PROJECT OVERVIEW

A public planning process began in August 2016 to determine the future recreational uses of a mostly City-owned, 10-to-12-mile corridor along the St. Louis River between the Irving neighborhood and Jay Cooke State Park, in West Duluth. The study area includes an existing 3.3 mile long pedestrian trail, an historic rail bed, and five existing or planned river access points. A portion of the historic rail bed has been leased by the City of Duluth to the nonprofit Lake Superior and Mississippi Railroad for seasonal fee-based rail excursions.

Overall Project Goals
The Master 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.
• Determine whether to retain and potentially improve the remaining riverfront rail line and renew the Lake Superior and Mississippi railroad’s lease for excursion rail trips.

Master Planning Process
With these project goals in mind, the master planning process will explore options to:

• Extend and improve the Western Waterfront Trail as cited in the 1979 WWFT Master 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 river access nodes opposite Tallas Island and at the area known as Slag Point.
• Develop potential new canoe/kayak water trail entry points 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 Western Waterfront Trail, and the excursion rail (if the City determines to extend the excursion rail lease).
TONIGHT'S MEETING

What is a Mini Master Plan?

• Provides an inclusive public process to determine the future use of the trail and park.
• Engages stakeholders to understand park/trail usage patterns and needs.
• Completes an inventory of existing trail conditions.
• Creates a clear “road map” of how to move forward with development of the trail.
• Offers clear direction to the City and community partners on fund development, operations, and management of the park.

Establishing Meeting Norms

• Treat each other with respect
• Transparency: avoid hidden agendas
• Work to build consensus
• Share the floor

Format

• 50 minute presentation
• 10 minutes for general questions
• 30 minutes for concept overviews at stations (review maps up close and discuss with staff and consultants)

Opportunities for Input

• Discussion at stations
• Comment cards
• Online survey for additional feedback

TODAY'S MEETING

What is a Mini Master Plan?

• Provides an inclusive public process to determine the future use of the trail and park.
• Engages stakeholders to understand park/trail usage patterns and needs.
• Completes an inventory of existing trail conditions.
• Creates a clear “road map” of how to move forward with development of the trail.
• Offers clear direction to the City and community partners on fund development, operations, and management of the park.

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WESTERN WATERFRONT TRAIL & PARK MASTER PLAN Duluth, Minnesota

ST. LOUIS RIVER CORRIDOR

November 15, 2016
CITY OF DULUTH PROJECTS
St. Louis River Corridor

St. Louis River Corridor Project Timeline

Trails
- Cross City Trail
  - 2015/2016: Mini Master Planning
  - 2017: Zoo to Knob Creek
  - 2018: Knob Creek to Spirit Mt. and Grand Avenue (pending funding)
- West DWP (Spirit Mt. to Becks Rd.) Multi-Use Trail
  - 2018-2020: Construction (pending funding)
- Grand Avenue Nordic Center
  - 2015/2016: Mini Master Planning
- Superior Hiking Trail Improvements
  - 2015: Design of Ely's Peak, Spirit Mountain and Brewer Park loops
  - 2016: Construction: Ely's Peak, Brewer Peak, Spirit Mountain
  - Design and construction: Enger Park and Bardon Peak
- Duluth Traverse Trail
  - 2015/2016: Design and construction of Lincoln Park segment, 8 miles; Mission Creek Trail Hub, 3 miles; St. Louis River Trail, 2 miles; Piedmont Connector, 1 mile; Brewer Park to Spirit Mt. (funding secured)
  - 2018/2020: Spirit to Becks Rd., Ely's Peak Loop
- Spirit all-weather mountain bike loop
  - 2015/2016: Design
  - 2016-2017: Construction (pending funding)
- New Equestrian Trail
  - 2016: ✔ Feasibility Study complete
  - 2016 Ely's Peak Loop design and construction
  - 2017/2018: Additional trail development
- Fairmont/Horton Park Snowmobile Trail Restoration
  - ✔ Flood repairs complete
  - 2016: Restoration of bridges
  - 2016/2017: Additional work TBD

River Restoration & Access
- National Water Trail
  - 2015/2016: Mini Master Plan
  - 2016/2017: Implementation/construction (pending funding)
- Western Waterfront Trail Restoration and Extension
  - 2015/2016: Planning and design of invasive removal and native replanting; trail surface restoration
  - 2017: Western Waterfront Extension construction; Riverside to Morgan Park (pending funding)

