 2016.

Half and Half Funds

Residents can decide to raise revenue through a permanent or temporary tax increase dedicated for specific purposes such as park, trail and bikeway improvements and maintenance. These funds are usually provided through bonds approved as part of a voter referendum. This was accomplished in 2014 by the State of Minnesota. $18 million was raised by bonding that is dedicated to projects within the St. Louis River Corridor from 11th Avenue West to Chambers Grove. A portion of that is dedicated to trail and bikeway projects.

Trails and Bikeways Built Along with Development

The City is accomplishing this task where possible. A new development near Smithville Park will build a portion of the extension of the Western Waterfront Trail. Resurfacing of College Street integrated an off-street bikeway into its plans. East Fourth Street's redesign included planning for bike lanes. Bike lanes were incorporated into the Anderson Road redesign. However, a Complete Streets Policy should be developed to ensure future development takes all users into consideration for each project going forward.

Partnerships

Duluth has developed strong partnerships with both public and private organizations that are an essential component to achieve individual projects outlined in this plan. The City has also reached out and brought in new partnerships since the 2011 Trail Plan was completed: Duluth Bikes, the Friends of Western Duluth Parks and Trails, Duluth Climber's Coalition, Northland Paddler's Alliance, Duluth Disc Golfers and the North Shore ATV Club.

External Funds, including Grants

The City uses internal funds to leverage external funds, from agencies such as:

Grants are one way to make the City of Duluth's dollars go further. Below are grants that the City of Duluth received for trails and bikeways since 2011's Plan:

Minnesota DNR

- DNR Coastal Program
- DNR Regional Trail Grant Program:
- The MN Trail Riders Association
- Federal Recreation Trail Program (passes through the MN DNR)

Transportation Alternative Projects:

- Minnesota DOT
- State Health Improvement Project (SHIP)

Clean Water, Land and Legacy Amendment

Local Organizations and Businesses

Many businesses in the region are reaching out to sponsor trail and bikeway events and

projects. Some of these are Loll Design, Bent Paddle, Thirsty Pagan, Kraus-Anderson, Essentia Health, Continental Ski and Bike, Skihut, Maurices, Bernick's Distributing, Republic Bank, Duluth Running, and others.

Management and Maintenance

Trail and bikeway management and maintenance are vital for a successful and sustainable system. A goal of this Plan is to create a sustainable and maintainable trail and bikeway system. The following policy guidelines offer guidance for ensuring a more sustainable and maintainable trail system in Duluth. More details can be found in the 2011 Duluth Trails Plan

TRAIL MAINTENANCE POLICY GUIDELINES:

1. *Balance the planned trail and bikeway system with the ability to construct and maintain the system.*
2. *Plan trail and bikeway routes with sustainability, stewardship, accessibility, and maintainability in mind.*

» Assure that the system is an appropriate maintainable scale.

» Meet user needs and expectations

» Connect destinations

» Assure suitable environmental characteristics – soils, slope, drainage, surface, width, route delineation, safety, ownership/access, accessibility, etc.

» Assure appropriate use by mode, condition and season.

» Use purposeful trail design and construction using sustainable trail standards. Harden/improve existing natural surface trails as needed.

» Establish consistent and uniform criteria and communication for closures of natural surface trails for seasonal or conditional closures.

TRAIL MAINTENANCE HIERARCHY

There is a need to define trail maintenance priorities for natural surface trails. Prioritization and communication of those priorities to the public will help focus limited City and volunteer resources, assist with defining maintenance and repair efforts and make the public aware of trail condition expectations.

Similar to park maintenance priorities, trail maintenance priorities should be defined at various levels of maintenance from high to low. City staff and volunteer groups should work together to establish the priorities, identify which trails are in each maintenance priority/category and identify the trails and categories of maintenance on trail maps.

