



WESTERN WATERFRONT TRAIL, PARK & RECREATION MASTER PLAN

DULUTH, MN

ST. LOUIS RIVER CORRIDOR | SEPTEMBER 18 2019 FINAL DRAFT



STAKEHOLDER COMMITTEE

- Joel Sipress, Duluth City Council
- Deb DeLuca, Duluth Seaway Port Authority
- David Bolgrien, Environmental Pollution Control Agency
- Scott Cieniawski, Environmental Protection Agency
- Wayne Dupuis, Fond-du-Lac Band of Lake Superior Chippewa
- Jill Hoppe, Fond-du-Lac Band of Lake Superior Chippewa
- Mike Casey, Friends of West Duluth Parks & Trails
- Alison J. Clarke, Friends of West Duluth Parks & Trails
- Harry Hanson, Friends of West Duluth Parks & Trails
- Denette Lynch, Friends of West Duluth Parks & Trails
- Virginia Olson, Friends of West Duluth Parks & Trails
- Rick Staffon, Izaak Walton League
- Craig Sterle, Izaak Walton League
- Glenn Merrick, Izaak Walton League
- Will Munger, Izaak Walton League
- Joel Manns, Lake Superior & Mississippi Railroad
- Brad Massengill, Lake Superior & Mississippi Railroad
- Andy Webb, Lake Superior & Mississippi Railroad
- Keith Okeson, Lake Superior Muskies
- Pat Okeson, Lake Superior Muskies
- Russ Francisco, Marine General
- John Lindgren, MnDNR
- Lisa Angelos, MnDNR - Jay Cooke State Park
- Kevin Johnson, MnDNR - Parks & Trails - Two Harbors
- Hansi Johnson, Minnesota Land Trust
- Daryl Peterson, Minnesota Land Trust
- Mike Bares, MN Pollution Control Agency
- Erin Endsley, MN Pollution Control Agency
- Debbie Isabell-Nelson, Morgan Park Community Club
- Bill Majewski, Morgan Park Community Club - SLRA
- Amanda Crosby, Parks & Rec Commission - Disability Rep
- Dean Votgman, Parks & Rec Commission, District 5
- Dave Moore, Railway Solutions/LS&M
- Carole Newkumet, Riverside Community Club
- Charlie Staudahar, Spirit Lake Development
- Charlie Nelson, Twin Ports Walleye Association
- Dave Nelson, Twin Ports Walleye Association
- Jack Ezell, Western Lake Superior Sanitary District
- Dwight Morrison, Wheels on Trails

ACKNOWLEDGEMENTS

City Council Members

- Mayor Emily Larson
- Gary Anderson
- Joel Sipress
- Em Westerlund
- Renee Van Nett
- Jay Fosle
- Zack Filipovich
- Arik Forsman
- Noah Hobbs
- Barb Russ

City of Duluth Staff

- Jim Filby Williams, Director of Administration
Parks and Planning Staff
- Lisa Luokkala, Project Lead
- Jim Shoberg, Technical Support
- Hank Martinsen, Property Services

Contact Information:

Lisa Luokkala
Assistant Parks & Recreation Manager
City of Duluth Parks & Recreation Department
218.730.4300
lluokkala@duluthmn.gov

CONSULTANT TEAM

LHB Inc.
21 West Superior Street, #500
Duluth, MN 55802



TABLE OF CONTENTS

01 INTRODUCTION + OVERVIEW

- PROJECT BACKGROUND + PURPOSE
- IMPLEMENTING AGENCIES + PLAN ALIGNMENTS
- TRAIL DESIGNATION + REGIONAL SIGNIFICANCE

02 EXISTING CONDITIONS + SITE ANALYSIS

- SITE HISTORY
- LAND USE CONTEXT
- LOCAL + REGIONAL TRAIL CONNECTIONS
- PHYSICAL CONDITIONS + NATURAL RESOURCES
- TRAIL SEGMENTS: ISSUES + OPPORTUNITIES
- OVERALL PROJECT LIMITS MAP
- EXISTING TRAIL IMAGES
- PRECEDENTS

03 VISION, TRENDS + PUBLIC VALUES

- VISION
- TRENDS + PUBLIC VALUES

04 COMMUNITY ENGAGEMENT

- HISTORY OF THE PLANNING EFFORT
- PUBLIC INVOLVEMENT

05 MASTER PLAN DEVELOPMENT

- TRAIL INTERPRETATION PLAN
- TRAIL TYPES
- TRAIL DESIGN CONSIDERATIONS
- ACCESSIBILITY
- DESIGN CONSIDERATIONS - CULTURAL RESOURCES
- PROGRAMMING FOR PUBLIC ACCESS + LINEAR PARK SITES
- PLANNING PROCESS RESULTS

06 IMPLEMENTATION + SUSTAINABILITY

- RECOMMENDATIONS + IMPLEMENTATION TIMELINE
- TRAIL SEGMENT RECOMMENDATIONS
- OVERALL TRAILHEAD + PUBLIC ACCESS MAPS
- PUBLIC ACCESS + LINEAR PARK SITES RECOMMENDATIONS
- PROFESSIONAL OPINION OF COSTS
- SUMMARY + SUPPLEMENTARY INFORMATION

APPENDIX

33

34

34

39

40

42

44

44

44

45

48

55

56

58

70

73

79

82

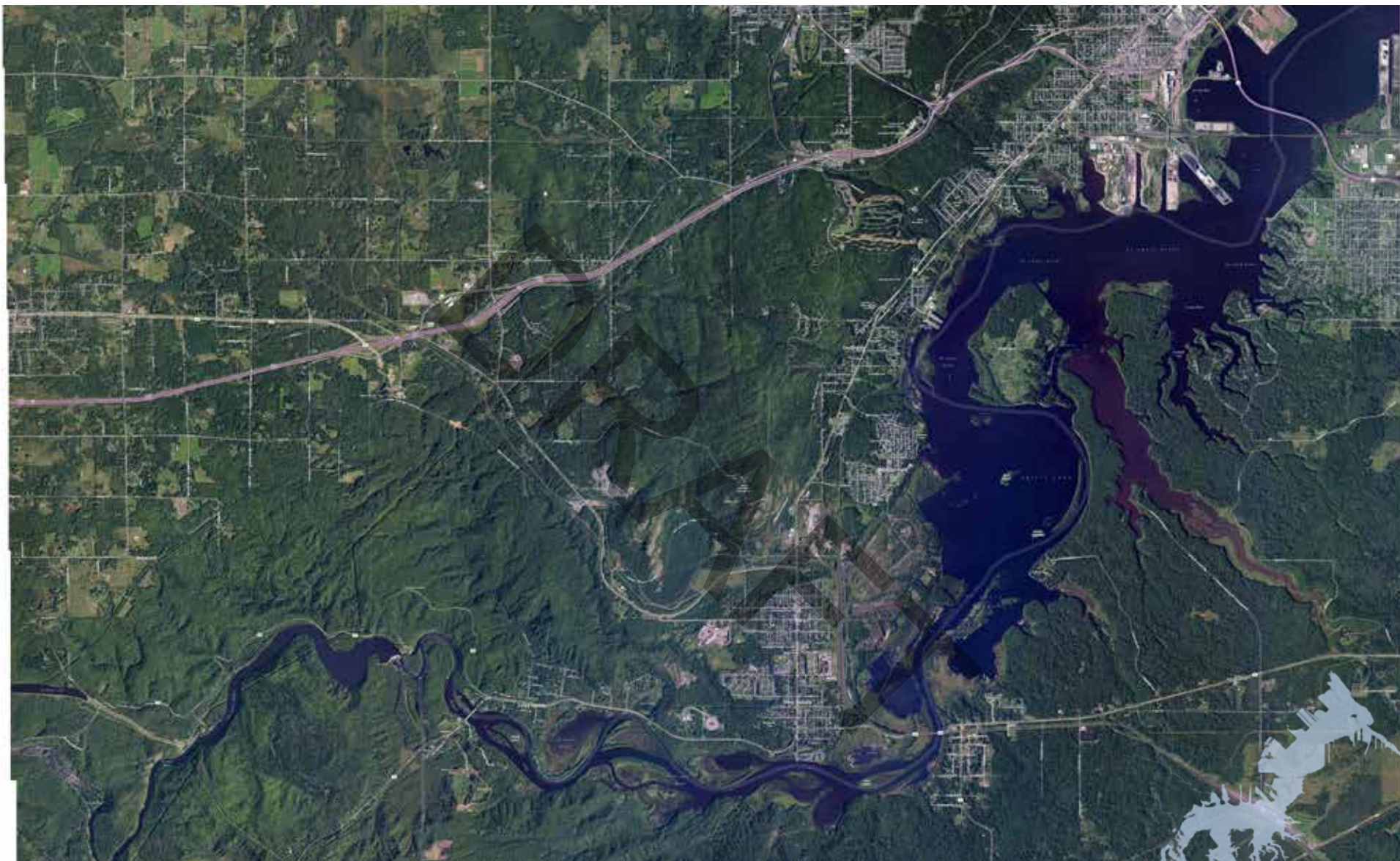
83

WESTERN WATERFRONT TRAIL, PARK & RECREATION MASTER PLAN

DULUTH, MN
ST. LOUIS RIVER CORRIDOR



DRAFT



WESTERN WATERFRONT TRAIL, PARK & RECREATION MASTER PLAN

01 INTRODUCTION + OVERVIEW

ST. LOUIS RIVER CORRIDOR

Introduction + Overview

Project Background

The Western Waterfront Trail (referred to in this Plan as the Trail) consists of an existing 3.3 mile multi-use recreational trail that traverses along the western shoreline of the historic St. Louis River and Estuary in West Duluth, MN. The existing segment of the Trail begins in the Irving neighborhood and ends near Riverside. The Trail was first established in the early 1980's, deriving from an original 1979 City Plan, which identified the need for increased recreational development along the St. Louis River and Lake Superior shoreline. Historically, public water access in Duluth had been limited due to industrial and railroad development, however, with the recent closing of several industries and a decline in railroad use, an opportunity arose to pursue public access along the shoreline and to connect the waterfront to adjacent residential neighborhoods. Since its creation over thirty years ago, the Trail has yet to be fully realized as the 10+ mile continuous recreational trail that allows the public to connect with the waterway, as originally envisioned.



Figure 1.1 WWFT 1979 City Plan



Figure 1.2 WWFT existing trail sign

Project Purpose

In August 2016, the City of Duluth Parks and Recreation Division began a public planning process to determine the future recreational uses along the shoreline of the St. Louis River Estuary. The project limits encompass a 10+ mile corridor of mostly City-owned land. The City's vision was to complete the original planning for a multi-use, non-motorized, accessible, natural surface trail that connects seven neighborhoods to the River by studying trail extension possibilities and potential new linear park and water access points along the river corridor. The City desired a framework plan from which they could build upon, addressing key elements such as increasing mileage for an entry-level accessible trail, and studying existing and future trailhead access points that could serve a multitude of functions for both land and water recreationalists. Currently, the City has not been utilizing the land for public open space except for leasing a portion of the historic rail bed to the nonprofit Lake Superior and Mississippi Railroad (LSMR) for seasonal fee-based rail excursions. The LSMR currently operates tourist excursion rides on the weekends during the summer and fall.

This planning project assesses existing conditions, studies the feasibility of various trail and linear park expansion alternatives, and provides design recommendations for the existing trail, the historic rail bed, three existing public access sites, as well as new potential sites for public recreation and water access.

Project Goals

This Plan's overall project goals include but are not limited to:

- Increasing connectivity from adjacent neighborhoods to the St. Louis River and Estuary.
- Increasing recreational and development opportunities within and along the St. Louis River Corridor.
- Facilitating a stakeholder community engagement process to gain significant input on the future use of the area.
- Enhancing neighborhood quality of life.
- Restoring and protecting natural habitat along the trail corridor.

Implementing Agencies + Plan Alignments

The City of Duluth Parks and Recreation Division will continue to lead the efforts for trail and park planning, detailed design, construction, as well as facilitate operations and ongoing maintenance of the Trail. The City will also collaborate with the following departments and community partners for additional support and to ensure the overall vision and implementation of the Plan are met with success:

Anticipated Partners

- Duluth Public Works Department
- Duluth Facilities & Property Services
- Duluth Indigenous Commission
- Riverside Community Club
- Morgan Park Community Club
- Fond du Lac Community Club
- Fond du Lac Band of the Lake Superior Chippewa
- Friends of West Duluth Parks & Trails
- Minnesota Land Trust
- Minnesota Department of Natural Resources
- Environmental Protection Agency
- US Steel Corporation
- Mn Pollution Control Agency
- Lake Superior & Mississippi Railroad (LSMR)

"Duluth's history and its future are profoundly tied to the health, sustainability and stewardship of the St. Louis River and Lake Superior. We are excited to work with the community to unveil the potential of the River Corridor and its historic and culturally rich gifts."

- Mayor Emily Larson





Figure 1.3 St. Louis River Corridor Ongoing Projects

St. Louis River Corridor Initiative

In 2014, the City of Duluth established an initiative for the St. Louis River Corridor; which is to invest in public parks and trail improvements from Lincoln Park to the Fond du Lac neighborhood. The overall goals of the Initiative are to support the natural environment, enrich quality of life, attract new home buyers, establish new visitor destinations and stimulate appropriate development. Initiative projects are funded in part by the 1/2 and 1/2 tourism tax which was approved by the Minnesota Legislature in 2014. These funds will leverage additional dollars through community partnerships and grants.

Greater MN Regional Parks & Trails Legacy Alignment

The City also anticipates leveraging the Greater MN Regional Parks & Trails Legacy grant funding for a portion of this project. Legacy funding is available through the State of Minnesota for parks and trail projects outside of the seven-county metropolitan area that illustrate a need while also meeting certain regional objectives.

The Plan aligns with the Greater Minnesota Regional Parks & Trail vision **to provide every Minnesotan the opportunity to have a strong connection to natural resource-based parks and trails, which improves quality of life for surrounding communities through access to a safe and enjoyable recreational asset.** By providing gateways to the St. Louis River waterfront, enhancing the ecological health of

former industrial sites, and increasing connectivity of people to the natural world, the WWFT will provide opportunity for the general public to practice good stewardship of our natural resources.

The Trail and park expansion investment is grounded in the following regionally significant objectives:

- Provides a unique experience to users that they may not experience anywhere else; the Estuary is considered the largest freshwater estuary in the U.S.
- Links to a larger network of existing local and regional trails
- Supports a growing need for commuters using alternate modes of transportation
- Connects neighborhoods and regional destinations
- Secures access to a missing corridor along the St. Louis River's industrial corridor

Duluth Natural Area Program (DNAP) St. Louis River Natural Area

The Duluth Natural Areas Program (DNAP) is a city program that designates certain lands with environmental value as permanently protected natural places. The St. Louis River Natural Area is comprised of nine places along the shoreline of the St. Louis River from Chambers Grove Park in

the Fond du Lac neighborhood on the west, to Grassy Point Trailhead in the Irving neighborhood on the east. The approximately 1,200 acres of land are home to a mix of 17 distinct native plant communities and over 150 species of birds. The natural areas protect the waters of the St. Louis River estuary and provide river access for Duluth's residents and visitors. The WWFT will connect the nine areas encompassed by the nominated St. Louis River Natural Area.

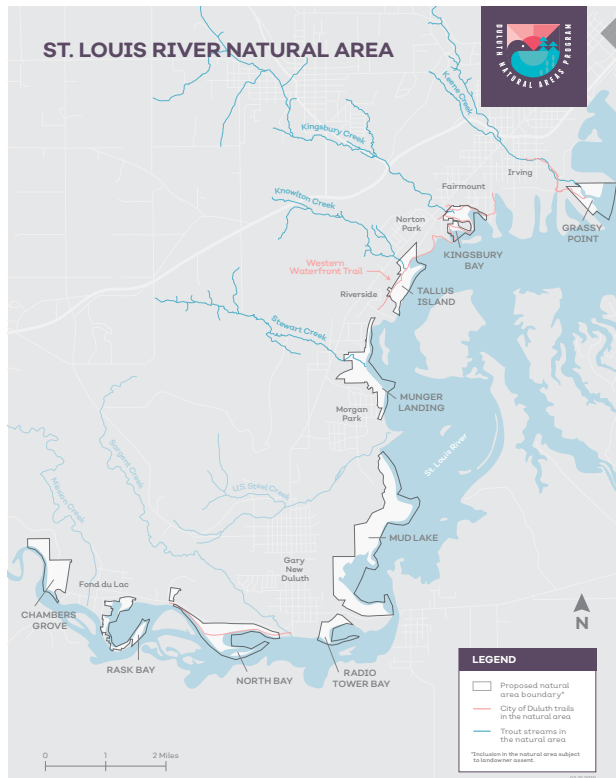


Figure 1.4 Map of the St. Louis River Natural Area

St. Louis River - Area of Concern (AOC)

The St. Louis River is one of the 43 Areas of Concern (AOCs) in the Great Lakes Basin that was included in the Great Lakes Water Quality Agreement established by the United States and Canada in 1987. AOCs are places that were polluted by common past practices of dumping untreated waste on land and water. All designated AOCs require remedial action plans (RAP) to address specific beneficial use impairments, which are managed by natural resource agencies. The City of Duluth is one of the AOC partners who has been working with regulatory agencies to implement projects that will remediate contaminated sediments and restore aquatic habitat within the River. This plan aligns with the goals of the AOC as cleaning up the river will allow for better public use along this natural resource corridor.

Trail Designation + Regional Significance

Classification

A goal of the master planning process is to create a living document that can serve as a deliverable within applications for Parks and Trails Legacy funding and classifications. The initial intention is for the Trail to be recognized as a Non-Motorized Regional Trail, according to the Greater Minnesota

Regional Parks and Trails Strategic Plan of April 2015.

Criteria #1: Provide a High-Quality "Destination" Trail Experience

The Trail is located along the meandering shoreline of the St. Louis River, this unique location provides the opportunity to curate a safe experience for trail users of all abilities, and will also educate, honor, and celebrate the rich history along this great body of water. This area was and still is incredibly significant to the Anishinabe people, and rebranding the Trail to better tell this heritage story is important to our region. The trail corridor will include quality site amenities, offer spectacular views and interpretation opportunities at key points of interest while also providing improved water access for paddling, boating and fishing activities. The natural and cultural history will be integrated into the design of the Trail through mindful recreational development. Points of interest and viewsheds will be preserved and enhanced, including areas formerly off limits to the public. Restoring, protecting, and enhancing the ecological health of former industrial sites are unique to this Trail, and this Plan will create the missing link through the former US Steel site and by working with various clean-up efforts.