Grand Avenue Parks
- Lincoln Park
  - 2015/2016: Mini-Master Plan
  - 2017/2018: Construction (pending funding)
- Wheeler Athletic Complex
  - ✔ Mini-Master Plan complete
  - 2018-2018: Construction (pending funding)
- Kingsbury Bay Restoration
  - 2016: Planning
  - 2017/2018: Construction
- Spirit Mountain River Connector
  - 2017: Natural surface Knob Creek Connector Trail (pending funding)
- Tallas Island Paddle Center
  - 2016: Comprehensive Mini-Master Planning
  - 2016/2017: Construction and implementation (pending funding)
- Indian Point Campground
  - 2016/2017: Mini-Master Plan
  - 2018-2019: Construction (pending funding)
- Memorial Park
  - 2015/2016: Mini-Master Planning
  - 2016-2020: Construction (pending funding)
- Gary New Duluth Recreation Area
  - 2015/2016: Construction of Phase I & III

Other Projects
- Quarry Park
  - 2015/2016: Mini-Master Planning
  - 2016/2017: Construction (pending funding)
- Wade Stadium
  - ✔ Tuckpointing, gates and netting complete
- Spirit Mountain Water System
  - ✔ Construction complete
- Fairmont Park/Zoo
  - 2015/2016: Mini-Master Planning
  - 2016/2020: Construction
- DWP Roundhouse Site Restoration
  - ✔ 2014: Land acquisition / Phase I invasive removal and tree planting
  - 2015: Phase II invasive removal and tree planting
  - 2016: Final site restoration

- Park and Trail System Infrastructure Upgrades
  - 2016: Planning
  - 2016/2017: Implementation of wayfinding, signage and barriers
- Chambers Grove Park
  - ✔ 2015/2016: Completion of DNR Shoreline Restoration
  - 2015/2016: Design and construction of park flood restorations and improvements
- Neighborhood Parks
  - 2015/2016: Mini-Master Planning for Piedmont, Harrison, Merritt, Grassy Point, Keene Creek, Horton, Smithville, Riverside, Blackmer, Fond du Lac, and Historical parks.
  - 2016: Grant funds become available in June to qualifying parks

✔ indicates a completed project / or phase
PRIOR VISIONING

1979 Plan

2010 Parks and Recreation Plan

2011 Bikes and Trailway Plan

2012 Morgan Park Neighborhood Revitalization Plan

2015 Riverside Small Area Plan & 2013 Gary New-Duluth Small Area Plan
Remediation and Restoration Sites in the St. Louis River AOC
STAKEHOLDER WORKSHOPS SUMMARY

Summary

- Four 3-hour meetings occurred September — November
- Topics included:
  1. Planning for interpretation and branding implementation
  2. Riverfront green space
  3. St. Louis River access and put-in sites
  4. Trail extension and rail options
- Goal of Stakeholder Workshops:
  - Gather useful background information from various user groups
  - Give input on Vision and Guiding Principles
  - Provide input on community needs and wants
  - Give feedback on concept design and alternatives
  - Review public engagement materials
- Stakeholder groups included representatives from:
  - Regulation agencies
  - Business owners
  - Community/neighborhood leaders
  - Elected officials/City staff
  - Environmental and Recreation groups

Stakeholder Attendees (39)