Potential Trail Hierarchy Categories are:

1. **Tier One Trails:** ongoing inspection and maintenance of trail surfaces, wayfinding materials, amenities and structures; regular mowing and weed whipping. Examples include: Lakewalk, Western Waterfront Trail, SHT and COGGS trails. Highly maintained.
2. **Tier Two Trails:** annual inspection and maintenance of trail surfaces, amenities and structures; annual weed whipping or mowing. Examples include ski trails, horse trails, snowmobile trails, Kingsbury Creek Trail. Minimally maintained.
3. **Tier Three Trails:** no inspection or maintenance of trail surface or structures. Examples include Mission Creek, the DWP, neighborhood connector trails. No maintenance.

To be the premier trail city in North America, Duluth will need to commit more resources (both staffing and funding) to trail maintenance and repair as well as to trail construction.

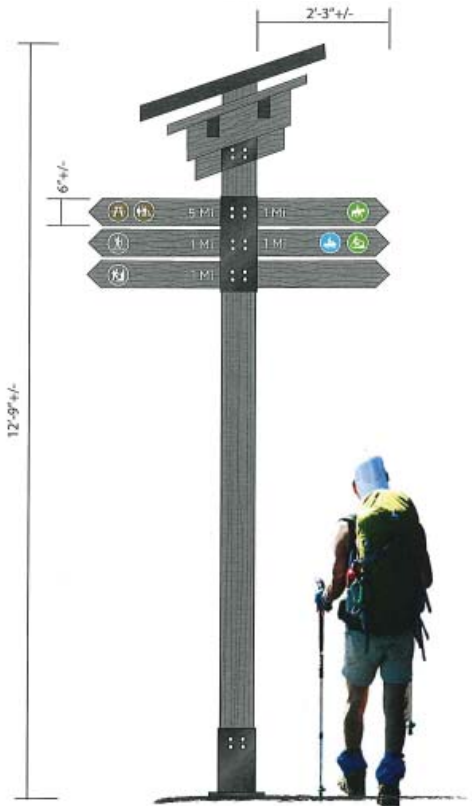
SPECIAL MAINTENANCE CONSIDERATIONS

Magney Snively Park - Due to its unique natural resources and sensitive ecosystem, Magney Snively is under consideration for designation as a Minnesota Department of Natural Resources (MnDNR) Scientific and Natural Area (SNA). If that occurs, the park would be managed by the MnDNR and use would be limited under the SNA program. New trails would generally not be allowed. Use of some existing trails would be allowed in designated corridors. Due to potential SNA areas in Magney Snively, it isn't recommended as a future location for trail clusters. Any trail system that uses it for a connector, such as the Duluth Traverse, should be respectful of potential SNA areas and work to avoid areas of rare natural resources.

Signage and Wayfinding

City staff and the Duluth Parks and Recreation Commission Parks and Trails subcommittee is working with a trail gate, wayfinding, and signage group consisting of representatives of trail user groups to define wayfinding and trail signage needs and to develop a wayfinding plan for Duluth's trails. When complete, their wayfinding plan will become part of this plan.

The City and its partners should embrace and utilize new technologies, such as mobile phone applications and Cyclopath (*www.cyclopath.org*), to expand access to trail and bikeway information and routes.



WAYFINDING

Wayfinding is the way in which people orient themselves and navigate from place to place and is a vital component of an effective bicycle and walkway system. People need to be able to easily understand and navigate bikeways and walkways in order to conveniently and safely get to their destination.

Wayfinding signs for pedestrians and bicyclists typically show destination, direction and distance. Signs are placed where routes change or there is a change of direction and periodically along the route. For cyclists, pavement markings can be easier to see and can be used to supplement signage.

An inventory of potentially dangerous intersections should be completed followed by appropriate wayfinding signage installation.

PROMOTION, AWARENESS AND MARKETING

Improvements to the physical environment are most effective if coupled with on-going marketing, promotion and awareness efforts. Trail and bikeway information should continue to be provided in digital format on the City's website. If people are aware of the amenities already in Duluth, they will use them more. The City should also create and widely distribute trail and bikeway maps with existing routes, safety information and events.

Programs and events to generate local enthusiasm and support can be an important component in attracting visitors.