Criteria #2: Be Well-located to Serve Regional Population and/or Tourist Destination

Duluth is a popular tourist destination, attracting 3.5 million visitors annually and a growing city, home to over 86,000 residents. The Trail will serve an historically underserved area of Duluth and the surrounding region. There are few linear, recreational amenities with adequate length that provide both land and water access in the western portion of Duluth. The Trail will provide better waterfront access and increase connectivity from adjacent neighborhoods to the St. Louis River and Estuary, enhancing neighborhood quality of life.

Criteria #3: Enhance Connectivity to Regional Destinations

The Trail provides gateways to the St. Louis River waterfront, linking to a larger network of existing local and regional, land and water trails. Other significant trails and recreational destinations in the area include the Munger State Trail, the Cross City Trail, the Superior Hiking Trail, the St. Louis River Estuary Water Trail, U.S. Bicycle Route 41, Spirit Mountain Recreational Area, the Lake Superior Zoo, Indian Point Campground, Magney Snivley Nature Area, and Jay Cooke State Park. Additional points of interest that are otherwise hard to access but will be enhanced by the WWFT include; views to Tallas and Clough Islands, Spirit Lake and the Riverside Marina, Blackmer Park and the former US Steel Plant, Slag Point (manmade landform), Mud Lake and the Oliver Bridge to name a few. Currently, the only way

the St. Louis River Corridor neighborhoods are connected is via Trunk Highway 23. The trail will enhance a better sense of community by creating a linear system that links the waterfront to seven adjacent residential neighborhoods, and provides transportation alternatives to nearby businesses, recreational destinations, and public green spaces. Creating the missing links within the trail will provide a better connection to the larger network of trail systems throughout the City.

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

Currently, there is no trail system, and very limited general public access, along the majority of the St. Louis River shoreline. Extending the Trail will increase recreational and development opportunities within and along the St. Louis River Corridor. In addition to traditional recreational uses, the Trail supports a growing need for commuters using alternate modes of transportation and is considered a beginner-level, natural surface trail.

The Trail will connect a corridor of lands that are previously served industrial uses, enhancing and adding lands to an existing network of outdoor recreational amenities. The ecological value of these added sections through the formerly industrial holdings will accelerate resource protection and enhance shoreline restoration along the trail. The additional six miles of trail that will be developed as part of the expanded Trail is a priority acquisition not only for Duluth, but for



Figure 1.5 Existing Trail near Indian Point Campground

the region. Connecting the out-neighborhoods from the core of Duluth, filling a critical gap in both commuting and recreational needs along the St. Louis River. The Trail will serve a previously untapped market of potential recreationalists, opening access and developing a system of trails that are easily navigated and identified using wayfinding, outreach and other educational means to introduce new users to the Trail.

Additionally, the Trail will...

- **Connect People to the Outdoors.** *The Trail will offer an opportunity to create a welcoming and safe atmosphere to experience outdoor recreational opportunities. The Trail will enhance and broaden opportunities for individuals of all abilities to enjoy and experience nature along the river's shoreline by investing in a range of trail surfacing materials. The Trail will create an enhanced venue for future regional programming and events, including expansion of trail racing and water sports throughout the expanded trail. These enhancements will contribute to the creation of positive and lasting experience of visitors to the facility.*
- **Create Opportunity.** *The Trail is surrounded by over seven neighborhoods who collaboratively plan and seek funding for future investments in West Duluth. These communities are the backbone of a larger network of regional partnerships that have been fostered through comprehensive investments like the Lake Superior Zoo, and Spirit Mountain Recreational Area. A priority of Mayor Larson's is to offer an equitable experience for all residents and visitors; this trail will be open year-round, will have no associated costs, and will be entry-level, providing equitable recreation access to everyone.*
- **Take Care of What We Have.** *The Trail builds on an existing linear trail already established in the region. The expansion will lead to new acquisitions or easement of lands and facilities increasing the operational and maintenance requirement. However, these investments have been planned with conservative life-cycle management costs providing a clear picture of expected investments over the life of the asset. It is critical that continued coordination with local and regional entities occur to assure that this trail expansion be stewarded by a network of stakeholders to provide for long term operational and maintenance commitments.*
- **Collaborate Among Partners.** *Park and trail users will enjoy a seamless experience along the trail, as planning efforts have collaborated with local, state, and regional stakeholders to ensure a strong network of partners provide a cohesive experience for the users. These partnerships help better tell the collective story of the River and its ecological, cultural, and historical significance. The Trail design team will utilize best practices in planning for the design, future management and coordination between multiple entities resulting in a strong and successful operation model.*



Figure 1.6 City Wayfinding & Signage Detail

DRAFT



WESTERN WATERFRONT TRAIL, PARK & RECREATION MASTER PLAN

02 EXISTING CONDITIONS + SITE ANALYSIS

ST. LOUIS RIVER CORRIDOR

Existing Conditions + Site Analysis

Site History

The St. Louis River Corridor has an enormously rich history, one that is filled with historical, ecological, and cultural significance. See Figure 1.4 for a visual representation of the area's historical timeline.

Pre-1600's: The Anishinabe indigenous peoples solely inhabited the shores of the St. Louis River living off of the land and water. Villages were located at what are now the cities of Superior, Cloquet, as well as the Fond du Lac and Minnesota Point neighborhoods. Activities included fishing, wild ricing, and hunting. Stories that have been orally passed down about the Anishinabe lifestyle illustrate the spiritual connection that they had with the land.

1600's - 1700's: European settlement occurs; trading between Ojibwe and European voyageurs begin. The River is seen as a vital link connecting the Mississippi River waterways to the west with the Great Lakes to the east.

1800 - 1850's: Fur trading posts and commercial fisheries are established. Land treaties open land to European settlers and the Fond du Lac Reservation is established.

1850 - 1900's: Shipping on the Great Lakes begins allowing for export of iron ore, lumber,

and grain. First railroad in Duluth is established and an increase in logging industry brings the development of sawmills to the River.

1900 - 1975: Industrialization of a natural waterfront begins with the creation of the US Steel Mill, Atlas Cement Plant and railroad expansions. Riverside, Smithville, Norton Park and Morgan Park neighborhoods are established along the corridor to house steel and cement workers. By mid-20th century, the lower St. Louis River becomes one of the most heavily polluted waterways in the state and is considered an Area of Concern (AOC) by the Environmental Protection Agency (EPA).

1975 - Present "Return of the River": Restoration efforts take place to clean-up the River and restore the Estuary back to pristine natural habitat as part of a larger Great Lake Basin Remedial Action Plan. As one of the designated Areas of Concern (AOC), the St. Louis River Estuary begins to see fish and wildlife populations rebound, the re-establishment of wild ricing and other significant species and recreational interest is peaked once again. Anishinabe indigenous people continue to live alongside the River.

Did you know?

The Ojibwe name of the River is Gichigami-ziibi (Great-lake River).

The St. Louis River Estuary is considered the largest fresh water estuary in the U.S.

1980's - Phase I of the Trail was built, spanning 3.3 miles from Indian Point Campground to Riverside neighborhood.

Land Use Context

The Trail project limits are entirely within the City of Duluth with the majority of the proposed trail alignment and open green space placed within City-owned land and/or within the public right of way.

The existing 3.3 mile trail traverses through an urban setting with residential property abutting the trail along its western side. The existing trail is approximately 8' wide. In 2016, the City did some grading and drainage modifications and installed a new layer of natural rock to the surface. Grades along the existing trail vary from flat terrain to over 8% in some areas. Other land uses in the area include light industrial as evidenced by WLSSD, the Tate & Lyle Plant & BN Railroad lines, recreational areas such as Spirit Mountain & the Lake Superior Zoo, as well as several forested natural areas with naturally occurring creeks and drainageways such as Knowlton & Kingsbury Creeks.

Once past the existing trail terminus, the primary land use transitions to a narrow and modest rail corridor with heavy vegetation to the west and shoreline to the east. Adjacent residential areas are setback from the rail corridor and are often not accessible due to steep topography, wetlands, or other physical barriers. At one point the rail corridor becomes a causeway, approximately 20'

Fond du Lac Band of Lake Superior Chippewa solely inhabited the shores of the St. Louis River prior to the 1600's
1600



Image: Duluth Public Library

European contact first reported when Etienne Brule meets with the Chippewa at Sault Ste. Marie; French traders and Chippewa people establish positive alliance
1622

French and Indian War/Seven Years' War ends, ceding French territory to Great Britain and bringing the Great Lakes region under British rule, creating greater hardship for the Chippewa people
1763



Image: historyinanehour.com



Image: reproduction of James Otto Lewis 1826 painting, Duluth Public Library

American Fur Company organized, establishes first commercial fishery at Fond du Lac trading post in 1817
1808



Image: University of MN Duluth, Hudson Bay Trading Co.

LaPointe Treaty opens the land for European settlement and establishes the Fond du Lac Reservation
1854

Locks open at Sault Ste. Marie, making it possible for large ships to sail between Lake Superior and Lake Huron, and allowing for the export of iron ore, lumber and grain
1855

Image: Lake Superior & Mississippi Railroad



MN Harbor Improvement Company dredges first shipping canal in the St. Louis River Estuary
1872

Logging industry operations are concentrated at Jay Cooke State Park; by 1894 there are at least 15 sawmills along the St. Louis River
1894

US Steel completes construction of mill on MN side of St. Louis River; Morgan Park community is established to house steel and cement plant workers
1915

Image: LHB



Image: LS&M Railroad



1861
Construction on 154 miles of track of the Lake Superior and Mississippi Railroad (LS&M) begins

1870
First train arrives in Duluth from St. Paul

1877
LS&M is reorganized as the St. Paul and Duluth Railroad, and later folded into the Northern Pacific Railway



Image: Unknown



Image: trainworldcity.webs.com

1930'S
Northern section of what was originally the LS&M is moved and no longer carries passengers

1979
Western Waterfront Trail originally planned, designed to be 9 miles long. The first two segments, totaling close to four miles, are built as an 8' wide gravel corridor

1980
Present day Lake Superior and Mississippi Railroad tourist train started by volunteers from the Lake Superior Transportation Club, using original track along the St. Louis River

Figure 1.7 Historical Timeline of the St. Louis River Corridor

in width and nearly a mile in length, crossing a portion of the River known as Mud Lake before it meets up with land again. The rail corridor in this segment is being seasonally used for excursion train rides. Past industrial land uses are also present along this stretch and provide a unique surrounding that reflects Duluth's history as an industrial town.

The corridor bends to the west past Boy Scout Landing, and begins to parallel Highway 23. Land use becomes primarily wooded and undisturbed as the proposed trail alignment meanders along an old rail bed near the shore until it reaches the Perch Lake outlet. At this location, the City-owned land abuts a private parcel at the waterfront. Because it is less desirable to have the trail immediately adjacent to the highway, the City has been in contact with the landowner about easement and/or land acquisition possibilities. From Perch Lake to Chambers Grove Park, land along the river is mostly privately owned, and transitions back to residential areas with a flatter terrain for the duration of the project limits.

Safety issues and physical barriers along the corridor include five roadway crossings, two at-grade railroad crossings, several creek or significant drainageway crossings as well as steep slopes.

Local & Regional Trail Connections

"Connecting the System" Vision

The City of Duluth takes great pride in their local



Figure 1.8 Duluth Trail Vision Plan Source: Trail & Bikeway Plan, 2011

and regional trail systems and is striving to become the premier trail city in North America, as stated in their 2011 Trail and Bikeway Plan. The Trail will play a critical role in this vision in several ways. Regionally, the trail route will serve as one of the primary connectors from the western portion of the town and will link up with the Cross City and Munger State Trails, which in turn, connect to the Lakewalk and Gitchi Gami State Trail on the east and north side of town. With this series of interconnected routes, trail users will be able to go from Jay Cooke State Park up the north shore, spanning more than 30 miles across the Greater Duluth region. The Trail will be designed to exceed ABA standards, and will strive to meet ADA standards, creating the greatest amount of access to the most people.

At the neighborhood level, the Trail will provide equally important community linkages connecting over seven neighborhoods, as well as several business districts, parks and open space. Other recreational trail areas that are accessible from the

Trail include the Superior Hiking Trail, the Duluth Traverse, the Spirit Mountain Recreation Area, and Magney Snivley Nature Area.

Physical Conditions + Natural Resources

Topography, Wetlands, Streams & Habitat

The Lower St. Louis River and Estuary landscape is extremely diverse and filled with varying conditions. The waterway itself is expansive with several islands, estuarine wetlands, aquatic habitats, mud flats and baymouth bars from longshore drifts, which are a unique feature and important breeding grounds for migratory birds and native fish. Despite its diversity, however, the landscape has been compromised by industrial and commercial development over the years as evidenced by the considerable amount of sediment build-up, poor water quality, and invasive species present.

The surrounding upland forest and topography consistently slopes to the southeast towards the River with grades ranging from 2% to nearly 30% in some areas. Neighborhood development is mostly occurring on an upper ridgeline setback a distance from the shoreline. The terrain flattens out upstream and further from the Duluth hillside with a particular stretch of the River near the Fond du Lac neighborhood prone to flooding.

The corridor crosses numerous natural drainageways, most which have remained intact via culverts or bridges allowing the continuation of water to flow naturally and outlet into the River. The shoreline is speckled with emergent wetlands making water access development difficult in many areas. With the placement of the rail corridor so close to the water's edge, water is trapped between the rail line and shore, resulting in several wetland ditches.



Figure 1.9 Rail at Blackmer Park (view north)

The Habitat Plan

The City supports the Lower St. Louis River Habitat Plan which was created by the St. Louis River Citizens Action Committee (CAC) and serves to protect the ecological diversity of this area. The Estuary provides habitat for a rich variety of fish, aquatic invertebrate, bird and other wildlife species. The lower 21 river miles plus extensive areas of adjacent forested land are included in the initial phase of the Habitat Plan.

The Habitat Plan is a guide for local and state agencies for implementation goals. The Habitat Plan strives to:

1. Recognize that what is to be managed is not the environment but the actions of humans operating within.
2. Promote stewardship of the resource by local residents, users of the resource, and those concerned with it.
3. Protect, enhance, and restore ecological functions and maximize biodiversity without seeking to restore the estuary to its presettlement condition.
4. Conduct the planning process within the context of similar planning efforts for the St. Louis River watershed, the Lake Superior Basin, and the Great Lakes.



Figure 1.10 Existing Trail Crossing at Kingsbury Creek (future connection to Zoo)



Figure 1.11 Existing Trail Crossing at Tate & Lyle site



Figure 1.12 Segment 1 Existing Conditions

Trail Segments: Issues & Opportunities

Existing Trail

Improvements to the existing trail occurred in 2016, providing better surfacing and grading modifications. In addition, wayfinding and signage implementation also occurred in 2018. Other recreational improvements and ecological restorations are also planned for Indian Point Campground, Spirit Mountain Recreation Area, the Lake Superior Zoo, Kingsbury Bay, as well as new development projected for the Lower Spirit riverfront.

With these anticipated developments in the works, there is a wonderful opportunity for the Trail to become the linear spine in which all these great assets will be interconnected. With directional signage and informational kiosks along the corridor, this portion of the Trail will become the recreational transportation link and will play a significant role in generating a much needed recreational hub in West Duluth.

Existing Trail Re-Route (at Tate & Lyle Site)

The current trail alignment as it approaches the Spring Street terminus near the Riverside neighborhood is unsafe for trail users. Not only is there an at grade railroad crossing to navigate through, the user experience is also not ideal as the trail is in close proximity to Tate & Lyle's operations. The plan will consider re-route alternatives for the

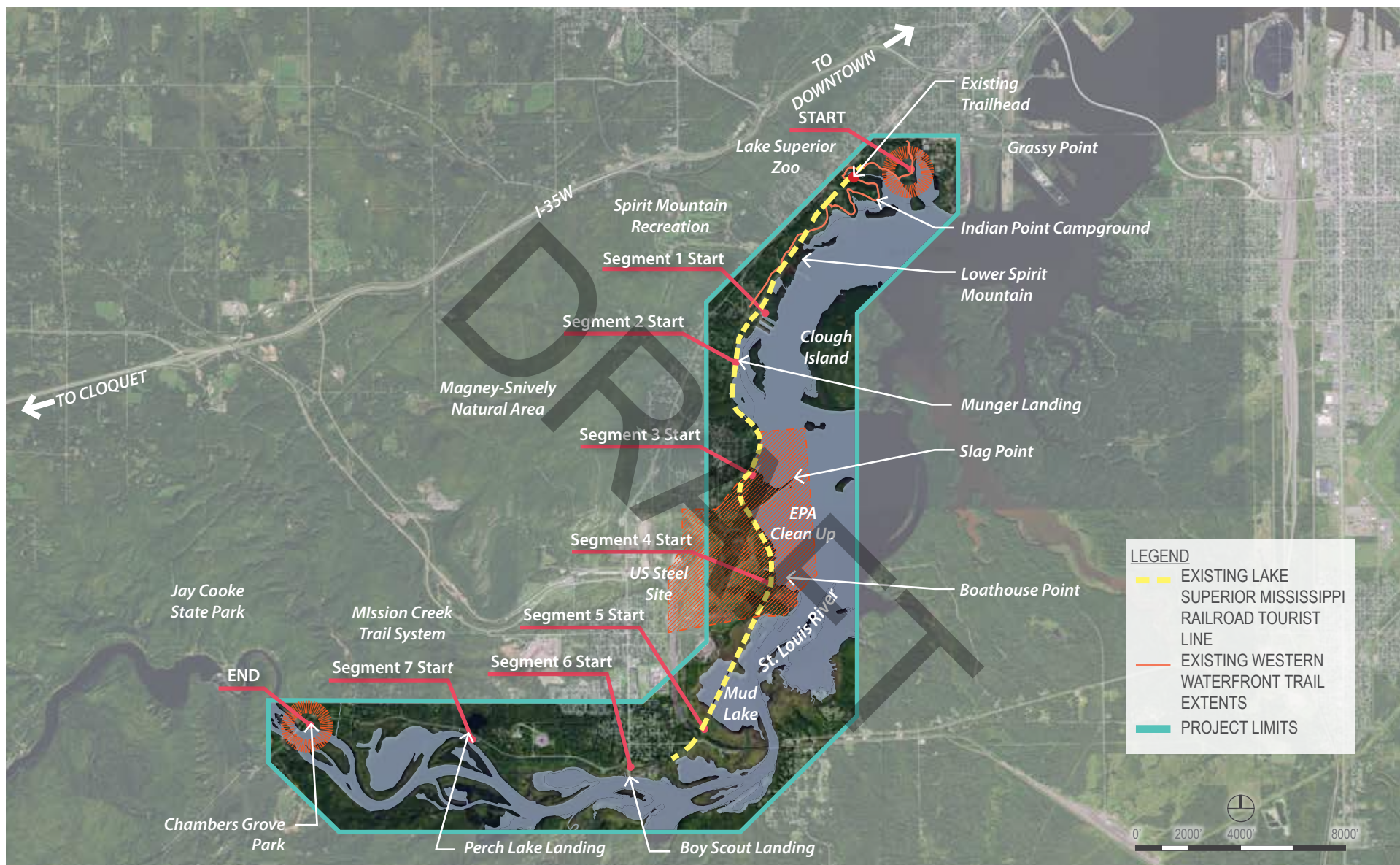


Figure 1.13 Overall Project Limits

.28 mile segment; one that routes the trail closer to the River, as well as an inland route.