- Carole Newkumet, Riverside Community Club
- Andy Webb, Lake Superior and Mississippi Railroad
- Dwight Morrison, Wheels on Trails
- Dave Moore, Railway Solutions/LS&M
- Joel Manns, Lake Superior and Mississippi Railroad
- Dean Votgman, Parks and Rec Commission, District 5
- Mike Casey, Friends of West Duluth Parks and Trails
- Wayne Dupuis, Fond-du-Lac Band of Lake Superior Chippewa
- Jill Hoppe, Fond-du-Lac Band of Lake Superior Chippewa
- Jack Ezell, Western Lake Superior Sanitary District
- Daryl Peterson, Minnesota Land Trust
- Hansi Johnson, Minnesota Land Trust
- Rick Staffon, Izaak Walton League
- Denette Lynch, Friends of West Duluth Parks and Trails
- Charlie Staudahar, Spirit Lake Development
- Bill Majewski, Morgan Park Community Club - St. Louis River Alliance
- Amanda Crosby, Parks and Rec Commission - Disability Rep
- Alison J. Clarke, Friends of West Duluth Parks and Trails
- Harry Hanson, Friends of West Duluth Parks and Trails
- Virginia Olson, Friends of West Duluth Parks and Trails
- Joel Manus, Lake Superior and Mississippi Railroad
- Brad Massengill, Lake Superior and Mississippi Railroad
- Debbie Isabell-Nelson, Morgan Park Community Club
- Lisa Angelos, MnDNR – Jay Cooke State Park
- John Lindgren, MnDNR
- Erin Endsley, MN Pollution Control Agency
- Glenn Merrick, Izaak Walton League
- David Bolgrien, Environmental Pollution Control Agency
- Deb DeLuca, Duluth Seaway Port Authority
- Will Munger, Izaak Walton League
- Mike Bares, MN Pollution Control Agency
- Scott Cieniawski, Environmental Protection Agency
- Keith Okeson, Lake Superior Muskies
- Pat Okeson, Lake Superior Muskies
- Craig Sterle, Izaak Walton League
- Kevin Johnson, MnDNR - Parks and Trails - Two Harbors
- Charlie Nelson, Twin Ports Walleye Association
- Dave Nelson, Twin Ports Walleye Association
- Russ Francisco, Marine General
GUIDING PRINCIPLES
Goals and Objectives
Western Waterfront Trail Vision (1979 to present): 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 La neighborhood in West Duluth. The lineal pathway system will provide a unique and safe experience for trail users of all abilities, and will also educate, honor, and celebrate our 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.

Community Connection
• Enhance sense of community by creating a lineal 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 accessibility for all people by ensuring trail is designed to ADA standards where feasible, minimize trail crossings and provide safe access points. Be respectful to immediate landowners and neighbors.
GUIDING PRINCIPLES
Goals and Objectives

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.
EXISTING CONDITIONS & STUDY AREAS

Overall Site Map

WESTERN WATERFRONT TRAIL & PARK MASTER PLAN  Duluth, Minnesota

ST. LOUIS RIVER CORRIDOR

November 15, 2016
EXISTING CONDITIONS
Current Extents
PLANNING FOR INTERPRETATION
An Overview of the Rich Cultural and Natural Heritage
Along the St. Louis River Corridor
BRANDING + INTERPRETATION

Goal: To Clarify Our Vision

- What makes the region unique?
- What does heritage mean to you?
- What makes up our heritage? What are the stories and defining features along the trail corridor that we want to honor and celebrate?
- What does the future of the Western Waterfront Trail and Park look like to you?
LaPointe Treaty opens the land for European settlement and establishes the Fond du Lac Reservation in 1854.

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

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.

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

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

First train arrives in Duluth from St. Paul 1870.

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

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.

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

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INTERPRETIVE PLAN

Signage

LARGE, LANDMARK SIGNS

MEDIUM, INFORMATIONAL SIGNS

SMALL, PEDESTRIAN-LEVEL SIGNS

WESTERN WATERFRONT TRAIL & PARK MASTER PLAN Duluth, Minnesota

ST. LOUIS RIVER CORRIDOR
PLANNING FOR ST. LOUIS RIVER ACCESS

New Sites:
- Lower Spirit
- Slag Point

Existing Sites:
- Munger Landing
- Boy Scout Landing
- Perch Lake
NON-MOTORIZED PUT-IN SITES

Best Practices*

**Accessible**
- 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

**Best-suited Launch Type**
- Choose most suitable type of launch for water body, climate and ecological factors

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

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

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
ACCESSIBLE BOAT LAUNCH + 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
ST. LOUIS RIVER WATER TRAIL ACCESS POINTS

Surrounding Amenities

**Grassy Point**
- Shore fishing
- Canoeing and kayaking
- Birding
- Scenic overlook
- Hiking (trailhead)
- Picnic

**Indian Point**
- Boat rental for canoeing & kayaking
- Shore fishing
- Hiking & Mountain biking (trailhead)
- Camping + concessions
- Restrooms
- Picnic Area
- Wild rice harvesting

**Lower Spirit**
- Beginner canoeing & kayaking in sheltered bay
- Birding
- Scenic Overlook
- Hiking & mountain biking
- LS&M Railroad excursion

**Spirit Lake Marina (private)**
- Boat & bike rentals
- Boat fishing
- Birding
- Concessions
- Hiking & mountain biking
- LS&M Railroad excursions
- RV camping
- Private restrooms

