

# Request for Funding

## Lessard-Sams Outdoor Heritage Council Fiscal Year 2016 / ML 2015

**Program or Project Title:** Lake Bemidji South Shore Restoration and Enhancement

**Funds Requested:** \$1,650,000

**Manager's Name:** John Chattin

**Title:** City Manager

**Organization:** City of Bemidji

**Street Address:** 317 Fourth Street NW

**City:** Bemidji, MN 56601

**Telephone:** 2187593565

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**Organization Web Site:** <http://www.ci.bemidji.mn.us/>

**County Locations:** Beltrami

**Ecological Planning Regions:**

- Northern Forest

**Activity Type:**

- Restore
- Enhance
- Public Education

**Priority Resources Addressed by Activity:**

- Habitat

### Abstract:

After a century of industrial use, project will bring the Lake Bemidji's South Shore to its original state. The city will remove 8400 cubic yards of woody debris from lake-bottom and plant native vegetation to restore and enhance aquatic habitat.

### Design and Scope of Work:

The Lake Bemidji South Shore Restoration and Enhancement project will transform a blighted shoreline and disturbed lake bed of one of northern Minnesota's finest urban lakes into a shining model of effective restoration to its native state, improving water quality and aquatic habitat. The project is the final step of a massive restoration and enhancement effort led by the City of Bemidji, in partnership with the Minnesota DNR and the Minnesota DEED.

Lake Bemidji is the first major lake in the Upper Mississippi River watershed. It supports a diverse high quality fishery for walleye, northern pike, yellow perch and muskie. These species are dependent on high quality fish habitats.

The south shore of Lake Bemidji has a long history of industrial use. These uses have altered the shoreline and impacted water quality. The site has housed several industries over the years, primarily forestry companies. With their closing and/or relocation, the site became a blighted brownfield. Adjacent to downtown Bemidji, the area includes approximately one mile of shoreline.

For the past six years, the city of Bemidji has partnered with the DNR and DEED to clean-up the site, and restore the shoreline to its native state. Specifically:

- The city purchased the site, placed the site on the Voluntary Investigation and Clean-Up program at MPCA, and using a DEED redevelopment grant, cleaned up roughly 50 acres of land in the area.
- The DNR purchased land from the city and extended the Paul Bunyan State Trail through the site.
- The city permanently designated all the lakeshore between the trail and the lake itself as public land.
- The DNR purchased a large parcel of the eastern shoreline as a DNR Aquatic Management Area.

Despite these efforts, much work remains to be done, some on the lakeshore and some within the lake bed. Woody debris from the old Crookston Lumber mill remains within the lake. Approximately 8,400 cubic yards of woody debris remains in the south shore of the lake bottom and lake shore. Specifically, the woody debris covers 1,500 feet of lakeshore, runs out 200 feet from the shore and averages roughly 12" deep.

In addition, the lakeshore needs to be restored to its original state, including native vegetation, trees, shrubs and natural erosion control. Specifically, 10 acres of land between the trail and the lake will be replanted with native vegetation, improving the water quality and aquatic in the lake.

Once completed, the project will return the south shore of Lake Bemidji to its native state for the first time in a century. The proposed project will improve the structural integrity of the shoreline and help address water quality and aquatic habitat issues in an urban-recreational setting.

When the restoration and enhancement of the site is complete, the city will develop (with funding outside of Outdoor Heritage Council support) a regional park that will highlight and provide public education on the water quality and aquatic habitat restoration work. The park will utilize roughly 20 percent of the shoreline. Overall, the project will showcase the effective balancing of environmental protection and enhancement and public use and education on one of northern Minnesota's premier lakes.

The following are additional details on each activity proposed for Outdoor Heritage Fund support:

#### Shoreline Restoration:

The historic industrial use of the site has altered the south shoreline of Lake Bemidji. The effect has been a reduction in water quality and a negative impact on aquatic habitat.

In May, 2014, DNR specialists assessed the south shore site to determine the potential of restoring the site. A copy of the assessment is attached to this proposal.

From that assessment, the DNR has recommended substantial clean-up and restoration work be completed on the site. The DNR believes the restoration will be both visibly appealing and also serve to improve the water quality, habitat and erosion control on site.