Site constraints within this re-route area include significant wetland impacts, drainage crossing, private property access and steep slopes. With a safer route and more defined trail entry point, this portion of the Trail will provide for a better connection to Spirit Lake Marina as well as offer new development opportunities within the Riverside neighborhood.

Segment 1: Spring Street to Munger Landing

Existing conditions south of Spring Street for trail extension possibilities are limited. There is an BN rail line to the west, approximately 30' away from the City owned rail and little room between the water's edge and the City owned rail for trail expansion. Although the terrain is flat along this .5 mile stretch, there are also some wetlands along the shoreline as well as two drainage crossings to consider.

Because the corridor lacks access points to connect with the water, this portion of the trail would provide more opportunities to be in close proximity with the River and also offers excellent views to Clough Island. At Munger Landing, there is opportunity to provide more trailhead amenities, such as trail parking and a separate non-motorized watercraft launch area as well.



Figure 1.14 Segment 2 Existing Conditions



Figure 1.15 Segment 3 Existing Conditions



Figure 1.16 Segment 4 Existing Conditions

Segment 2: Munger Landing to Blackmer Park

There is better opportunity for trail extension in Segment 2 which travels south from Munger Landing to Blackmer Park in the Morgan Park neighborhood. If the trail stays near the water's edge, wetland impacts will occur, however, there is an inland alternative that will be studied for potential expansion.

Site constraints that may be encountered along the inland alternative include property issues, navigating a new railroad crossing, sloping topography, and wetland/drainage crossings. Trail extension distance for Segment 2 is approximately 3/4 mile.

Segment 3: Blackmer Park to Boathouse Point (US Steel/EPA Clean-Up Area)

Segment 3 begins near Blackmer Park and traverses through a portion of the River that is going to be cleaned-up and restored by the EPA and US Steel in the next five years, resulting in a unique situation for trail and linear park expansion. Because of the significant clean-up efforts, there is an opportunity for the City to work with the EPA to program and design how this 1.67 mile segment of riverfront should be restored.

Slag Point, which is a narrow manmade spit of land that juts out almost one half mile into the River, is situated midway along Segment 3 and has the potential to be a new water access site and/or open park space. Slag Point is slated to become

a Contained Disposal Facility (CDF) as part of the EPA's clean-up efforts. CDF's at superfund sites historically have been designed for greenfield re-use, providing open green space that adds value to a community adjacent to historical industrial waste. Greenfields are successful recreational re-use models.

Access to Slag Point may pose an issue as US Steel owns the majority of the land surrounding this area, so the City will need to work with the landowner on possible easement options. Because this area will already be disturbed as part of the EPA's work, impacts to existing conditions is not discussed in great detail.

This segment provides many opportunities for view corridors to Spirit Lake as well as cultural and historical interpretation along a unique stretch of land.

See Appendix for more information on the US Steel clean up project as well as Munger Landing sediment research.

Segment 4: Boathouse Point to East McCuen Street

Segment 4 is approximately 1.5 miles long and begins just south of an area known as Wire Mill Pond which will be the southern limits of the EPA clean-up area. Just south of Wire Mill Pond, a large upland peninsula extends out into the River, known as Boathouse Point. This upland area is another potential for a linear park, trail, or open



Figure1.17 Segment 4 Existing Conditions from US Steel

space expansion, and again, public access will be a concern.

Segment 4 also includes the Mud Lake Causeway, which poses both constraints as well as opportunities. Expanding the causeway into the water may be restricted by environmental agencies or come with prohibitive costs. This study explored both trail expansion on the causeway as well as up along the bluff and shoreline of Mud Lake, however the western shoreline in this segment is primarily owned by US Steel so land acquisition &/or easements will need to be further negotiated.

Other factors to consider is the future clean-up of the adjacent US Steel property and restoration of Mud Lake. Should environmental agencies move forward with clean-up plans for this portion of the River and adjacent upland, the City will partner with these agencies and adjust their plans accordingly.

This segment also provides stunning views to nearby landmarks and also is rich in cultural and historical interpretation, therefore should be highlighted as one of the primary features of the trail corridor.

Segment 5: East McCuen Street to Boy Scout Landing

Segment 5 begins where the rail corridor meets back up with land close to the East McCuen Street intersection near the Gary-New Duluth neighborhood and runs at the toe of a sloped hill until Boy Scout Landing. Existing conditions along

this segment vary and include some naturally occurring wetlands as well as relatively steep slopes that may be difficult to modify. The River begins to narrow and bend to the west along this stretch, providing yet another new and unique user experience.

Boy Scout Landing is already a public access location used by motorized recreationists, and recently had site improvements installed by the DNR, including portable toilets, trailer parking, and an improved fishing pier. This riverfront location offers opportunity to build on the existing amenities for a larger multi-use group. Enhancements could include designated trailhead parking, as well as a separated, non-motorized watercraft launching area.

Segment 6: Boy Scout Landing to Perch Lake

The City-owned rail line currently ends at Boy Scout Landing, however the railroad used to run all the way to Jay Cooke State Park, so there is an old remnant corridor cleared of mature trees within Segment 6. The old corridor consists of a dirt trail which is primarily flat and very close to the water's edge, providing good access and an intimate experience with this section of the River. Property ownership will not pose a concern unless the trail alignment moves inland closer to Highway 23.

Segment 7: Perch Lake to Chambers Grove Park

The last Segment of the trail spans from Perch Lake landing to Chambers Grove Park and a small



Figure 1.18 Segment 5 Existing Conditions



Figure 1.19 Segment 6 Existing Conditions



Figure 1.20 Segment 7 Trail Terminus at Chambers Grove Park

section at the end is currently being constructed by MnDOT as part of the Trunk Highway 23 roadway improvements project. The waterfront is mostly privately owned within Segment 7 so site constraints that will need to be addressed include private land ownership crossing (just west of Perch Lake) or to alternately consider a roadway crossing to the north side of Highway 23. Other considerations include wetland impacts adjacent to Highway 23 as well as public safety along the road corridor.

Perch Lake, located on the north side of Highway 23, is currently being studied by the DNR and is slated to be restored from previous flood damage in the future. The City will work in partnership with the DNR to see if further opportunities for public recreation and water access can be explored as part of the future restoration efforts. On the riverside of Perch Lake, the City already has an existing parking lot with modest amenities. There is once again, an opportunity to enhance this existing riverfront site to become a more robust trailhead location providing additional parking, portable toilet, a picnic shelter/overlook and possibly a better non-motorized watercraft launch.

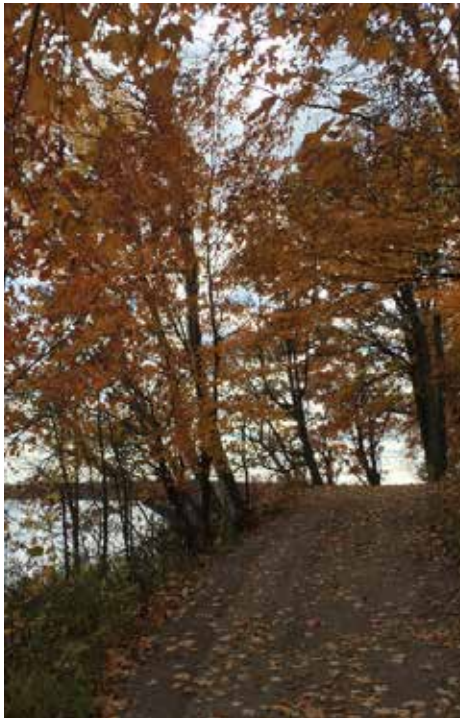


Figure 1.21 Existing conditions images: (Top Row: Before 2016 improvements, Bottom Rows: After 2016 improvements)

Precedents

Rail and Trail

As part of the study, the design team looked at other community models across the nation where trails had been successfully implemented directly adjacent to a railroad alignment. The four examples shown to the right share similar conditions with the WWFT corridor varying from natural surfacing materials, landscape type, anticipated trail width and length, as well as potential shoreline/causeway conditions.

Many of these precedent sites combine the rail and trail opportunities to offer multiple recreational and tourism attractions.

Heritage Rail Trail County Park and Maryland's Torrey C. Brown Rail Trail

Maryland and Pennsylvania

- 44.4 miles combined
- Crushed stone and dirt
- Walking, biking, horseback riding, x-country skiing



Great Allegheny Passage

Maryland and Pennsylvania

- 150 miles
- Asphalt, crushed limestone
- Biking, horseback riding, skiing, fishing, walking



Santa Fe Rail Trail

New Mexico

- 17 miles
- Asphalt and dirt
- Horseback riding, mountain biking, walking



Astoria River Walk

Oregon

- 17 miles
- Asphalt, dirt and boardwalk
- Horseback riding, mountain biking, walking



Rail to Trail

The design team also examined rail to trail conversion projects where existing rail lines that were no longer active, were removed and converted over to a shared-use pathway. Rail to trail conversions are considered a sustainable practice and an acceptable re-use of land.

Vermont's Island Line

Vermont

- 14 miles, 3.5 of which are a causeway over water
- Asphalt and gravel
- Biking, inline skating, fishing, walking, x-country skiing



Elroy Sparta State Bike Trail

Wisconsin

- 32 miles
- Crushed stone
- Hiking, jogging, x-country skiing, snowmobile,



Utah's Historic Union Pacific Rail Trail State Park

Utah

- 28 miles
- Crushed stone and asphalt
- Hiking, biking, x-country skiing



Kansas' Prairie Spirit Trail

Kansas

- 51 miles
- Compacted, crushed limestone
- Biking, hiking, x-country skiing



DRAFT



WESTERN WATERFRONT TRAIL, PARK & RECREATION MASTER PLAN

03 VISION, TRENDS + PUBLIC VALUES

ST. LOUIS RIVER CORRIDOR

Vision, Trends + Public Values

Vision

The Western Waterfront Trail's Vision began in 1979 and remains the same today - to create a multi-use recreational trail along the shoreline of the historic St. Louis River and Estuary from the Irving neighborhood up river to the Fond du Lac neighborhood in West Duluth. The linear pathway system will provide a unique and safe experience for trail users of all abilities, and will also educate, honor, and celebrate the rich history along this great body of water. The trail corridor shall include quality site amenities, offer spectacular views and interpretation opportunities at key points of interest while also providing improved water access for picnicking, boating and fishing activities.

Guiding Principles

Six guiding principles were established for this project to help guide decisions and measure success of the Plan.

- **Community Connection.** Enhance sense of community by creating a linear trail system that links the waterfront to adjacent residential neighborhoods, and provides transportation alternatives to nearby businesses, recreational destinations, and public green spaces. Provide a better connection to the larger network of trail systems throughout the City.
- **Unique Duluth Experience.** Implement the natural and cultural history into the design of the trail. Educate on natural habitat, resource

management, and local heritage. Ensure points of interest and viewsheds are preserved and enhanced.

- **Equitable Experience.** Maximize economic and physical accessibility for all people by ensuring trail is designed to ABA standards, where feasible. Provide accessible access points, minimize trail crossings and provide free and safe experience. Be respectful to immediate landowners and neighbors.
- **Technically & Environmentally Feasible.** Be mindful of technical and economic feasibility. Ensure trail design is realistic and can be maintained long term for community benefit.
- **Environmentally Sustainable.** Minimize disruption to the natural terrain and sensitive environmental areas. Implement low impact development and sustainable best management practices to avoid degrading natural environment.
- **Promote Economic Development.** Recognize opportunities and encourage future development by connecting other regional areas of interest, neighborhoods, and commercial districts.

"Did you know?"

Duluth was awarded the premier "Outdoor City" in the USA by Outdoor Magazine, 2014.



Trends + Public Values

Greater Duluth Area Demographics

Duluth's population has historically hovered around 86,000 over the past several decades showing very little growth. But as other metropolitan areas continue to grow, people are continually seeking a better quality of life, one with less congestion and a strong connection to the outdoors. As a result of this, Duluth has seen a small increase in revitalization as people migrate to the northland. To support this population trend, DEDA and Northforce initiated the 90K by 2020 campaign, which states that in order to recruit and retain a quality workforce, there must be an intentional increase in quality of life including recreational facilities. Our region is also unique in that we share a border with another port city, Superior, WI. The Duluth - Superior metropolitan area's population in 2010 was approximately 148,000.

The Duluth - Superior Metropolitan Interstate Council (the MIC) publishes a long range

transportation plan that forecasts demographic projections to help plan for public investments and transportation infrastructure for our region. The most recent long range plan, updated in 2014, lists a projected growth percentage of 7-17% by 2040, which means the regions populations could grow to 173,000 over the next twenty years.

Public Health Trends

There is growing interest in local community organizations to work together to address the built environment and create better access to equitable recreational opportunities within the region. With assistance from the Statewide Health Improvement Program (SHIP), groups like Duluth YMCA, Youth Outdoors-Duluth, the Zeitgeist Center for Arts and Community, and St. Louis Public Health, are making a difference by improving policy and providing better access to healthy lifestyle choices. An example of this includes the implementation of local healthcare providers referring patients to evidence-based health activities within the local and regional park system.

Recreational Trends & Tourism Opportunities

Outdoor recreation is a driving force in our local economy as the great outdoors provides opportunity for healthy, active fun. Nationally, there has been a growing rise in physical outdoor sports such mountain-biking, kayaking, canoeing, stand-up paddleboarding, ultimate frisbee, nordic skiing, and snowshoeing, as better weather and improved economic conditions are on the rise.

Outfitting and group education has also seen peaked interest, with 73% of outfitters expecting to see strong to modest growth in demand for 2017-2018 services (data source: American Recreation Coalition). Growth appears to be strongest among recreational groups that offer stand-up paddleboard instruction, interpretive trips, environmental education and paddlesport activities.

As recreational activities continue to be a core part of the American lifestyle, Duluth can expect to see an increase local outdoor recreation and tourism as more people seek active, healthy, and “high value” vacation experiences.

Conservation as part of Recreation

Open green space is chewed up at the rate of 6,000 acres per day across the US as climate change begins to impact wildlife and landscapes ever more directly. In the 2017 National Recreation & Park Association's (NRPA) Top Five Predictions for Parks & Recreational Changes, Richard Dolesh, forecasts that every park will become an even more important community-based asset, providing increased value as the population adapts to climate-change conditions.





***NRPA's 2017 Pulse Poll
(1,003 Americans polled)***

83% of American's say it is important that local government agencies prioritize environmental initiatives.

82% of Americans agree that it is important to preserve public lands.

*4 out of 5 Americans make an effort to stay physically fit during winter.
(Top activities include walking, jogging, running, or hiking outdoors, making up 46% of winter exercise).*

***According to NRPA's 2017
Agency Performance Review
A typical agency (municipal)
should strive for...***

*1 park per every 2,266 residents
& 9.6 acres of parkland per 1,000 residents*

TRENDS + BEST PRACTICES: ACCESSIBLE BOAT LAUNCH FOR WATER ACCESS

Design Considerations*

Provide Access Route

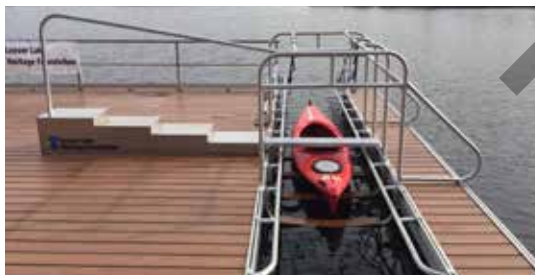
- Surface, grade, width and cross slope need to be accessible (not to exceed 5% for ADA, not to exceed 8.33% for ABA), and as even and level as possible without gaps or interruptions
- Route clearly marked
- 5' minimum width

Level and stable landing/loading area

- There should be an area adjacent to the loading area that is stable, at least 60"x60"
- Can be anywhere adjacent to loading area, including in water up to 12" deep

Transfer assistance

- Transfer step
- Transfer board
- Overhead handles/grab bars
- Non-slip surface textures



*National Park Service Report, 'Long Lasting Launches,' 2004

DRAFT



WESTERN WATERFRONT TRAIL, PARK & RECREATION MASTER PLAN

04 COMMUNITY ENGAGEMENT

ST. LOUIS RIVER CORRIDOR



39-member Stakeholder Committee

The level of community engagement efforts was uniquely diverse and widespread. The City convened a group of stakeholders made up of regulation agencies, business owners, community/neighborhood leaders, elected officials/City staff, and environmental and recreation groups.

A series of five, 3-hour Stakeholder Committee meetings occurred from September 2016 to January 2017:

1. Interpretation and branding to better reflect the heritage of the river corridor
2. Riverfront green spaces – Slag Point, Lower Spirit Mt. riverfront park
3. St. Louis River access and put-in sites – Munger Landing, Boy Scout Landing, Perch Lake Landing
4. Initial trail extension and rail options

5. Exploring further – River-friendly with Upland Trail, Rail-to-Trail Conversion and full Rail-and Trail

* The stakeholder group re-convened on August 29, 2019 for a sixth and final meeting to discuss recommendations and to review the implementation of the plan.

The City of Duluth also met with the non-profit organization, Lake Superior Mississippi Railroad (LSMR), the current lease-holder of the City-owned railroad corridor, in total of six times.