**Munger Landing**
- Canoeing, kayaking & motorized boating
- Shore fishing
- Birding
- Duck hunting
- Wild rice harvesting
- LS&M Railroad excursion
- Portable toilets

**Boy Scout Landing**
- Canoeing, kayaking, & motorized boating
- Shore fishing
- Wild rice harvesting
- Historical interpretation
- Camping
- LS&M Railroad Excursion
- Portable Toilets
ST. LOUIS RIVER WATER TRAIL ACCESS POINTS
Surrounding Amenities

**Perch Lake**
- Canoeing & Kayaking
- Shore fishing
- Hiking
- Birding
- Wild rice harvesting
- Duck hunting

**Historical Park**
- Canoeing and kayaking
- Shore fishing
- Birding
- Wild rice harvesting
- Historic interpretation

**Chambers Grove Park**
- Canoeing & kayaking
- Shore fishing
- Hiking & mountain biking trailhead
- Playground
- Historic Interpretation
- Restrooms
- Picnic Pavilion, Event Arbor Overlook
- Camping

**Mileage in between:**
- Grassy Point to Indian Point: 1.9 miles
- Indian Point to Lower Spirit: 1.3 miles
- Lower Spirit to Spirit Lake Marina: 0.5 miles
- Spirit Lake Marina to Munger Landing: 0.4 miles
- Munger Landing to Boy Scout Landing: 4.9 miles
- Boy Scout Landing to Perch Lake: 1.5 miles
- Perch Lake to Historical Park: 1.7 miles
- Historical Park to Chambers Grove: 0.3 miles
EXISTING CONDITIONS: LOWER SPIRIT MOUNTAIN RIVERFRONT
EXISTING CONDITIONS OF CLEAN-UP AREA

- 30 acres new shallow sheltered bays
- Environmental dredging—removal of 697,000 cubic yards
- Underwater environmental capping—109 acres (estuary)
- Natural recovery areas—89 acres
- Confined disposal facilities—3 CDFs, all above high-water line
- Improved unnamed creek stormwater drainage
- Two years to construct
EXISTING CONDITIONS: MUNGER LANDING

DNR Comments
- Large debris and washed up docks need to be reset in spring due to unprotected winter conditions
- Biggest complaint is portable toilets
- 3 core functional upgrades to DNR-managed boat launches: ADA, AIS, stormwater

Munger Landing Site Statistics
- 2.7 acres City-owned
- 2 clean + drain stations
- 2 boat ramps
- 1 fishing pier
- 1 boarding dock
- Walking distance to neighborhood, park, + bus line
- Paved parking for 11 car/trailers (upper lot)
- Renovated in 2003 with parking expansion
- Paved parking for 14 car/trailers (lower lot)
- Facility operated by the MN DNR, maintained by City of Duluth
- Paved parking for 2 accessible/4 cars (lower lot)
EXISTING CONDITIONS: BOY SCOUT LANDING

Boy Scout Landing Site Statistics

<table>
<thead>
<tr>
<th>Item</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>City-owned area</td>
<td>4.4 acres</td>
</tr>
<tr>
<td>Clean + drain stations</td>
<td>2</td>
</tr>
<tr>
<td>Boat ramps</td>
<td>2</td>
</tr>
<tr>
<td>Fishing pier</td>
<td>1</td>
</tr>
<tr>
<td>Boarding docks</td>
<td>2</td>
</tr>
<tr>
<td>Walking distance to neighborhood, park, + bus line</td>
<td>Renovated in 2012 to move pier/reduce parking</td>
</tr>
<tr>
<td>Portable toilets</td>
<td>2</td>
</tr>
<tr>
<td>Adjacent campground</td>
<td>Facility operated by the MN DNR, maintained by City of Duluth</td>
</tr>
</tbody>
</table>

DNR Comments
- Need for more parking (private lot to north, city land to west)
- Popular fishing at pier for diversity and quantity
- 3 core functional upgrades to DNR-managed boat launches: ADA, AIS, stormwater

WESTERN WATERFRONT TRAIL & PARK MASTER PLAN Duluth, Minnesota

ST. LOUIS RIVER CORRIDOR

November 15, 2016
EXISTING CONDITIONS: PERCH LAKE

Perch Lake Site Statistics

- 2.22 acres City-owned
- Originally built in _______1993________
- Gravel parking for 10? Facility operated by the MN DNR, maintained by City of Duluth
- Stair access (27 risers) to water’s edge
- Small shoreline access with bench
- Adjacent informal trail
- Walking distance to neighborhood, park, + bus line