Ideas for potential programs and activities include:

- Conduct school and community education classes for bike safety, bike commuting, bike maintenance and bike purchasing.
- Hold weekly/monthly events in Duluth through local hiking, running, biking and ski clubs.
- Coordinate events with non-profit groups.
- Hold hike/bike days with the Mayor/City Council, celebrate National Bike Month and Walk to School day.
- Hold hike/bike rodeos/carnivals – theme contests, art/costumed bikes, tricycle racing, bike light/pedometer giveaways, bike parade, walking parade, dog walking parade.
- Promote walking and biking to local businesses with a "live local-work local" campaign.
- Actively promote Duluth trails and bikeways to visitors. Hundreds of thousands of North Shore trail users pass through Duluth every year. Promoting Duluth as a trail destination can foster tourism and economic development.

Trail and Bikeway Policies

1. Proactively acquire and preserve land, right of way or easements for trails identified in this Plan.
2. Subdividers and developers of land with identified trail or bikeways are to dedicate right of way or easements for those planned trails/ bikeway in accordance with the City subdivision dedication requirements.
3. This Trail and Bikeway Plan should be incorporated into City, County, Regional and State transportation planning, budgeting and implementation and into City park plans, budgeting and implementation.
4. Continue to maintain/improve abandoned/ closed roads that are identified as trail or bikeway corridors.
5. Coordinate stormwater, utility and roadway work with trails, including methods and actions to prevent stormwater erosion of trails and stream corridors.
6. Develop a plan on how to prevent illegal trail use and damage (for example illegal ATV use, dumping, off leash dogs, vehicle break-ins, etc.). This is likely to include but will not be limited to: hiring of park and trail law enforcement personnel, creating solutions to why there is illegal use, promoting education and awareness activities, and other actions.

Measuring Progress

Trails and bikeways consist of both qualitative and quantitative aspects. Not all aspects translate directly into measurements. However, some suggested target goals for implementation of this plan are:

DEVELOP THE COMMITMENT TO MAKING DULUTH THE PREMIER TRAIL CITY IN NORTH AMERICA AS MEASURED BY:

Political commitment – Advocacy of a walkable, bikeable and connected Duluth. Authorization of enhanced budgets for trail construction and maintenance. Approval of Complete Streets Policy. Walk/bike/hike events with the Mayor and City Council. Approval of match funds for significant trail and bikeway grants.

Resident and business commitment – Approval of the Park and Trail Enterprise Funding. Increase volunteers for trail maintenance and construction. Expanded trail role of Friends of the Parks, Duluth. Participation in bike, hike and walk events. Participation in an Adopt A Trail program.

City staff commitment - Cross departmental support for trails and bikeway improvements. Expanded volunteer involvement. Integration of Complete Street principles into roadway projects. Expanded trail and bikeway information, marketing, and communication, especially through a robust and mobile-friendly website and/or app. Implementation of a trail wayfinding system.

Partner commitment – Advocacy for trail and bikeway improvement, events and maintenance. Participation in an Adopt A Trail program. Funding participation in significant trail and bikeway grants. Bike friendly businesses. Support for parking or street design changes which increase pedestrian and/or bicyclist safety and convenience. Marketing and promotion of Duluth trails by Visit Duluth and the Chamber of Commerce.