LSMR Specific Meetings

- November 9, 2016 - Review of AMI Report
- January 20, 2017 - LSMR Business Plan Meeting
- May 5, 2017 - Federal Railroad Administration Site Visit
- July 17, 2017 - LSMR Operations



Figure 1.25 Stakeholder Workshop at Morgan Park Community Center

- October 6, 2017 - Mud Lake Restoration Plan overview
- August 26, 2019 - Rail & Trail Direction

Natural Resource Management Group

- January 19, 2017 - Natural Resource overview of City-owned river corridor
- August 11, 2017 - Mud Lake Restoration half-day workshop
- September 22, 2017 - Mud Lake Restoration Concept Plan working meeting

Natural Resource Technical Advisors:

- Desirae Hendrickson, DNR
- John Lindgren, DNR
- Melissa Sjolund, DNR
- Jeremy Tinkerton, DNR
- Joel Hoffman, EPA
- Daryl Peterson, MN Land Trust
- Rick Gitar, Fond-du-Lac Band of the Lake Superior Chippewa
- Nancy Schuldt, Fond-du-Lac Band of the Lake Superior Chippewa
- Erin Endsley, MPCA
- Dave Breneman, MPCA
- Dave Warburton, USFWS

Updates and Tabling

August 25, 2016 US Steel Superfund Site- Minnesota Pollution Controls Agency Open House

Presentations to Parks & Recreation Commission:

- June 14, 2017
- October 10, 2017
- November 8, 2017
- December 13, 2017
- July 10, 2019
- August 14, 2019
- September 11, 2019

Public Meetings



Figure1.26 Stakeholder Workshop, January 2017

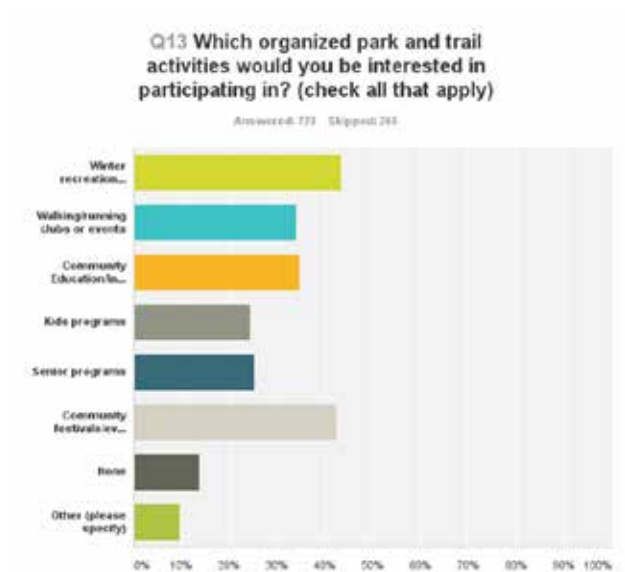


Figure1.28 Sample Question from Online Survey



Figure1.27 City Presentation, January 2017

Two public meetings were held during the planning process. The first public meeting was held on November 15, 2016 and attended by approximately 60 people. At the meeting the City shared the scope of the Plan, and some of the options that were currently being studied by the design team. The second meeting was held on June 13, 2017. Nearly 100 people attended the meeting where the City shared the recommended trail extension alignment and other riverfront improvements.

Online Survey

A typical practice of the City of Duluth Parks & Rec planning process, the City administered a voluntary online survey. From January 9-26, 2017. It featured 29 questions and had a total of 988 responses. The survey was developed by LHB and administered through the City of Duluth's website.

Randomly sampled survey of the 5th District of Duluth

Telephone interviews were conducted with 440 adult residents of Council District 5, Precincts 28 – 34 in Duluth, Minnesota completed between February 3 and February 5, 2017. The survey was developed and administered by Zenith Research Group.

Mud Lake Causeway Alternatives Analysis

In order to analyze the feasibility and potential effects of removing the causeway as part of the



Figure 1.29 City staff site tour, September 2016



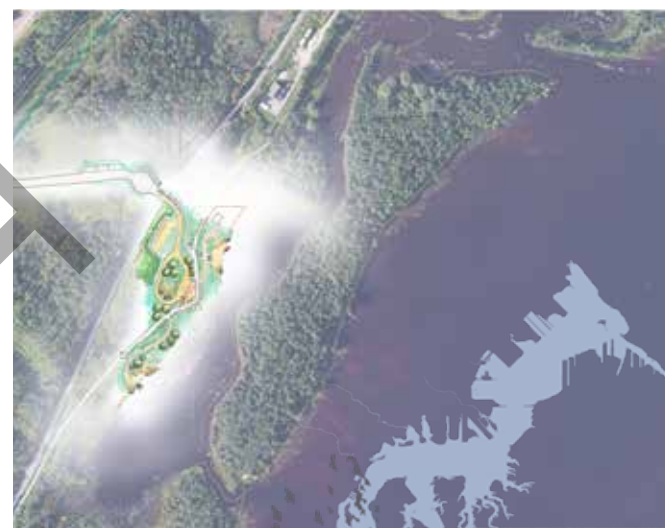
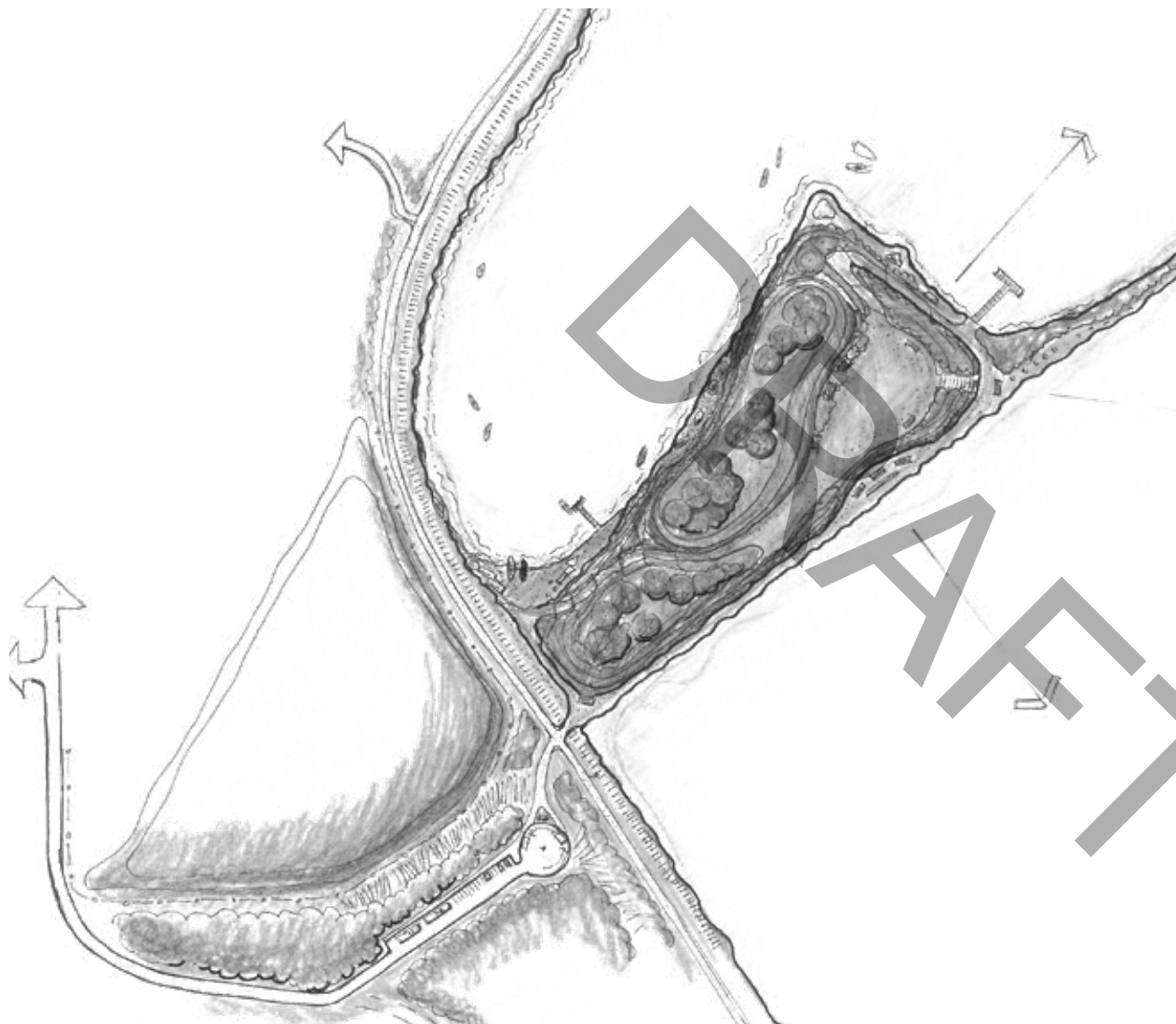
Figure 1.30 City staff site tour January 2017

future Mud Lake restoration, the City facilitated a workshop consisting of five meetings in late 2018 and early 2019. Workshop participants consisted of a team of technical partners who were associated with the St. Louis River Estuary Area of Concern, (AOC) including the MN Department of Natural Resources (MNDNR), and the US Environmental Protection Agency Mid-Continent Ecology Division. Natural resource managers, ecologists and biologists examined several conceptual restoration alternatives, comparing them to each other and to the current physical conditions to evaluate habitat benefits and tradeoffs between the conceptual designs. The alternatives that were studied were based on designs established over the past several years, including the 2017 Mud Lake Restoration Plan, focused on restoring habitat function and values at Mud Lake. An All-Commission Mud Lake Workshop was also held on May 30, 2019. A detailed summary of the study can be found in the Appendix.

Ground Truth Process

Duluth planning staff and the design team led a ground truthing process to identify and confirm various trail segment feasibilities. Over a dozen on-sight visits took place during the process. The City also sought out additional technical assistance from consultants for portions of the trail along Segment 1 and Segment 2. The consultant findings were used to further study alignment and cost options in particularly difficult areas.

DRAFT



WESTERN WATERFRONT TRAIL, PARK & RECREATION MASTER PLAN
05 MASTER PLAN DEVELOPMENT
ST. LOUIS RIVER CORRIDOR

Master Plan Development

Overview of Chapter elements:

This chapter is intended to give an overview of planning & site programming, typical trail development & design standards, preliminary cost comparisons and a results summary from public involvement. The sections are as follows:

- *Trail Interpretation Plan*
- *Trail Types*
- *Trail Design Considerations*
- *Accessibility*
- *Cultural Sensitive Considerations*
- *Programming for Public Access & Park sites*
- *Design Concepts*
- *Planning Process Results*

Heritage

What does heritage mean to you?

Lineage: connection through time

Change over time: from Native to industrial to present

Values and customs of the past

Valued objects and qualities that have been passed down from previous generations

Based on original project goals as well as stakeholder and public input, the development of preliminary concepts and design strives to accomplish the following:

- Extend and improve the Western Waterfront Trail as cited in the 1979 City Plan.
- Re-brand the Western Waterfront Trail as a heritage trail that celebrates and interprets the rich culture and natural heritage of the corridor.
- Develop potential new linear park and river access sites at key locations.
- Develop potential new non-motorized, watercraft launches at Munger Landing, Boy Scout Landing, and Perch Lake.
- Decide the future use of the City-owned riverfront.
- Create synergy between the Water Trail, the Trail, and the City-owned rail.

Trail Interpretation Plan

As part of the stakeholder workshop and public input process, the design team gathered valuable information on trail character definition and future interpretation ideas. This Plan recommends that the City conduct a future interpretation planning process to clearly define the specific details of interpretation along the Trail and linear park expansion project. The process shall bring together stakeholders to develop significant common themes and to determine how best to implement them. The following pages include ideal qualities and characteristics that the community would like to see incorporated into the future Trail and are helpful in the early formulation of the Plan.

Unique Features of the Region

- Cultural importance to Anishinabe
- Birding and Fishing along the River
- Connection to Lake Superior as the headwaters and Great Lakes
- Northern Port Cities - unique with both MN & WI border
- Geographical significance at Sawtooth Mountains/Canadian Shield
- Duluth Watersheds: streams, tributaries, & wetlands

Key Stories to Celebrate

- The River is the largest tributary to Lake Superior and the Estuary the largest freshwater estuary in the USA

- Urban development and how it has affected the River, flooding and damming.
- Story of Spirit Island and Spirit Lake and their significance to the indigenous people
- Industrial Development & World War II: ship building industry, & US Steel beginnings
- Fishing; the revival of sturgeon and whitefish
- The forest and vegetative changes, including significance of wild rice
- Neighborhood character of company towns
- Feature area as a hub, a crossroads, historically and for the future as well
- Use recreation as a catalyst - has the power to bring people together
- One River, Many Stories
- Establishment of burrough-type neighborhoods, company towns, nestled into

the landscape.

Strategies for Implementation

- Focus interpretation at specific and key locations
- Have a variety of interpretation features, varying from traditional story-telling panels, scenic overlooks for personal reflection, to local public art and living history.
- Include a wide span of interpretation and narrative collectives, ranging from the ecological richness of the estuary, history of the railroad, spiritual significance of certain namesakes to present clean-up efforts.
- Emphasis on celebrating Anishinabe history - recognizing the Anishinabe people are still living here, practicing traditions & reinvigorating language and culture.

Honoring the Heritage of the Area

The City of Duluth will work with the Band to determine a dual-name for the trail that reflects the living history of the river estuary. Working from the origin...

- The Great Lake River Trail

- Gitchi Gami Ziibi



Recommendations:

- 1. Initiate a separate interpretation planning process to develop the narrative themes and implementation of story-telling along the Trail.*
- 2. Rename the Trail to better represent the local heritage of the people and the region.*

Trail Types

In order to study the feasibility and environmental impacts of extending the trail along the western shoreline, the design team categorized the landscape conditions into four prototypes, listed below.

With assistance from the City engineering department, additional consultant input, and utilizing federal railroad guidance and regulations, minimum design standards were also established and used in exploring various trail alignments and preliminary cost estimating.

Trail Design Standards

1. A separation of 15' from centerline of rail to edge of trail is desired where feasible.
2. Where centerline of rail to edge of trail separation is more than 8.5' but less than 10', a landscape barrier or grade separation will be necessary.
3. Where centerline of rail to edge of trail separation is 8.5', an unsurmountable fence will be necessary.
4. Minimum statutory clearance for a fixed object, structure, bridge, and tunnel is 8.5' from centerline of rail.
5. At an absolute minimum, trail users must be kept outside the "dynamic envelope" of the train - that is, the space needed for the train to operate.

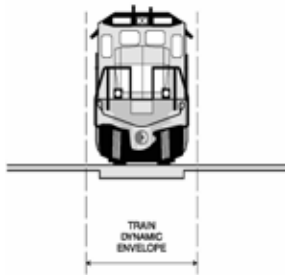
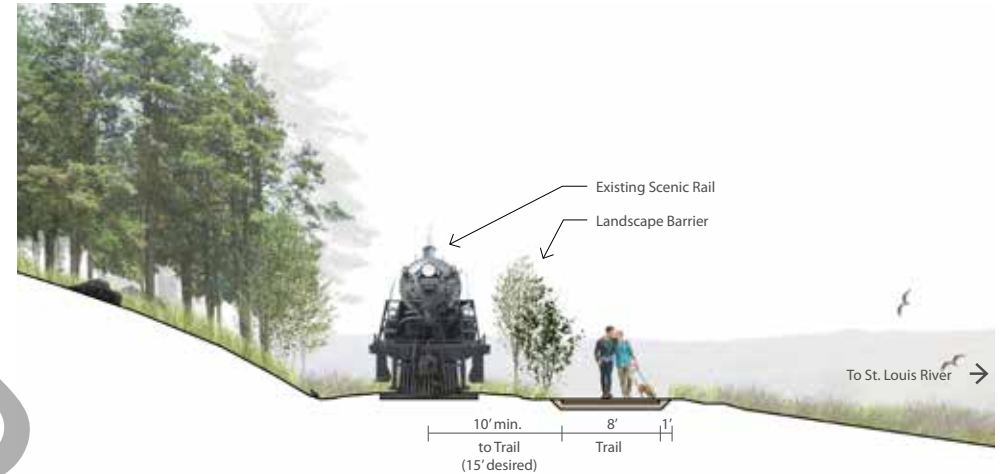


Figure 9. Dynamic envelope delineation (MUTCD Note: there are no dimensions given in MUTCD)

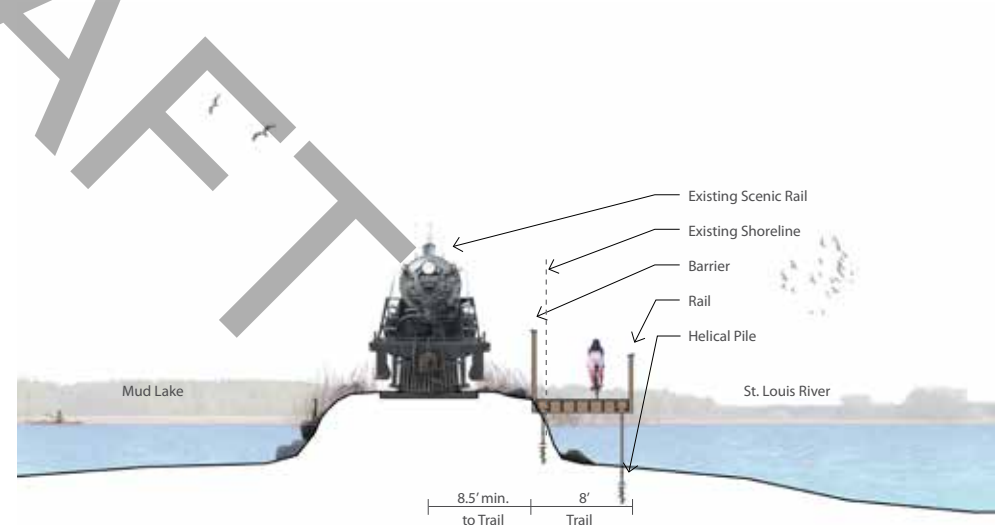
Per the MUTCD: The dynamic envelope is the clearance required for the train and its cargo overhang due to any combination of loading, lateral motion, or suspension failure, including the area swept by a turning train.