WESTERN WATERFRONT TRAIL & PARK MASTER PLAN Duluth, Minnesota

ST. LOUIS RIVER CORRIDOR

Walking distance to neighborhood, park, + bus line

MONTHLY PERFORMANCE

DRIVEN DESIGN.
PLANNING FOR RAIL AND TRAIL EXTENSION

Four Alternatives:

- Trail Only
- Rail Only
- Rail with Optimum Trail
- Rail with Value Engineered Trail
PRECEDEMTS
Rail to Trail

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
PRECEDEENTS
Rail and Trail

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
TRAIL TYPES

TRADITIONAL – SECTION AT INLAND ROUTE

- Existing Scenic Rail
- Landscape Barrier

TIGHT TO SHORELINE EMBANKMENT – SECTION AT BLACKMERE PARK

- Existing Scenic Rail
- Fence

TIGHT TO SHORELINE EMBANKMENT – SECTION AT MUD LAKE CAUSEWAY

- Existing Scenic Rail
- Existing Shoreline
- Barrier
- Rail
- Helical Pile

WETLAND ENCROACHMENT – SECTION AT EAST McCUEN ST

- Existing Scenic Rail
- Existing Wetland Edge
- Fence

TRAIL DESIGN STANDARDS:
- A separation of 15' from centerline of rail to edge of trail is desired where feasible.
- 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.
- Where centerline of rail to edge of trail separation is 8.5', an unsurmountable fence will be necessary.
- Minimum statutory clearance for structures, bridges, and tunnels is 8.5' from centerline of rail.

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

November 15, 2016
OVERALL TRAIL ALIGNMENT ALTERNATIVES

Duluth, Minnesota

Legends:
- Existing Trail
- Study Area Boundary
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Riverine
- Tight to Shoreline Embankment
- Inland Route Install
- Traditional Trail Install
- Traditional Trail Install +0.89 MILES
- Tight to Shoreline Embankment +2.20 MILES
- Inland Route Install +3.88 MILES

TRAIL OPTIONS (FOR GUIDING PRINCIPLE COMPARISON)
- Rail Only
- Trail Only
- Rail with Optimum Trail (Water's Edge)
- Rail with Value Engineered Trail (Inland Routes)

TRADITIONAL TRAIL INSTALL +2.08 MILES
WETLAND ENCROACHMENT +1.89 MILES
TIGHT TO SHORELINE EMBANKMENT +2.20 MILES
INLAND ROUTE INSTALL +3.88 MILES
TRAIL EXTENSION SEGMENT 1: SPIRIT LAKE MARINA TO MUNGER LANDING

Traditional Trail Install (765 LF)

Wetland Encroachment Trail Install (920 LF)

Tight to Shoreline Embankment Trail Install (800 LF)

Drainage Crossings (2 Total)

Total Waterfront Distance Segment 1: 2485 LF (.47 mile)

WESTERN WATERFRONT TRAIL & PARK MASTER PLAN  Duluth, Minnesota

ST. LOUIS RIVER CORRIDOR

November 15, 2016
## COST SUMMARY

### WESTERN WATERFRONT TRAIL EXTENSION COMPARISON SUMMARY

<table>
<thead>
<tr>
<th>TRAIL SEGMENT</th>
<th>RAIL ONLY</th>
<th>TRAIL ONLY</th>
<th>RAIL WITH OPTIMUM TRAIL</th>
<th>RAIL WITH VALUE ENGINEERED TRAIL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Segment 1: Spirit Lake Marina to Munger Landing</td>
<td>$0</td>
<td>$385,080</td>
<td>$1,611,480</td>
<td>$1,611,480</td>
</tr>
<tr>
<td>Segment 2: Munger Landing to EPA/US Steel Clean-up</td>
<td>$0</td>
<td>$377,580</td>
<td>$1,225,860</td>
<td>$1,020,600</td>
</tr>
<tr>
<td>Segment 3: EPA/US Steel Clean-up to Spirit Point</td>
<td>$0</td>
<td>$1,162,800</td>
<td>$2,475,000</td>
<td>$3,031,500</td>
</tr>
<tr>
<td>Segment 4: Spirit Point to East McCuen Street</td>
<td>$0</td>
<td>$1,152,612</td>
<td>$14,011,926</td>
<td>$3,604,655</td>
</tr>
<tr>
<td>Segment 5: East McCuen Street to Boy Scout Landing</td>
<td>$0</td>
<td>$509,280</td>
<td>$940,410</td>
<td>$1,166,400</td>
</tr>
<tr>
<td>Segment 6: Boy Scout Landing to Perch Lake Access</td>
<td>$0</td>
<td>$864,000</td>
<td>$864,000</td>
<td>$864,000</td>
</tr>
<tr>
<td>Segment 7: Perch Lake Access to Chambers Grove</td>
<td>$0</td>
<td>$921,300</td>
<td>$921,300</td>
<td>$921,300</td>
</tr>
<tr>
<td><strong>CONSTRUCTION TOTAL</strong></td>
<td><strong>$0</strong></td>
<td><strong>$5,372,652</strong></td>
<td><strong>$22,048,976</strong></td>
<td><strong>$12,219,935</strong></td>
</tr>
</tbody>
</table>