Specifically, the restoration plan includes:

- Site monitoring
- Site preparation/treatment of weeds
- Installation of native seed mixes
- Installation of 10,000 native plugs
- Planting 800 (#2) shrubs
- Planting 10 (#10) native trees
- Weed control
- Installation of erosion control on existing conditions

The city has received estimates on the improvements and expects the cost to be roughly \$150,000. The city is committed to maintaining the improvements long term through its parks and recreation department.

#### Woody Debris Removal:

Over the past year, the city has studied the woody debris issues within the south shore of Lake Bemidji. Plans, specifications and design for removing the woody debris have been completed. Specifically, the plans call for lowering the lake level, developing a temporary barrier wall around the area (protecting the fish) and excavating the material out of the lake.

The city has already received the following permits for the project:

- DNR Water Permit
- Army Corps of Engineers Permit- Initial Preoffered Permit
- MPCA Solid Waste/Beneficial Reuse
- Section 106 Review
- Bois Forte Band Clearance Letter
- Leech Lake Band Clearance Letter

A total of 8,400 cubic yards of woody debris will be removed (840 truck-loads). The excavated area will extend 200 feet out from the shore, covering 1,500 feet of shoreline. The debris would be removed to an estimated depth of 12 inches. Overall, 300,000 square feet of Lake Bemidji would be clean-up and restored.

The excavated woody debris would be screened into various sizes and reused by local landscape companies.

To date, the city has expended \$50,000 in the plans, specifications and permitting. The estimated cost to restore the lake bed is \$1.5 million.

#### Summary:

Lake Bemidji is one of northern Minnesota's most critical natural assets. The City of Bemidji is requesting \$1.65 million in Outdoor Heritage funding to complete the shoreline restoration and woody debris removal. The restoration and enhancement activities will improve water quality and support aquatic habitat. The project will restore the south shore of Lake Bemidji to its native state.

### How the request addresses MN habitats:

Lake Bemidji is the first major lake in the Upper Mississippi River watershed. It supports a diverse, high quality fishery for walleye, northern pike, yellow perch and muskie. These species are dependent on high quality fish habitats. The south shore of Lake Bemidji has long a history of industrial use. These uses have altered the shoreline and impacted water quality. Efforts to remove woody debris from the lake bed and restore native vegetation along the south shore will improve the structural integrity of the shoreline and lake bed and help address water quality issues in an urban-recreational setting.

The project restores the lake bottom and shoreline to match the existing lake which will promote wildlife expansion into this area. Also the project reduces exposure of wildlife to debris and to contaminated sediments and soil.

### Please explain the nature of urgency:

The health of the region's economy is directly tied to the quality of the natural environment, especially Lake Bemidji. For a century, the south shore has been a brownfield. The city, state (DEED, DNR) have invested in restoring and enhancing the south shore. This project will finally complete that restoration.

## Planning

#### MN State-wide Conservation Plan Priorities:

- H2 Protect critical shoreland of streams and lakes
- H6 Protect and restore critical in-water habitat of lakes and streams

#### Plans Addressed:

- Mississippi River Headwaters Comprehensive Plan
- Minnesota Department of Natural Resources: Fish Habitat Plan

### Please describe the science based planning and evaluation model used:

The site, enrolled in the MPCA Brownfields Program, has soil and sediment contamination. The MPCA follows a risk-based approach and is based on risk to human health and the environment and uses risk assessment, soil physics, hydrogeology and remediation technologies and takes into account receptors and risk exposure pathways.

## LSOHC Northern Forest Section Priorities:

- Protect shoreland and restore or enhance critical habitat on wild rice lakes, shallow lakes, cold water lakes, streams and rivers, and spawning areas

## Accelerates or Supplements Current Efforts:

The project is a natural next step in the City of Bemidji's efforts to restore and enhance Lake Bemidji. In 2010, in partnership with the DNR, the lakeshore adjacent to the proposed project site was purchased and established as a permanent Lake Bemidji Aquatic Management Area. In addition, the DNR's Paul Bunyan State Trail was extended adjacent to the AMA and project site so support public education and access to the area.

The project site itself is located directly between the Paul Bunyan State Trail and Lake Bemidji. The City owns the land and have placed it in permanent public ownership. The site is roughly 10 acres of shoreline and 7 acres within Lake Bemidji (industrial wood chip removal).