Dynamic Envelope Image by ALTA Planning + Design, Inc

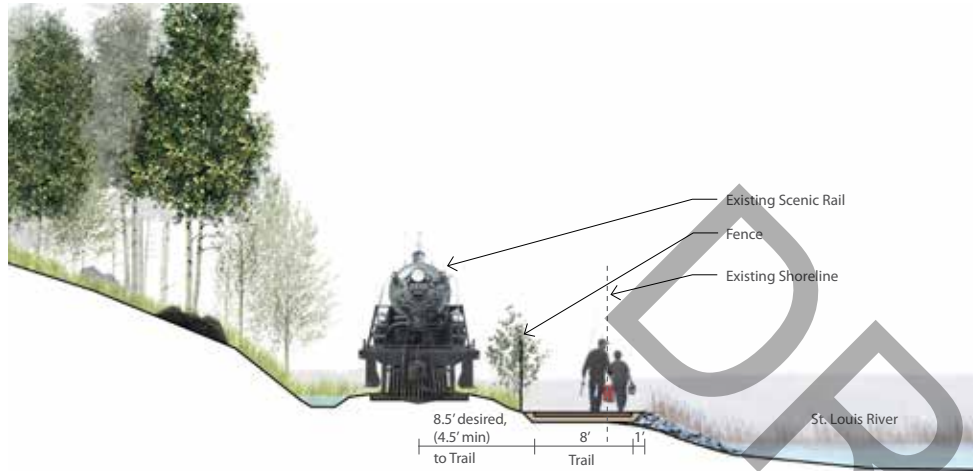
TRADITIONAL – SECTION AT INLAND ROUTE



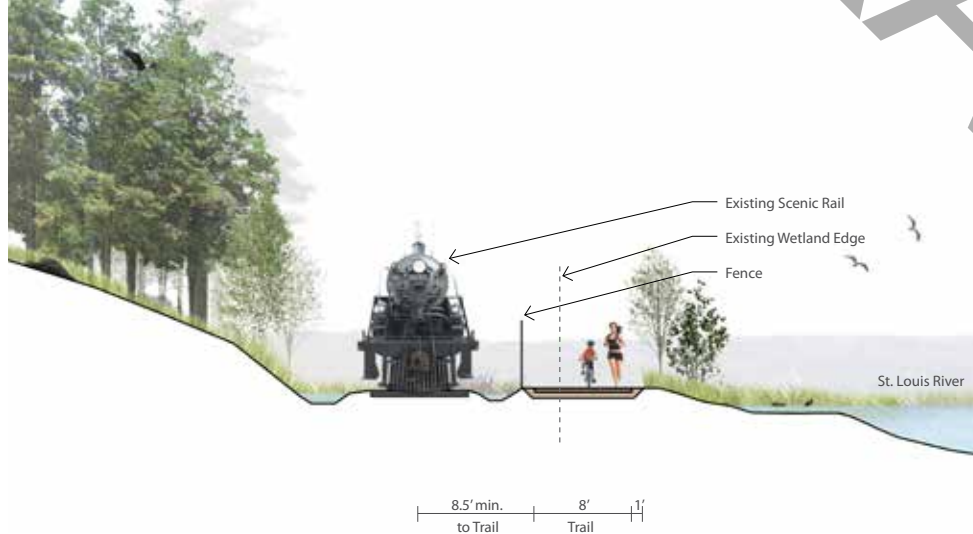
TIGHT TO SHORELINE EMBANKMENT – SECTION AT MUD LAKE CAUSEWAY



TIGHT TO SHORELINE EMBANKMENT – SECTION AT BLACKMER PARK & SECTION 1



WETLAND ENCROACHMENT – SECTION AT EAST McCUEN ST



Traditional Trail

This condition illustrates how the 8' wide trail would ideally be constructed adjacent to the existing rail line, if ample upland was present within the study corridor.

Tight to Shoreline Embankment - Causeway

Along the causeway, there is very little land on either side of the existing rail. The MN Department of Natural Resources generally prohibits placement of fill or riprap into public waters, therefore a boardwalk structure would be necessary for this one-mile stretch of trail extension and would likely be a considerable investment due to required helical piling and constructability challenges.

Tight to Shoreline Embankment - (One side only) This condition represents how the trail would be installed between the existing rail line and the close shoreline. The rail line is very close to the water's edge (varying between 2'-12') throughout the majority of the study area, therefore working with the DNR on slope embankment impacts and permitting would likely be required. Alternately, and in extremely tight conditions where work on the embankment is prohibited, the trail could potentially come right up to the train's dynamic envelope, which is a 4.5' minimum distance from rail centerline.

Wetland Encroachment

The River's shoreline is speckled with naturally occurring wetlands which are protected by the MN Wetlands Conservation Act (WCA), and cannot be impacted without a regulatory permit. In order to make room for the trailbed In this scenario, wetland impacts would be necessary. A wetland permit application, showing avoidance and minimization efforts along with a mitigation plan would need to be prepared.

Trail Design Considerations

The following is a list of minimum design standards that were established for the Trail by City Parks and Engineering staff and the stakeholder group with input from the general public:

- Trail shall be of a natural material surfacing
- Trail shall be 8' wide with 2' shoulders
- Strive for Universal Accessibility = 5% maximum longitudinal slope
- No pedestrian site lighting will be installed
- Shared use path may include pedestrians, walkers, runners, and bicyclists
- No motorized sport ATVs, snowmobiles, or equestrian use
- Public access to St. Louis River at designated locations only
- Screen trail use from adjacent private residents as best as possible

Accessibility

Providing an accessible route that meets ADA accessibility guidelines for all users along the Trail is a primary goal for the City. An accessible route is defined as a pathway specifically designed to provide access for individuals with disabilities, including those using wheelchairs or mobility devices. Although detailed grading design has not occurred yet for the trail segments, the City is committed to making all trail segments and public

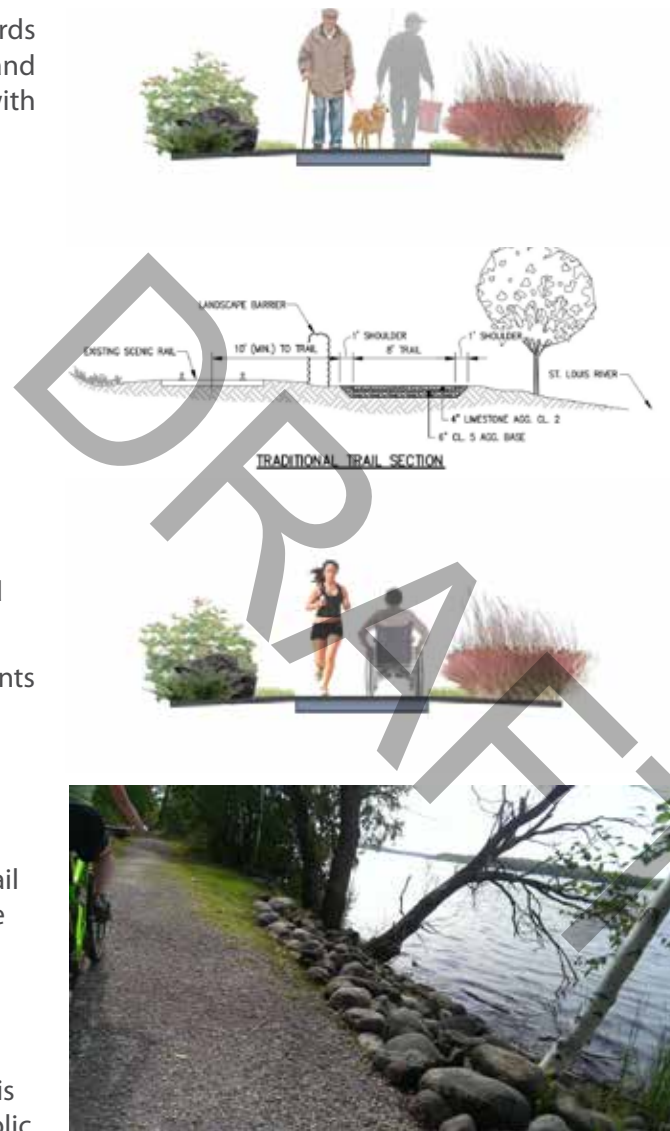


Figure 1.31 Typical Trail Sections

access sites accessible, if at all feasible. Should existing terrain and site constraints prevent a 5% minimum slope to occur, the City will then adhere to ABA universal design standards for trail routes, allowing an 8.3% slope to occur for certain short distances. The City will continue to collaborate with local accessibility partners, such as Wheels on Trails and the parks commission representative from the Commission on Disabilities, for further input on accessibility implementation strategies.

Design Considerations - Cultural Resources

Culturally sensitive lands.

The City acknowledges there is a rich history and also ever-present connection between the river and indigenous people of this region. As we proceed into the design phase of the Trail and water access improvements, the City will work with the affiliated tribes to identify potentially cultural sensitive areas and work together to determine the level of examination necessary to proceed with new recreational facilities.

Programming for Public Access + Linear Park Sites

In addition to interpretative ideas, the stakeholders and general public provided feedback on how they envisioned the trail, linear park, and public access site to look and feel. The design team facilitated several group exercises that addressed site programming and user experience. Recommendations include:

- **True Multi-Use Trail and Nature Paths.** Meet the needs of a variety of users. Incorporate loops or spurs that provide different experiences, if possible
- **Points of Interest with Interpretative Signage.** Design a natural winding trail with key scenic overlooks creating upland views, along with river's edge experience
- **Keep Sites Wild with Natural Feel.** Site furnishings and materials should be made out of natural, local materials.
- **Parking.** Include additional or small parking lots at trailheads for 5 or more vehicles.
- **Space for Shuttles/Large Trailers.** Drop off area close to water is ideal, with long-term parking further away if space is limited.
- **Multi-Use Gathering Space.** Provide outdoor area with shade for family groups, educational programming, etc.
- **Accessible Non-Motorized Boat Launches.** See page 47 for examples
- **Toilet Facilities and/or Changing Enclosure.** Include at least two stalls and one for family/group changing. Permanent versus portable to be determined based on site constraints, budget, and long-term maintenance.
- **Staging Area for larger groups (outfitting/education).** With implementation of water trail, a flat staging area for outfitting and trek preparation will be critical.
- **Temporary Concessions.** To be used for seasonal events, such as fishing opener, race tournaments, festivals. Coordination with utilities and City rental to be further programmed.
- **Ecological Interpretation.** Tell the story of the area's flora and fauna through visual interpretative panels.
- **Pollinator/Restoration Plantings.** Where invasive species are problematic, restore with native pollinator plantings for increased biodiversity. Feature in stormwater management best practices as well.
- **Formal seating. Benches, picnic tables, council ring, seat boulders.** Provide trail users with a variety of seating options, benches along the trail, tables for picnicking in both sun and shade.



Figure 1.32 Exploring Trail Options Charrette

- **Field/Open Lawn Space.** Open green space is limited in the SLR Corridor. Provide a field or informal lawn space where spontaneous recreation could occur (frisbee, playing catch, walking dogs).
- **Fishing Piers/Docks.** With the rebound of healthy fish habitat, fishing is more popular than ever.
- **Swimming Beach.** Very little opportunity to swim in public water in Duluth. If sandy shoreline allows, designate small beach area for swimming (no lifeguard on duty).
- **Sheltered bays for beginner paddlers.** With the anticipated increase in Water Trail use, designate sheltered areas near access sites for beginner paddlers.
- **Create opportunities for rail-trail-water experiences.** Encourage LSMR and outfitters to work together to provide a unique Duluth experience.

Envisioning the Future of the Western Waterfront Trail
What does the future of the Western Waterfront Trail & Park look like to you?

Give your idea a name: Gitchi Gami Ziibi - Heritage Trail

This idea applies to (check all that apply):

- ☒ Community Connection
- ☒ Unique Duluth
- ☒ Economic Development - tourism
- ☒ Environmental Sustainability
- ☒ Safe and Equitable Experience
- ☒ Technical & Financial Feasibility

Obstacles might include (check all that apply):

- ☐ Cost
- ☐ Land Ownership
- ☒ Sensitive Natural Areas
- ☐ Lack of Support
- ☐ Constructability
- ☐ Other

Please share an idea or opportunity, or suggest places for interpretation along the trail. Draw, describe, or otherwise communicate your idea below...

- Missing from the Duluth/Superior Public Races is the entire history of the story - the story of Anishinaabe life prior to industry & European Contact.
- Educational signs and art memorials that tell the missing stories are needed and ~~will~~ work towards improving community as well as promoting tourism. I believe the setting of the proposed trail is ideal for this cultural/heritage project/trail.
- If you were a hunter/gatherer, as the Anishinaabe, the St. Louis River Corridor/Estuary was paradise prior to industry. Signs that tell the story of what life was like, as well as representing the devastation that occurred in this geographic location, are important to include (not omit because it is uncomfortable) - Representing the truth, and stories of what happened here is our legacy, moving into the future.

Please comment on where and how often these trail amenities should occur along the corridor:

- Bathrooms
- Parking
- Benches
- Water Access/Fishing Piers
- Overlooks/Points of Interest
- Public Art
- Heritage/Interpretive Landmarks
- Signage/Trail Maps
- Other

Build awareness of estuary heritage cultural resources
a walking educational trail (with all the stories)

Visiting sites, viewing sites, viewing plants/animals, people suggest these sites

WESTERN WATERFRONT TRAIL & PARK MASTER PLAN Duluth, Minnesota
ST LOUIS RIVER CORRIDOR

September 22, 2019

Figure 1.33 Visioning Stakeholder Exercise Card

Design Concepts | Non-Motorized Watercraft Sites

During the stakeholder and public meetings, many examples of accessible launch types were explored and discussed. Below is a summary of best practices and launch types that the WWFT plan will be implementing.

Best Practices*

For Accessibility

- Accessible to all paddlers: slopes should not exceed 8.33%
- Between 9" and 2' from highest expected water level, at least 5' wide, preferably 6'-12'; at least 25' in length
- Handrails or other support structures are helpful
- Located in areas without heavy flow, erosion, exposure to elements, heavy boat traffic or fragile riparian habitats

For Best-Suited Launch Type

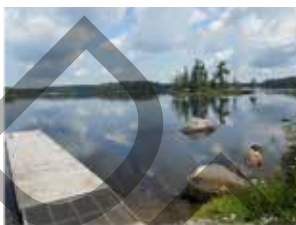
- Choose most suitable type of launch for water body, climate and ecological factors

To Be Cost Effective and Durable

- Existing natural sites are preferable, though not always durable and require reinforcement over time

To Be Environmentally Friendly

- Low impact design and non-toxic materials protect water quality, vegetation, and riparian habitats



*National Park Service Report, 'Long Lasting Launches,' 2004

Launch Types*

Simple Launches

- Natural and existing shorelines, beaches and simple ramps

Floating Launches

- Adjust to fluctuating water, are easily removable, provide steady surface

Pipe and Pile Launches

- Can span marshes or shallow areas to enable launching in deep enough water

Cantilever Launches

- Anchored to the shoreline and extend out over the water, appearing to float - can be partially removable

Stairs

- Provide access along steep shorelines, and may be used in areas where water levels change dramatically

Concrete Launches: Ramps, Stairs, and Mats

- Can be used as launches themselves or in combination with other launches

Concrete Mats

- Most practical for sites that are shared with motorized boats

Concrete Strips

- Direct heavy flow or sediment loads away from launch areas

Planning Process Results

The following is a summary of what we heard from the general public through survey means, as well what we discovered after further study and analysis, and the design decisions that were made based on the findings.

What We Heard...

The objectives of the surveys was to invite participation and define priorities of the Trail linear park and public access sites, including determining existing use and activity type along the corridor, identifying the current rail experience values, distinguishing unique and culturally significant features to celebrate, and determining priority site improvements preferred at each access point. The online survey had 988 respondents, while the randomly selected survey polled 444 residents from the 5th District of Duluth.

Online Survey

Results have been categorized into four topic areas:

1. USE (Online Survey)

- More than 50% of respondents characterized their use of the existing trail was limited to once a month to once a year.
- 40% of respondents claimed to use the existing LSMR excursion train once a year.

- More than 30% of respondents have never used on of the existing river public access points.
- Over 70% of respondents prefer walking as a primary activity on the trail. Followed by bird watching at 36%.
- The majority of respondents prefer to honor and celebrate the St. Louis River and Estuary, its natural resources, and local ecology as a primary feature.

2. VALUES (Online Survey)

- Nearly 75% of respondents value the scenic enjoyment of the surrounding landscape as a primary feature of the current rail experience.
- Respondents prioritized the guiding principles in the following order
 - 1st - Unique Duluth Experience
 - 2nd- Environmentally Sustainable
 - 3rd - Community Connection
 - 4th - Equitable Experience
 - 5th - Technically & Economically Feasible
 - 6th - Promote Economic Development

- Respondent identified several key features that make this area of Duluth unique, illustrated to the right:



3. ELEMENTS/FEATURES/ACTIVITIES (Online Survey)

- Public access to the River shoreline; Historic and natural resource implementation, and Signage & Wayfinding ranked as the highest priority trail elements.
- Public Space, Parking, and Picnic area ranked the highest as adjacent priority trail features for implementation.
- Trailhead amenities ranked the highest for improvements that would add greatest value to the rail experience.
- Winter recreation opportunities and community festivals and events ranked highest as park and trail activities respondents would be most interested in participating.

4. PRIORITY IMPROVEMENT PREFERENCES (Online Survey)

- Kayak and canoe put-in sites ranked highest for Lower Spirit & Munger Landing site improvements followed by trailhead amenities.
- Kayak and canoe put-in sites ranked highest for Boy Scout Landing site improvements closely followed by ticketing and boarding for trail operations and trailhead amenities.
- Kayak and canoe put-in sites ranked highest for Perch Lake site improvements closely followed by picnic shelter/overlook area.
- Kayak and canoe put-in sites ranked highest for Slag Point site improvements closely followed historic and natural resource interpretation and restore shoreline with shore fishing.



5th District Survey

Analysis of Collected Data have been categorized similarly below:

VALUES & USES (5th District Survey)

RAIL

- 46% of all respondents identified the LSMR as being somewhat important to them.
- 61% of all respondents said the LSMR was of importance to the entire community;
- 11% of all respondents use the rail at least four times per year.
- Rail runs weekends June through October.

TRAIL

- 64% of all respondents considered the Western Waterfront Trail important to them personally.
- 74% of all respondents said the Western Waterfront Trail was important to the entire community.
- 48% of all respondents use the trail at least four time per year.
- Trail is open year-round
- 83% of the respondents were supportive of extending the trail.

GUIDING PRINCIPLES (5th District Survey)

When asked to prioritize the guiding principles, respondents were more likely to support options to develop a plan that is:

1. Environmentally Sustainable
2. Technically & Economically Feasible
3. Creating an accessible riverfront for as many people as possible regardless of income and physical ability.
4. Develop a plan that preserves historically significant resources.



5th District Survey Summary

•54% of all respondents favored the Trail Option, with greater level of support coming from those living in zip code 55808 than 55807.