### NOTES:
1. LIN FT prices account for mobilization, clearing and grubbing, erosion and sediment control, landscaping and minor drainage modifications.
2. Contingencies are included as provisions to cover unforeseen circumstances that would affect the overall construction costs.
3. Estimates do not include costs for survey, engineering design, environmental analysis, permitting, or construction administration/site observation.
4. Topographic survey and geotechnical information were not available at the time of this estimate.
5. Track removal includes removal and appropriate disposal of metal rail, wood ties, and preparation of remaining ballast as trail sub-base.
6. 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.
7. Rail with optimum trail option assumes trail will be constructed between existing rail and shoreline.
8. 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.
9. 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.
10. 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 TYPES COSTS (PER LIN FT)

<table>
<thead>
<tr>
<th>TRAIL TYPES</th>
<th>COSTS (PER LIN FT)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Traditional on-existing rail bed</td>
<td>$100</td>
</tr>
<tr>
<td>Traditional next to existing rail</td>
<td>$180</td>
</tr>
<tr>
<td>Inland route on cleared alignment</td>
<td>$225</td>
</tr>
<tr>
<td>Inland route on forested alignment</td>
<td>$270</td>
</tr>
<tr>
<td>Wetland encroachment</td>
<td>$275</td>
</tr>
<tr>
<td>Tight to shoreline fill slope</td>
<td>$375</td>
</tr>
<tr>
<td>Tight to shoreline elevated structure</td>
<td>$2,000</td>
</tr>
<tr>
<td>Causeway widening</td>
<td>$2,000</td>
</tr>
<tr>
<td><strong>Trail Salvage Income (lump sum)</strong></td>
<td><strong>$300,000</strong></td>
</tr>
</tbody>
</table>
Concept Plan Differences

<table>
<thead>
<tr>
<th>2015 Plan</th>
<th>Updated Concept</th>
</tr>
</thead>
<tbody>
<tr>
<td>24' Paved Road</td>
<td>16' Gravel Connector</td>
</tr>
<tr>
<td>Parking for 16+ 3 trailer</td>
<td>Parking for 2 or 3</td>
</tr>
<tr>
<td>2 Beach Launch Areas</td>
<td>1 (or 2) Beach Launch Areas</td>
</tr>
<tr>
<td>Restroom + Changing Enclosure</td>
<td>Open Staging Area</td>
</tr>
<tr>
<td>Elaborate Site Amenities (picnic tables, council ring, fire pit, water pump, lighting)</td>
<td>Modest Site Amenities (seat boulders, trailhead sign, trash receptacles)</td>
</tr>
<tr>
<td>Potential for Future Development (showers, small building + retail, DNR office)</td>
<td>Not Planned</td>
</tr>
</tbody>
</table>

LOWER SPIRIT MOUNTAIN CONCEPT
PERCH LAKE CONCEPT

Legend

- City of Duluth Property
- Parcel Line

- Parking and turnaround
- Picnic area
- Vault toilet
- ADA beach access
- Reinforced kayak launch
- Culvert with outcropping
- Lowland Swamp
- Perch Lake restoration (part of AOC clean up) opportunity for beginner paddlers
- Realigned trail
- Hwy 23
- Culvert with outcropping

WESTERN WATERFRONT TRAIL & PARK MASTER PLAN

Duluth, Minnesota

ST. LOUIS RIVER CORRIDOR

November 15, 2016
THANK YOU

• Please fill out a comment card before you leave!

• Please check out the City Parks website at http://www.duluthmn.gov/parks and take the online survey!