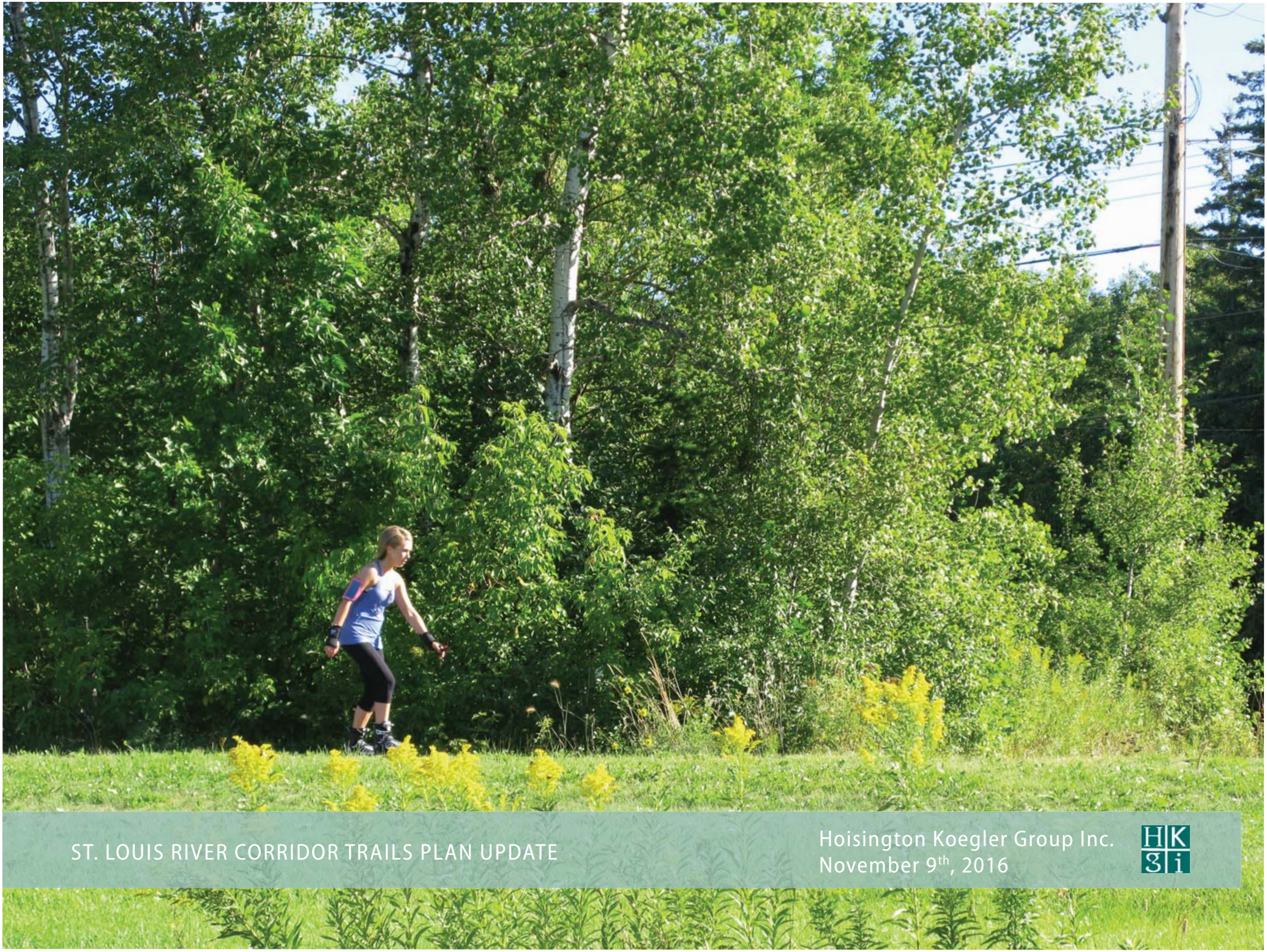
APPENDIX

CITED PLANS

The 2011 Trail and Bikeways Plan
The 2014 Cross Country Ski Trail Master Plan
Lincoln Park Neighborhood Revitalization Plan
Lincoln Park Small Area Plan
Gary New Duluth Small Area Plan
Equestrian Feasibility Study and Plan
Western Waterfront Trail Renewal Plan
DWP Feasibility Study with cost estimates
Skyline Parkway Plan Update
Grand Avenue Nordic Center Plan
Looped Hikes from the Superior Hiking Trail
Quarry Park Plan
MnDNR Trail Planning, Design, and Development Guidelines

PLANS TO LOOK FOR IN THE FUTURE

The Cross City Trail Master Plan
DWP Trail System Master Plan
ATV Trail Feasibility Study
St. Louis River Water Trail Master Plan
The St. Louis River Recreational Corridor Master Plan
US Steel Superfund Site clean-up planning
Gate, Wayfinding, and Signage Master Plan
Mini Master Plan for the Duluth Traverse



ST. LOUIS RIVER CORRIDOR TRAILS PLAN UPDATE

Hoisington Koegler Group Inc.
November 9th, 2016