RESPONSE	TRAIL	RAIL	NO PREFERENCE
OVERALL PERCENT	54%	32%	14%
55807	52%	31%	17%
55808	59%	31%	10%

Sample Question 6: "As one option, the City has been seeking to find a way to extend the trail without having to remove the City-owned rail line between Smithville and Gary/New Duluth that is used by the Lake Superior & Mississippi Railroad for their seasonal passenger train trips. If, for any reason, extending the trail while keeping the railroad proves not to be feasible, the City may have to choose one of the other – rail or trail".

Trail Type Costs

A cost per linear foot estimate was established for eight different trail types to help determine preliminary cost estimates of alignment scenarios. The linear foot prices account for mobilization, clearing and grubbing, grading, erosion and sediment control, landscaping and minor drainage modifications.

The estimated costs provided within are based on the design team's trail construction and wetland disturbance experience, professional qualifications, knowledge of the existing terrain and landscape and understanding of the project, as well as takes into account the constructability and site access challenges previously mentioned.

Please note, the costs listed within were generated in 2016-2017 during the initial planning phase and have not been adjusted to reflect 2019 segment specific studies.

Preliminary Cost Comparisons

Comparison of the estimated total costs of three corridor scenarios was an important consideration in the development of the Plan. Establishing baseline numbers for a Trail Only, Ideal Rail & Trail alignment, as well as an Inland Rail & Trail (also referred to as Value Engineered Trail) was a valuable exercise and allowed further design decisions to be made. The table on page 51 illustrates the costs per Segment and by Trail Scenario.

TRAIL TYPES	COSTS (PER LIN FT)
Traditional on-existing rail bed	\$100
Traditional next to existing rail	\$180
Inland route on cleared alignment	\$225
Inland route on forested alignment	\$270
Wetland encroachment	\$275
Tight to shoreline fill slope	\$375
Tight to shoreline elevated structure	\$2,000
Causeway widening	\$2,000

Assumptions in determining opinion of cost included:

1. Contingencies are included as provisions to cover unforeseen circumstances that would affect the overall construction costs.
2. Estimates do not include costs for survey, engineering design, environmental analysis, permitting, or construction administration/site observation.
3. Topographic survey and geotechnical information were not available at the time of the estimates.
4. Trail install costs include fencing to provide the necessary safety barrier between the trail and the rail as well as between the trail and steep embankments.

5. Rail with optimum trail option assumes trail will be constructed between existing rail and shoreline.

6. Rail with value engineered trail option assumes trail will go inland in some locations to avoid costly construction where rail is tight to shoreline or in wetlands.

7. Sensitive area impacts refers to impacts to wetlands or river bank. These areas will require exhaustive permitting and may require mitigation, special plantings, slope stabilization, etc.

8. Significant drainage crossings refer to culverts or pedestrian bridges to provide crossing of drainage ways. Minor drainage modifications are included in LIN FT unit prices.

TRAIL SEGMENT	RAIL ONLY	TRAIL ONLY	RAIL WITH OPTIMUM TRAIL	RAIL WITH VALUE ENGINEERED TRAIL
Segment 1: Spirit Lake Marina to Munger Landing	\$0	\$385,080	\$1,611,480	\$1,611,480
Segment 2: Munger Landing to EPA/US Steel Clean-up	\$0	\$377,580	\$1,225,860	\$1,020,600
Segment 3: EPA/US Steel Clean-up to Boathouse Point	\$0	By Others	By Others	By Others
Segment 4: Boathouse Point to East McCuen Street	\$0	\$1,152,612	\$14,011,926	\$2,838,395
Segment 5: East McCuen Street to Boy Scout Landing	\$0	\$509,280	\$940,410	\$1,166,400
Segment 6: Boy Scout Landing to Perch Lake Access	\$0	\$864,000	\$864,000	\$864,000
Segment 7: Perch Lake Access to Chambers Grove	\$0	\$921,300	\$921,300	\$921,300
CONSTRUCTION TOTAL	\$0	\$4,209,852	\$19,574,976	\$8,422,175

Note: Information from the above Cost Comparison table was shared at the first Public Meeting in January 2017. Additional subsequent cost analyses, which occurred in 2018 & 2019, have adjusted the final estimates shown on page 76.

What We Discovered...

After further analysis, it became evident that the technical, environmental and economic feasibility to construct the Trail along the immediate water's edge would pose considerable challenges. Reasonings include:

- Significant Cost of Trail Construction
- Understanding of Environmental Regulations prohibit the placement of fill into public water and/or wetlands.
- Disruption to the River and sensitive shoreline may not be considered environmentally sustainable and is not in line with other associated initiatives to improve the ecological health of the St. Louis River & Estuary.

Decisions Made based on Findings...

Although trail costs per segment may extend the timeline for completion of the trail in its entirety, the City has decided to move forward with a rail and trail condition.

In addition to preserving the entire rail and new trail extension, new public access, and linear park sites were agreed upon to provide greater opportunity for accessible trail and user experience. Those sites include Lower Spirit, Slag Point, & Boathouse Point. Improvements to the three existing public access sites were also proven to be needed and warranted, providing further trailhead amenities for both land and water recreationists.

The following chapter walks through the detailed recommendations for trail, public access and linear park sites, opinions of costs, as well as an anticipated timeline for implementation.

Chapter Summary & Next Steps:

Move forward with Rail + Trail alternative.

Move forward with 4 new park/public access sites, and 3 improved public access sites.

DRAFT



WESTERN WATERFRONT TRAIL, PARK & RECREATION MASTER PLAN

06 IMPLEMENTATION + SUSTAINABILITY

ST. LOUIS RIVER CORRIDOR

Recommendations

Overall Trail & Park Recommendations

The following chapter illustrates trail and park recommendations and preiliminary opinions of cost based on the project’s guiding principle, community input, and design decisions that came out of the masterplanning process .

Next steps of the project will include further site and trail detailed design, additional technical studies, securing funding, land aquisitions and easments, as well as developing an operations and management plan for long term maintenance and life-cycle assessment of the linear parks and trail system.

Implementation + Phasing

This master plan serves as a framework to which future park and trail development can be forecasted and planned. As funding becomes available and partnerships are formed, trail segments and public access amenities will be designed, constructed and implemented. Below is an implementation timeline that illustrates anticipated phasing for the full realization of the Plan.

Land Aquisition + Easements

Although the City owns most of the land within the project limits, they will need to secure easements or aquire land from US Steel for a portion of Segment 4 trail, as well as secure an easement from private property owners for Segment 6/7.

Management + Operations

It is anticipated that the City of Duluth Parks will be the primary operator and manager for the WWFT. Further work will need to occur with the Parks Commission and City Council to establish an ongoing annual budget and reserve operating funds for park amenities and trail maintenance.

Maintanence activites for the public access, park amenities and trail will include but are not limited to; mowing/invasive weed removal, parking lot snow removal, trash removal, tree clearing, trail repair, bridge/culvert repair, sign and site furnishings maintenance.

Refer to page 78 for a detailed maintenance plan.

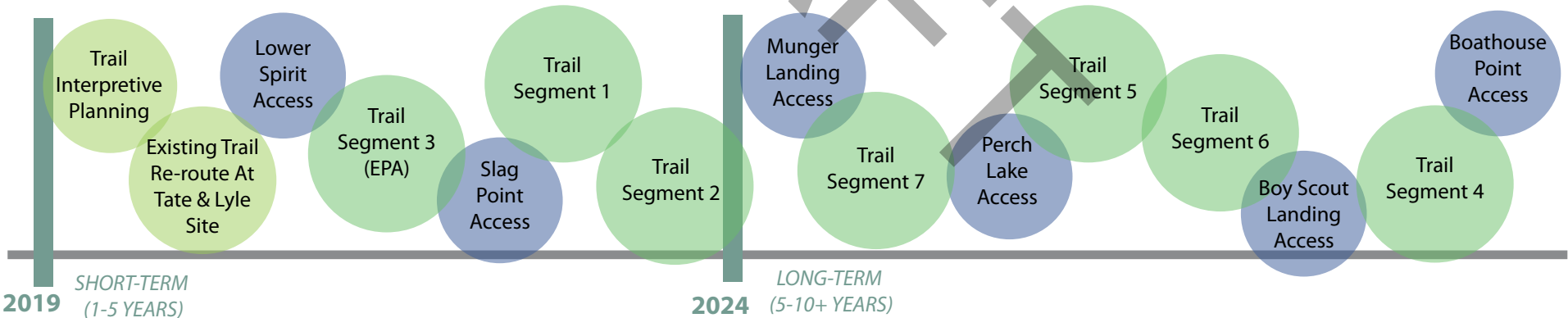


Figure1.35 Implementation Timeline

City + LSMR Roles and Responsibilities

The City and the LSMR currently have a lease agreement to allow for the LSMR to run as a tourist excursion railroad. Under this agreement, the LSMR operates multiple excursions per weekend day during the summer and fall months and is responsible for all maintenance and upkeep of the rail line. The City, as the landowner, is responsible for ensuring that LSMR is in compliance with rail standards and is providing a safe tourist experience. The City and LSMR will need to continue in their roles under this agreement to provide a synergistic rail and trail opportunity by combining a new recreational and tourism attraction along the St. Louis River.

Operating Hours, Safety, + Signage

The City of Duluth Parks operating hours are from 6am-12am daily. Park ordinances, regulations, and trail rules will be posted at key trailhead locations. The City of Duluth is in the process of implementing a City-wide wayfinding and signage plan for better directional and general information.

The Duluth Police Department and public safety volunteers will be responsible for security along the trail and within the public access/park sites and will address all emergencies and/or complaints.

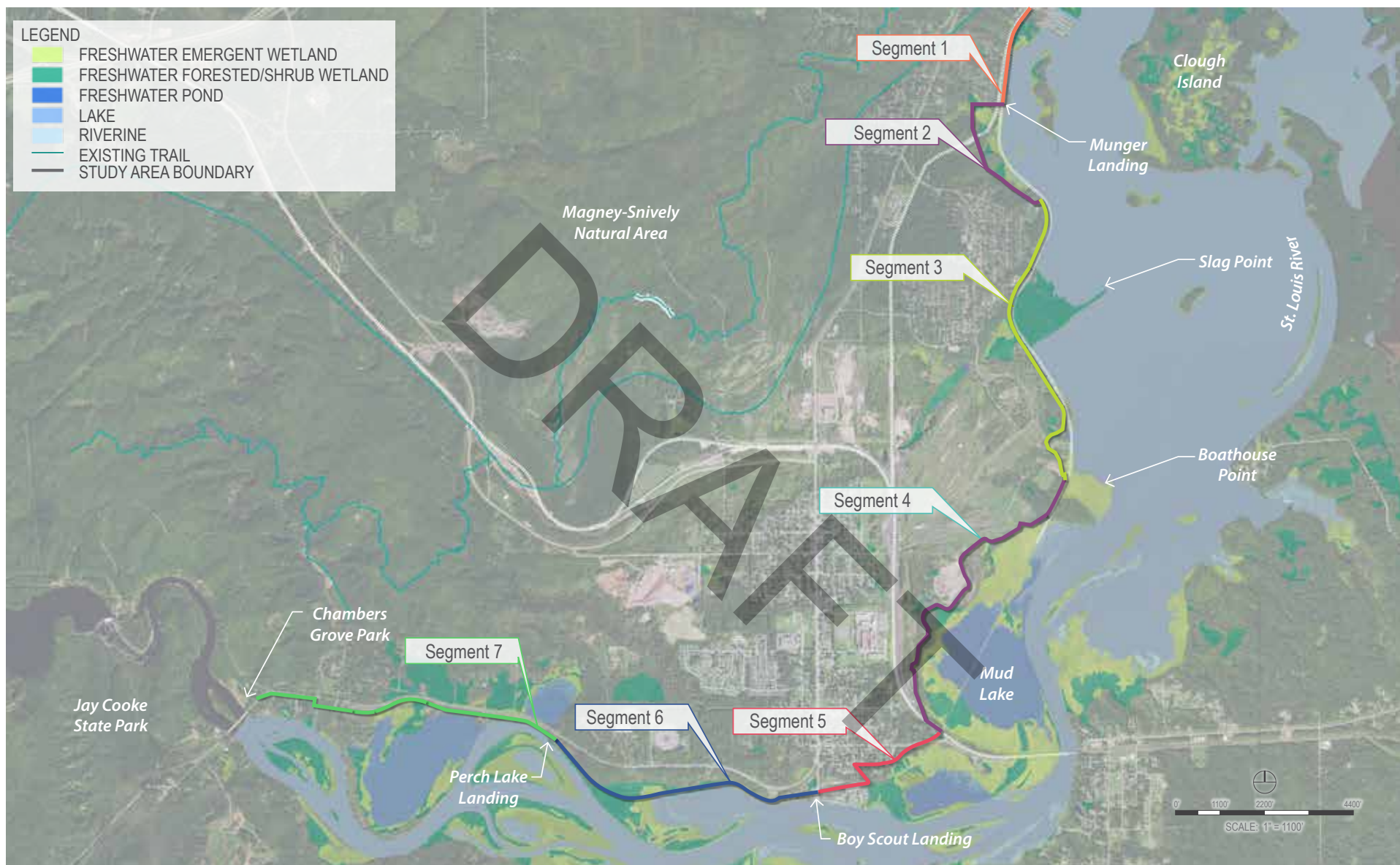


Figure 1.36 Overall Trail and Public Access Site Improvements Map

EXISTING TRAIL Recommendations

The Plan recommends implementing improved accessible access to the existing trail, including facilitating a separate mini-master plan for Indian Point Campground to assess types of access and specific locations.

EXISTING TRAIL RE-ROUTE (AT TATE AND LYLE SITE)

Analysis & Recommendations

The Plan studied various trail re-route options around the Tate & Lyle site for better public safety. Recommendation for this existing segment is to re-route the trail on the west side of the railroad tracks on City property, utilizing an old rail bed corridor. This option was deemed the most feasible and economic alternative. A shoreline alternative was not selected due to significant wetland impacts, prohibitive cost of boardwalk, multiple drainage crossings, and restricted property access through the Tate & Lyle controlled site.

Design considerations that will need to be addressed in the next phase include maintaining a 50' minimum distance from the BN rail, sloped topography and close proximity to existing residential properties.

Inland Route (1,500 LF)



Figure 1.38 View of wooded corridor for proposed trail re-alignment on old rail bed, looking east.



Figure 1.37 Existing trail reroute

TRAIL EXTENSION SEGMENT 1: SPRING STREET TO CLYDE AVENUE

Traditional Trail (735 LF)



Analysis & Recommendations

There is very little room for a trail extension in Segment 1 due to an existing BN rail line and a tight to shoreline condition. Because of this unique yet limiting circumstance, the City engaged transportation specialists, ALTA Planning, for additional technical expertise in examining options for trail extension through this constricted area.

Recommendations for this segment are two-fold: The trail could be developed between the LSMR tracks and the St. Louis River, however, several modifications and compromises will be necessary.

Scenario 1: Because no topographic survey was readily available at the time of this study, assumptions were made in developing a baseline scenario, which consists of leaving the rail line in place while also assuming no filling of public waters would be required. In this scenario, a traditional width trail and wetland encroachment condition would occur fwith a typical 8' wide trail for approximately the first 1,175 linear feet. After that,

Wetland Encroachment (required)



Tight to Shoreline Embankment



Drainage Crossings (2 Total) *



Total Distance Segment 1: 2,700 LF (.50 mile)

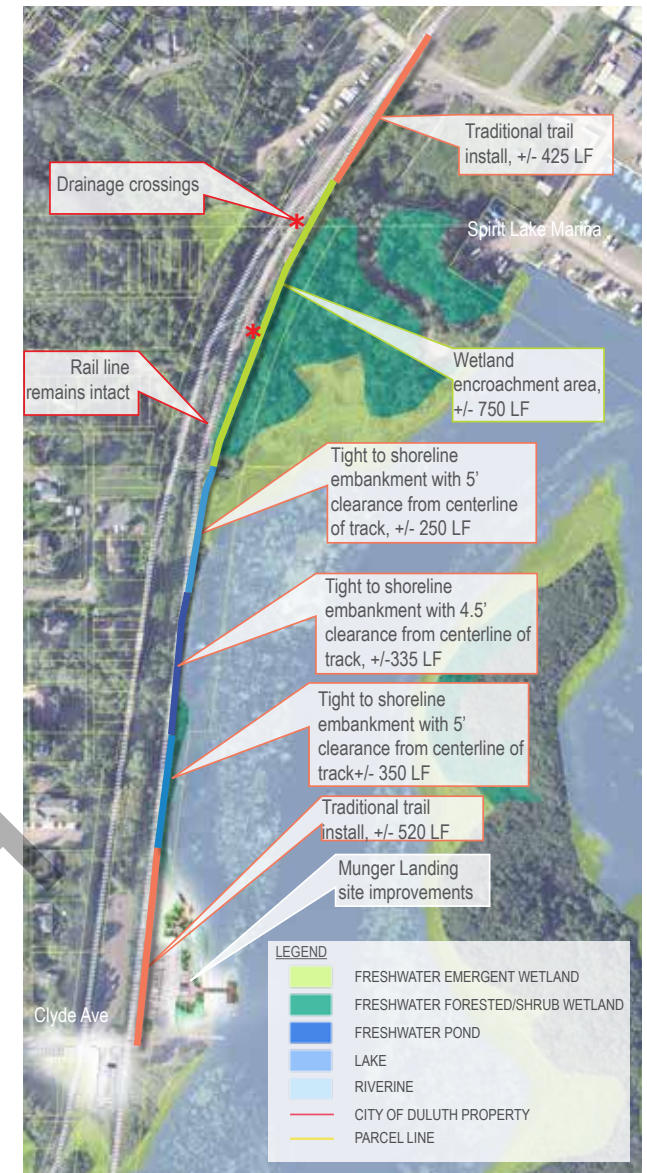


Figure 1.39 Segment 1 trail - Scenario 1

TRAIL EXTENSION SEGMENT 1: SPRING STREET TO CLYDE AVENUE

the trail would be narrowed down to 7' wide with the uphill trail edge located just 5' away from the centerline of the track. This exceeds the previously discussed absolute minimum 4.5' clearance from centerline of rail to accommodate the train dynamic envelope for approximately 250' linear feet. At the tightest shoreline condition however, the trail would narrow down to a 6' width for approximately 335 linear feet, and would require the uphill edge to be at the absolute minimum distance of 4.5' clearance from centerline of rail. Once past this narrowest point, the trail would then widen back out to 7' width for another 350 linear feet and eventually back to a traditional trail installation for the remaining 520 linear feet of the alignment. With this scenario, the City is hopeful that they can perform the work more affordably by collaborating with the DNR on preservation efforts to restore the eroded shoreline along this stretch of the river, although the exact limits of the slope stabilization is unknown at this time. The City will continue to look for other opportunities to increase bank width and prevent displacement of the rail.

Scenario 2: If the baseline scenario proves to not be feasible, scenario 2 will include a similar traditional trail installation for approximately the first 425 linear feet, followed by a 375' stretch where wetland encroachment may be necessary. The next span of trail would then be partially installed on the

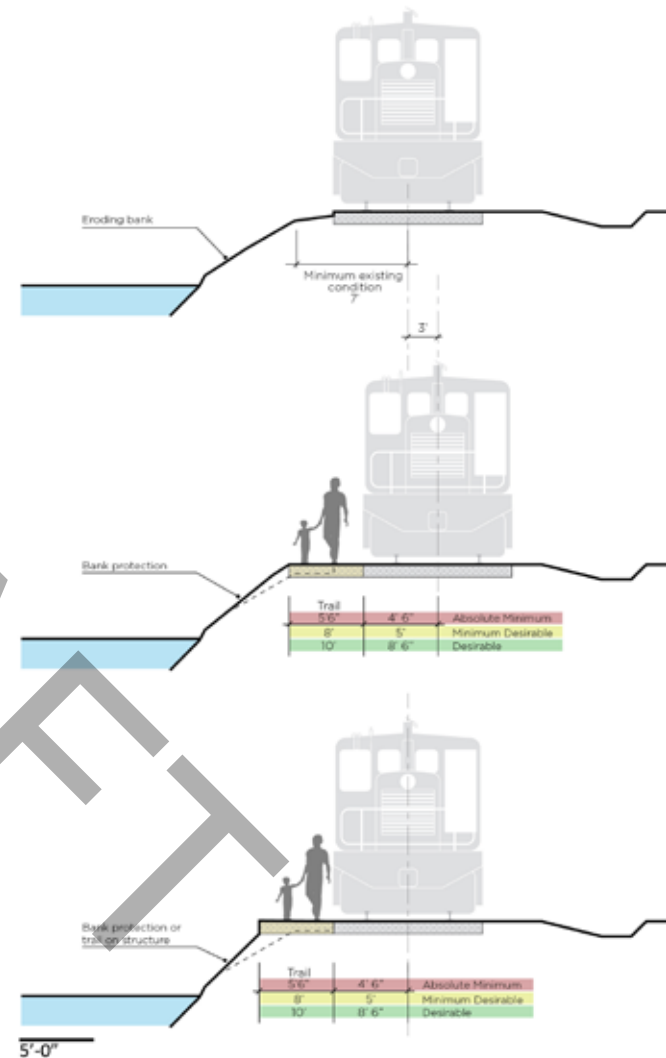


Figure 1.40 Existing condition and proposed rail + trail section provided by Alta Planning

TRAIL EXTENSION SEGMENT 1: RAILROAD RE-ALIGNMENT

existing City owned rail, requiring the re-location of the existing rail line to move 3'-4' to the west, as illustrated in Figure 1.40 on page 61. This design approach assumes that the previously mentioned 4.5' absolute minimum distance from the train's dynamic envelope for trail users would be allowed and would also require that the trail be narrowed down to a 5.5' width (instead of the desired 8') to accommodate both rail and trail for approximately 1,590 linear feet. In addition, and depending on the distance to the top of bank from edge of trail, there would also be portions of this stretch that would require enhanced stabilization along the river's shoreline. Once clear of the tight to shoreline condition, the City owned rail would taper back into the existing rail line and the new trail would run parallel on the east side as a traditional trail installation for the last 520' of Segment 1.

It is important to note that for either scenario for this tight rail and trail condition to co-exist for approximately 0.3 miles, additional train operator and trail user coordination would be required. This includes but is not limited to, having a train attendant exit the train at a designated passenger platform area, walk the trail to notify any trail users of the approaching train, and then re-board the train once there is ample clearance for both rail and trail alignments. In addition, a minimum of two viewing decks will be installed to provide additional clearance and refuge for trail users while also providing views out into the river. These amenities are shown in Figure 1.41 to the right.

Additional design considerations that will need to be addressed in the next phase include confirming the minimum distances allowed from the BN line, ensuring adequate soils exist or can be imported in to support the relocated rail line, the re-use of any rail line components, and accommodating two drainage crossings.

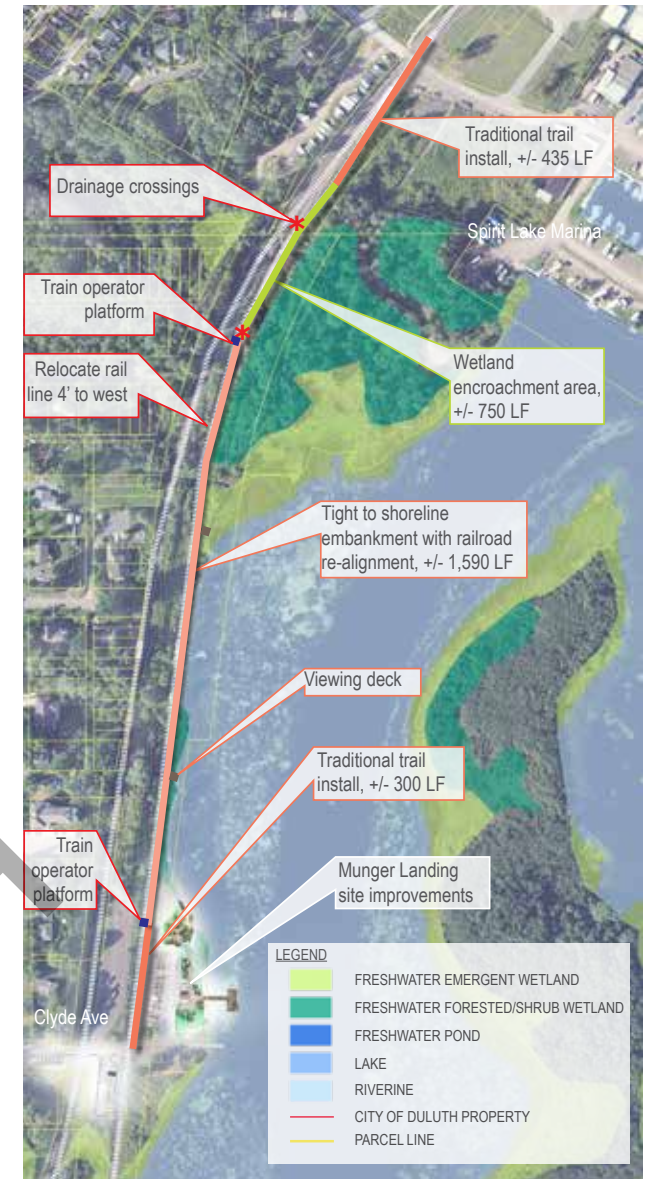


Figure 1.41 Segment 1 trail - Scenario 2

TRAIL EXTENSION SEGMENT 2: MUNGER LANDING TO BLACKMER PARK

Analysis & Recommendations

Just past Clyde Avenue, the BN rail line begins to veer to the west away from the River, however, a tight to shoreline condition remains throughout the duration of Segment 2. In order for the trail to be installed next to the City owned rail and along the shoreline, significant River and wetland impacts would be required.

Because of this, routing the new trail down Clyde Avenue to connect up with the public right of way for an inland route is recommended. There is an already tree-cleared corridor along the ridgeline which accomodates a City-owned sewer mainline and is being informally used as footpath, making this segment of trail more affordable and easily implementable. The City worked with the Public Works and Engineering departments to discuss the placement of the natural surface trail and it appears that it can be done without too many complications.

Although the trail would be setback a distance from the water's edge, the ridgeline consists of a mostly maple basswood upland forest and provides excellent views through the trees out to the River. An inland route is also desirable here as it allows for two new neighborhood connector points; one along Clyde Avenue linking up to the arterial Grand Avenue, the other providing a supplemental footpath to the new housing development, Grand Avenue Estates.

Traditional Trail (450 LF)



Inland Trail (3,350 LF)



Wetland encroachment may occur in one lower ravine area, however, the impacts would be considerably less. Lastly, a new at-grade railroad crossing will need to be agreed upon with BN railroad. This rail line is currently inactive and is anticipated to remain that way, so safety concerns are minimal.

*The City has started to proceed with pre-design efforts for this segment to identify a more accurate cost for budget purposes.

Total Distance Segment 2: 3,800 LF (.72 miles)



Figure 1.42 Segment 2 trail

TRAIL EXTENSION SEGMENT 3: EPA/US STEEL CLEAN UP TO BOATHOUSE POINT

Analysis & Recommendations

Trail Segment 3 will be entirely within the EPA & US Steel 1.6 mile clean-up limits. The existing railbed is planned to be used for site access and a temporary construction road will be installed, doubling the width of the rail corridor. In addition, Slag Point will be converted into a contained disposal facility (CDF) which will change the look and use of this unique land formation. A shallow sheltered bay is planned for the north side of Slag Point, providing more open water opportunity at this location. The City has been working with the EPA and MPCA agencies to formalize a procedure that identifies how the rail corridor, shoreline, and Slag Point should be restored after the clean-up efforts are complete.

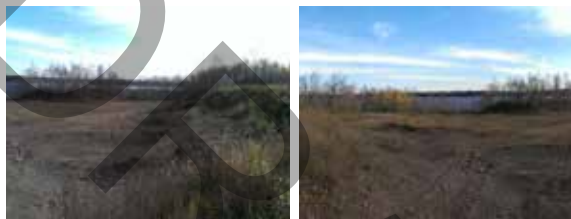
Because the City owned rail line will already be removed and a flat, wide corridor will be in place, recommendations for the majority of this segment call for placing the trail as close to the water's edge as possible for an ideal user experience. The rail line would then be re-installed approximately 25'-30' to the west of the trail. Further south just before Wire Mill Pond, the trail would then veer inland and travel around the Pond, while the rail line would cross the open water on a restored bridge.

Besides Segment 1, this is the only portion of the project where a close proximity rail and trail condition would occur, providing for a distinctive experience for both user groups.

Trail on EPA Access Road (6,730 LF)



Inland Trail around Wire Mill Pond (2,520 LF)



A neighborhood connector path will provide for easy access for adjacent Morgan Park residents, who have had limited access to the waterfront in the past.

Recommendations for Slag Point proposed improvements are located on page 64.

See Chapter 6: Additional Resource Plans for more information on US Steel clean-up project.

Total Distance, Segment 3: 9,250 LF (1.67 miles)



Figure 1.43 Segment 3 trail

TRAIL EXTENSION SEGMENT 4: BOATHOUSE POINT TO E MCCUEN ST

Analysis & Recommendations

Segment 4 brings the most dramatic changes to the Plan in that the recommendations call for a new 1.5 mile trail to run along the western shoreline and up the bluff overlooking Mud Lake offering spectacular views of the River landscape. With this new trail alignment, the causeway will remain intact for continued rail use, which was considered Alternative 1 in the Mud Lake Causeway Alternatives Analysis. Other options that were explored during that study included:

Alternative 2 - Causeway retained for rail use with two new openings to optimize water flow. Trail on mainland. (Alt2 v2 included added river levees)

Alternative 3 - Causeway retained for trail use with two new openings to optimize water flow. (Alt 3 v2 included added river levees).

Alternative 4 - Causeway eliminated to maximize water flow, vestiges retained on ends for public fishing, trail on mainland, and river levee features restored.

Many factors played a part in the decision to retain the causeway and run the trail inland along property that is not

Inland Trail (7,932 LF)



currently owned by the City; a rail and trail condition across the causeway was deemed unfeasible due to the restrictive nature of expanding land into the waterway, as well as the prohibitive costs of building a boardwalk structure along the one-mile span. A rail to trail conversion was also explored and although it would have reduced costs and less waterway impacts, losing the rail line, public safety, debatable user experience and long term maintenance access were concerns.

It is likely that future restoration efforts by environmental agencies will happen within Mud Lake but at this time, those plans are unknown. Please note, Segment 4 inland trail will not be completed until clean-up has occurred on the U.S. Steel site, and easements are in place.

For information on the Mud Lake Causeway Alternatives Analysis & Restoration Plan, see the Appendix.

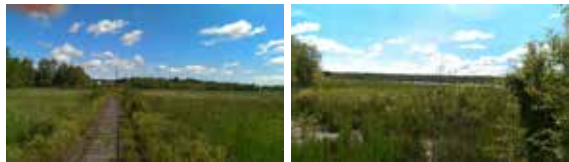
**Total Distance, Segment 4: 7,932 LF
(1.5 miles)**



Figure 1.44 Segment 4 trail

TRAIL EXTENSION SEGMENT 5: EAST MCCUEN STREET TO BOY SCOUT LANDING

Inland Trail (3,590 LF)



Analysis & Recommendations

Because the rail line will remain, recommendations for Segment 5 include an inland alignment for the entire .68 mile length.

With the inland route, slopes to the north are fairly steep so this option is more expensive than a rail conversion and may have technical difficulties complying with ADA accessibility. Shoreline wetlands are ever-present throughout the segment, therefore utilizing in place road infrastructure for trail use will help minimize unnecessary impacts. The exact route throughout the existing public street network will need to be further explored.

There are several opportunities for local neighborhood access along Segment 5.

Total Distance, Segment 5: 3,590 LF (.68 miles)



Figure1.45 Segment 5 trail

TRAIL EXTENSION SEGMENT 6: BOY SCOUT LANDING TO PERCH LAKE ACCESS

Traditional Trail (7,200 LF)



Total Distance, Segment 6: 7,200 LF (1.36 miles)

Analysis & Recommendations

Recommendation for Segment 6 is to utilize the existing old rail bed for a 1.36 mile long traditional trail installation. The rail line was removed long ago, and the existing corridor has been informally maintained as a footpath, which makes this option the most feasible as it is affordable and easily implementable.

Design considerations that will need to be addressed in the next phase include minor grading for better drainage and slope stabilization as the corridor is in very close proximity to the water's edge.



Figure 1.46 Segment 6 trail

TRAIL EXTENSION SEGMENT 7: PERCH LAKE TO CHAMBERS GROVE

Analysis & Recommendations

The recommendation for Segment 7 trail extension is to construct a traditional trail on the southern side of Highway 23 as private ownership along the St Louis River restricts the trail from getting any closer to the water's edge. Because the topography flattens out in the Fond du Lac neighborhood, floodplain conditions are present, and therefore the trail may have to encroach roadside wetlands for approximately 1,290 linear feet.

The last stretch of this segment has already been constructed as part of the Highway 23 roadway improvements project and consists of an 8' wide bituminous trail. At Mission Creek, the trail crosses over to the north side of the highway and then proceeds westward until the entrance of Chambers Grove Park.

There is an opportunity for a neighborhood path to connect up with Fond du Lac park as well as a potential future connection to Perch Lake. See page 69 for Perch Lake proposed improvements.

Traditional Trail (4,130 LF)



Wetland Encroachment Trail (required)(1,290 LF)

Total Distance, Segment 7: 5,420 LF (1.03 miles)



Figure 1.47 Segment 7 trail

WATER TRAIL & PUBLIC ACCESS SITES OVERVIEW

Recommendations

The adjacent chart and overview map on page 70 illustrate the proposed water mileage between the existing and new non-motorized access points. With the implementation of three new non-motorized public water access and park sites (Lower Spirit & Slag Point) there will be better recreational opportunity for the public to access the St. Louis River, Estuary and Water Trail, and will fill in the existing 4.5 mile gap between Munger Landing and Boy Scout Landing.

At each public access point, paddlers and water trail enthusiasts will have the opportunity to take a break from the sun and/or wind, use the portable toilets, stretch their bodies, fish and picnic on shore, and enjoy the scenery before venturing out onto the open water again. For trailhead amenities regarding water trail use, see next page.

Mileage between public water access points:

ACCESS POINT	MILEAGE
Grassy Point to Indian Point Campground	1.9 miles
<i>Indian Point Campground to Lower Spirit (new)</i>	<i>1.3 miles</i>
Lower Spirit Riverfront to Spirit Lake Marina	.5 miles
Spirit Lake Marina to Munger Landing	.4 miles
<i>Munger Landing to Slag Point (new)</i>	<i>.9 miles</i>
<i>Slag Point (new) to Boy Scout Landing</i>	<i>3.6 miles</i>
Boy Scout Landing to Perch Lake Landing	1.5 miles
Perch Lake Landing to Historical Park	1.7 miles
Historical Park to Chambers Grove	.3 miles

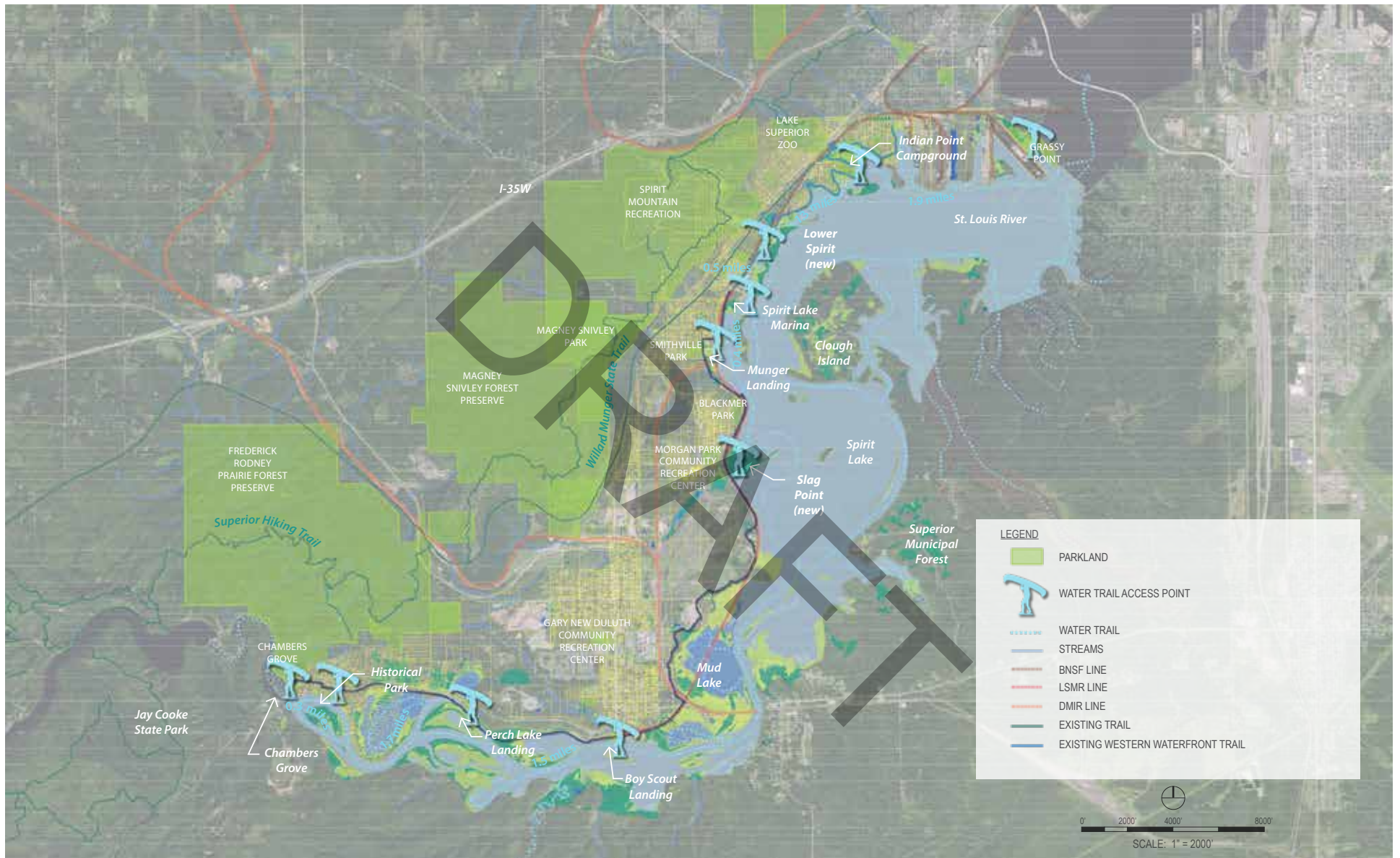


Figure 1.48 Water Trail & Public Access Sites Overview Map

TRAILHEADS & LOCAL TRAIL ACCESS POINTS OVERVIEW

Recommendations

The overview map on page 72 illustrate the existing and proposed trailheads and local trail access points along the Trail. Currently, the existing trail has one trailhead location with designated parking, and a second was just established in Chambers Grove Park for future trail use. The Plan recommendations include adding up to five new trailhead sites (Lower Spirit, Munger Landing, Slag Point, Boy Scout Landing, & Perch Lake) as well as two or more local trail access sites that would have more modest amenities.

At each trailhead location, recreational enthusiasts will have the opportunity to safely park vehicles and prepare for hiking, biking, snowshoe &/or paddling activities, use the facilities, select trail routes and points of interest on trail map kiosks, picnic, swim, fish, and enjoy the outdoors. Local trail access points will also allow travelers to access the trail from neighborhood connectors and will provide directional signage and site furnishings such as benches, trash receptacles and/or places for interpretation.

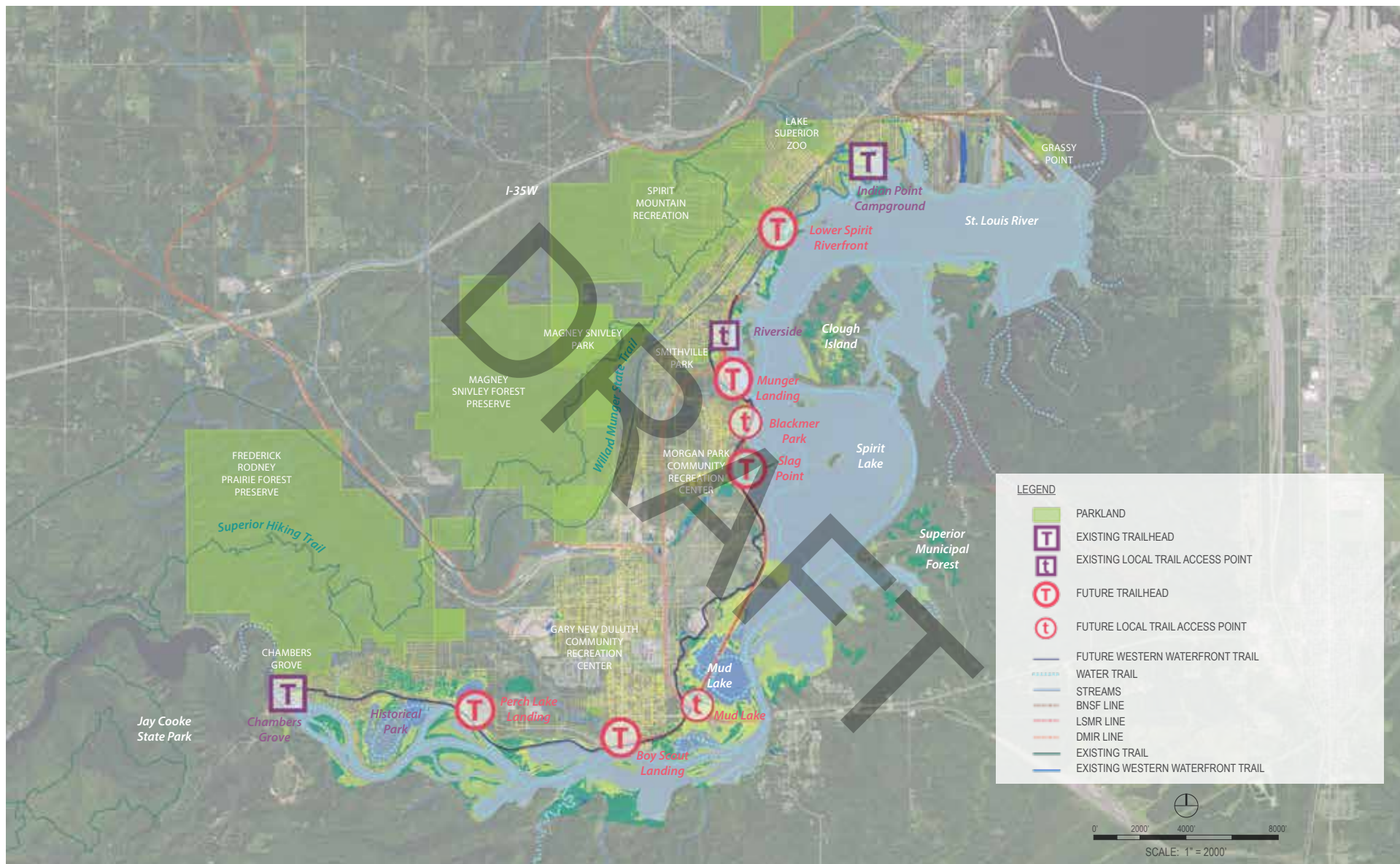


Figure 1.49 Trailheads & Local Trail Access Points Overview Map

LOWER SPIRIT (SPIRIT LANDING) PROPOSED IMPROVEMENTS

Recommendations

Lower Spirit (Spirit Landing New Park site)

The Lower Spirit Access Point along the St. Louis River Water Trail proceeded ahead for City Council approval than some of the other sites and the illustrated site plan to the right was approved on February 26, 2018. Moving ahead, this site will now be referred to as Spirit Landing and will include a new trailhead with directional signage, a drop-off point, and parking for ten cars and seven trailers. There will also be a portable toilet with a changing enclosure near the parking area. Near the drop-off, there will be a staging area for outfitting and group education. On the waterfront, there will be one or two beach areas; both will include shore fishing and one will include an accessible paddle sport launch. The entire project area will be completed with a landscape restoration planting.

- New trailhead with directional signage
- Drop-off and parking (10) and trailer (7)
- Portable toilet with changing enclosure
- Staging area for outfitters/group education
- Accessible paddle sport launch
- Beach access(1 or 2) with shore fishing
- Landscape Restoration Planting



Figure 1.50 Lower Spirit (Spirit Landing) site plan

- Work with Spirit Mountain Recreation Area and other area developments to identify opportunities for new regionally significant event staging from this location
- Work in partnership with the MN DNR on their on-going monitoring of sediment gathering and efforts to restore bathymetries in the protected bay between Tallus Island and the shoreline.
- Restore and/or preserve adjacent lands that isn't planned for recreational development

MUNGER LANDING PROPOSED IMPROVEMENTS



Figure 1.51 Munger Landing site plan

Recommendations

Munger Landing (Improved Public Access site)

Munger Landing will separate motorized and non-motorized boat launching, receive a new trailhead with directional signage, and its parking will be expanded by an additional twenty spaces, particularly to serve trailhead users. The waterfront will have a natural sand paddle sport launch as well as an accessible boat launch added to the existing fishing pier. Near the accessible launch, there will be an outfitting staging area. There will be a picnic area adjacent to the natural sand beach/launch area.

- New trailhead with directional signage
- Natural sand beach for paddle sport launch
- Accessible kayak launch
- Staging area for outfitting
- Picnic area
- Additional parking (20), specific for trailhead users
- When MPCA begins their monitoring and aquatic clean-up efforts at this location, the City will partner with them on those initiatives

SLAG POINT PROPOSED IMPROVEMENTS

Recommendations

Slag Point (New Park site)

Slag Point will have a drop-off area and eighteen parking spaces, as well as a portable toilet with changing enclosure. The trailhead with directional signage will lead to a generously sized waterfront park that includes multiple picnic areas and a hiking loop. A series of interpretive and scenic overlooks will be placed along the hiking loop. An extensive beach will be on both the north and south sides of Slag Point. The northern beach will include a dock with an accessible paddle sport launch, shore fishing, and a non-motorized watercraft landing. The northeastern end of Slag Point will have a fishing pier and wetland walk.

- Trailhead with directional signage
- Accessible paddle sport launch
- Portable toilet with changing enclosure
- Drop-off area and parking (18)
- Beach/staging area and shore fishing
- Picnic and hiking loop
- Interpretive/scenic overlooks
- Work with EPA & US Steel to obtain ownership of the site after clean-up efforts, including road access for trailhead parking and usage



Figure 1.52 Slag Point site plan

BOATHOUSE POINT PROPOSED IMPROVEMENTS



Figure 1.53 Boathouse Point site plan

Recommendations

Boathouse Point (New Park site)

Boathouse Point will be a modest new park site and will include a new trail loop system to take advantage of the spectacular river views from the top of the point. Interpretive signage and overlooks will be placed along the loop trail. Implementation of this trail loop would first require a recreational easement or acquisition of land.

- Trail access point with directional signage
- Hiking loop with scenic overlooks
- Shore fishing
- Connection to future trail

BOY SCOUT LANDING PROPOSED IMPROVEMENTS

Recommendations

Boy Scout Landing (Improved Public Access site)

Improvements at Boy Scout Landing will also separate motor and non-motorized launch areas, include a new trailhead with directional signage, a drop-off, and additional parking (approximately twelve spaces). A portable toilet with changing enclosure will be located near the parking area. A pedestrian bridge will connect to the existing Munger Trail. An accessible kayak launch will be added to the beach, and a concrete pad will be added to the parking area for seasonal concessions and event staging.

- New trailhead with directional signage
- Drop-off & additional parking (±12)
- Portable toilet with changing enclosure
- Beach access (2) with shore fishing
- Pedestrian bridge
- Accessible paddle sport launch
- Concrete pad for seasonal concessions and event staging



Figure 1.54 Boy Scout Landing site plan

PERCH LAKE PROPOSED IMPROVEMENTS



Figure 1.55 Perch Lake site plan

Recommendations

Perch Lake (Improved Public Access site)

The lower portion of Perch Lake that connects to the St. Louis River will have ADA trail access and beach access, which will include shore fishing. Approximately sixteen additional parking spaces will be added, as well a portable toilet and changing enclosure. The parking area will lead on to a scenic overlook of the river. The area west of the culvert that connects Perch Lake to the river will be further studied and if feasible, the planned improvements will be shifted to the west side of the culvert which offers better accessible parking and shoreline fishing opportunities.

The upper portion of Perch Lake will be further studied as part of the DNR Perch Lake Restoration for potential recreational reuse.

- ADA trail access
- Additional parking (± 16 spaces)
- Picnic area
- Beach access with shore fishing
- Portable toilet with changing enclosure
- Scenic overlook

OPINION OF COSTS ASSOCIATED FOR TRAIL EXTENSION RECOMMENDATIONS

TRAIL SEGMENT	RECOMMENDED OPTION	
Existing Trail Re-route at Tate & Lyle		\$137,600
Segment 1: Spirit Lake Marina to Munger Landing	Rail + Trail (0.50 miles)	\$1,200,000
Segment 2: Munger Landing to Blackmer Park*	Rail + Trail (0.72 miles)	\$400,000
Segment 3: Blackmer Park to Boathouse Point (EPA/US Steel Clean-up)	Rail + Trail (1.67 miles)	By USS-EPA
Segment 4: Boathouse Point to East McCuen Street	Rail + Trail (1.50 miles)	\$1,001,125
Segment 5: East McCuen Street to Boy Scout Landing	Rail + Trail (0.68 miles)	\$940,410
Segment 6: Boy Scout Landing to Perch Lake Access	Trail Only (1.36 miles)	\$864,000
Segment 7: Perch Lake Access to Chambers Grove	Trail Only (1.03 miles)	\$921,300
CONSTRUCTION TOTAL		\$5,464,435

* Cost for Segment 2 reflects detailed predesign estimate.

(7.46 miles)

Professional Opinion of Costs - Trail

The estimated costs provided above are based on preliminary designs prepared for this Plan and could vary extensively depending on results from additional analysis including but not limited to geotechnical investigation, survey data, shoreline stability, as well as design details that will be developed as part of the final design. Before proceeding into the design phase, we recommend further on-site analysis work to occur.

The opinion of probable cost has been prepared on the basis of the design team's experience, qualifications, knowledge of the site and understanding of the project, and takes into

account the constructability and site access challenges discussed within.

Costs listed above should be used to assist with further planning and decision-making regarding future trail extension along the St. Louis River.

TRAIL MAINTENANCE PLAN

The City is proceeding with a multi-year inventory and asset management plan in which current City parks and trails are evaluated and prioritized for infrastructure and maintenance needs on an ongoing monthly, yearly, and multi-year basis. The following maintenance plan is an outline for what will be implemented on the Western Waterfront Trail at recommended frequencies and with associated budget allowances.

Ongoing Daily/Monthly

- Mow edges of trail
- Remove fallen trees
- Prune overgrown limbs and brush
- Update maps/signage/wayfinding
- Seed or rehabilitate eroded areas
- Trash removal and recovery from illegal acts of vandalism/dumping
- Trailhead parking snow removal
- Winter trail grooming (optional)

Yearly

- Fill low spots with new surface gravel, grade and compact surfaces
- Fill wash-out area and repair failed slopes
- Install permanent erosion control best management practices (BMPs) where needed (i.e. vegetation strips and rip-rap rock checks)
- Remove sediment accumulation from installed BMPs
- Assess significant infrastructure such as bridges, culverts and rail equipment
- Invasive species spot control and/or removal

Every 5-20 Years

- Review entire length of trail and top dress with new surfacing gravel
- Ongoing assessment of significant infrastructure such as bridges, culverts, and rail equipment
- Inspect fencing and any gate structures for damage and repair as needed
- Consider major construction projects such as trail capping or culvert and bridge replacement

OPINION OF COSTS ASSOCIATED FOR ST. LOUIS RIVER PUBLIC ACCESS + PARK SITES RECOMMENDATIONS

PUBLIC ACCESS/PARK SITES	OPINION OF COST
Lower Spirit	\$335,000
Munger Landing	\$255,675
Slag Point*	By USS-EPA
Boathouse Point	\$195,000
Boy Scout Landing	\$471,115
Perch Lake**	\$349,704 (TBD)
CONSTRUCTION TOTAL	\$1,606,494

Professional Opinion of Costs - Sites

The estimated costs provided above are based on preliminary designs prepared for this Plan and could vary extensively depending on details that will be considered as part of the final design process.

Costs listed above should be used to assist with further planning and decision-making regarding future site development for St. Louis River access.

* Road access and parking lot costs at Slag Point will be the responsibility of the City's and will be studied further in the next phases of design. The City will work collaboratively with the EPA and US Steel landowner on land access and design.

** Perch Lake site improvements will be further assessed and designed as part of the DNR's restoration efforts of upper Perch Lake. The amount listed in the table above is an estimated allowance for site improvement costs based on preliminary designs generated thus far.

SUMMARY

The recommendations and concept designs presented within, mirror the balance and compromise needed to accomplish and comply with the Guiding Principles set forth at the start of the planning process. The Western Waterfront Trail Extension project will:

- Increase public access to the riverfront
- Retain the existing historic railroad for excursion use
- Offer a diverse user experience
- Increase year-round user experience
- Connect neighborhoods to the St. Louis River who otherwise are only connected by Highway 23/Grand Avenue
- Implement 7+ miles of trail extension near or along the river's edge
- Provide a variety of trail conditions with a mix of higher inland ground and shoreline experience
- Take time to complete in its entirety due to site complexities and estimated costs per linear foot
- Require LSMR to work closely with the City to develop a rail and trail plan that will be permissible, affordable, safe and provide an equitable experience
- Be feasible for the City to achieve over time

Note: In the undesirable and unanticipated event that the LSMR permanently cease operations at some future date, the City will re-open a public discussion on the future use of the City-owned rail corridor.

Supplementary Information

Research Plan

The City of Duluth will participate in the Greater Minnesota Regional Parks and Trails Commission's research initiatives, such as visitation counts, use profiles, recreation demands and trends surveys.

Future Related Studies

Indian Point Campground Mini-Master Plan (TBD)

APPENDIX

The following is a list of plans and projects that were referenced during the planning process for this document.

1979 Western Waterfront City Masterplan

Currently not online (Please contact City Parks & Recreation Department for information)

Duluth, Minnesota Trail and Bikeway Plan

http://www.duluthmn.gov/media/116291/Duluth_Bike_Report_Edited_October_2011.pdf

St. Louis River Water Trail

<http://www.duluthmn.gov/st-louis-river-corridor/st-louis-river-water-trail/>

Western Waterfront Renewal & Restoration

<http://www.duluthmn.gov/st-louis-river-corridor/western-waterfront-renewal-restoration/>

Lower St. Louis River Habitat Plan

<http://stlouisriver.org/lower-st-louis-river-habitat-plan/>

Mud Lake Alternatives Analysis

<https://duluthmn.gov/parks/parks-planning/st-louis-river-corridor/mud-lake-study/>

St. Louis River Corridor Trails Plan

<https://duluthmn.gov/parks/parks-planning/parks-planning-library/> Refer to St. Louis River Corridor Trails Plan under Mini-Master Plan tab