In addition to this project, the city, through a Shoreland Habitat Project Grant, created a shoreland buffer in Cameron Park on Lake Bemidji in 2010. The shoreland Restoration project focused on 500 ft of the shore in the traditional park area. Approximately 2000 trees, shrubs and plugs were planted along 500 ft of the shoreland. The goal was to create a buffer zone that would reduce erosion, increase wildlife habitat, deter geese and other nuisance animals, and improve water quality.

## Non-OHF Money Spent in the Past:

Appropriation Year	Source	Amount
2010	Minnesota DNR	\$400,000
2010	City of Bemidji; Shoreland Habitat Project Grant	\$47,000

## Sustainability and Maintenance:

The short term maintenance activities for the restoration project include weeding, watering, and supplemental planting. The City of Bemidji will contract with the Minnesota Conservation Crew to provide labor for weeding and supplemental planting during the initial project years. The City Parks Department will water the site as needed utilizing the city water truck.

Long term maintenance will be a function of the City of Bemidji Parks Department and coordinated volunteer efforts. The Minnesota Conservation Crew will be utilized by the City to ensure the buffer area is properly weeded and planted (if necessary) into the long term. Weeding will take place at least twice a year – once in the spring and once in the fall to ensure the native species are thriving and invasive species are removed. The site will be evaluated on an annual basis. Watering and replanting will be done as needed.

Ongoing maintenance of the restoration work within Lake Bemidji will include annual clean-up of any additional woody debris that may have drifted in with the current. The City of Bemidji will be responsible for the annual maintenance of the site.

## Maintain Project Outcomes:

Year	Source of Funds	Step 1	Step 2	Step 3
2014	City of Bemidji	Weed control and site maintenance	Additional woody debris removal as needed	
2015	City of Bemidji	Weed control and site maintenance	Additional woody debris removal as needed	
2016	City of Bemidji	Weed control and site maintenance	Additional woody debris removal as needed	

## Applicable Criteria:

*If funded, this proposal will meet all applicable criteria set forth in MS 97A.056? - Yes*

## Best Management Practice:

*Will restoration and enhancement work follow best management practices including MS 84.973 Pollinator Habitat Program? - Yes*

## Permanent Protection:

*Is the activity on permanently protected land per 97A.056, subd 13(f), tribal lands, and/or public waters per MS 103G.005, Subd. 15? - Yes (County/Municipal, Public Waters)*

## Accomplishment Timeline

Activity	Approximate Date Completed
Develop plans, specifications, designs and permitting	Completed
Advertise for bids	June 2015
Award contract	July 2015
Start clean-up, restoration and enhancement activity	August 2015
Clean-up, restoration and enhancement activity complete	November 2015
Regional park development	May 2016

## Outcomes

### Programs in the northern forest region:

- Improved aquatic habitat indicators

## Relationship to Other Funds:

- Clean Water Fund
- Parks and Trails Fund

The city will be requesting funding from Parks and Trails Fund to partner with the city to develop a regional park on site. The park would be a showcase facility that will statewide model on how to successfully balance public access, economic interests and aquatic restoration activities. Funding for Clean Water Fund may be requested to support the restoration of native vegetation and other water quality measures.

# Budget Spreadsheet

**Total Amount of Request: \$1,650,000**

## Budget and Cash Leverage

Budget Name	LSOHC Request	Anticipated Leverage	Leverage Source	Total
Personnel	\$0	\$0		\$0
Contracts	\$1,650,000	\$1,500,000	City of Bemidji, Parks and Trails Fund	\$3,150,000
Fee Acquisition w/ PILT	\$0	\$0		\$0
Fee Acquisition w/o PILT	\$0	\$0		\$0
Easement Acquisition	\$0	\$0		\$0
Easement Stewardship	\$0	\$0		\$0
Travel	\$0	\$0		\$0
Professional Services	\$0	\$50,000		\$50,000
Direct Support Services	\$0	\$0		\$0
DNR Land Acquisition Costs	\$0	\$0		\$0
Capital Equipment	\$0	\$0		\$0
Other Equipment/Tools	\$0	\$0		\$0
Supplies/Materials	\$0	\$0		\$0
DNR IDP	\$0	\$0		\$0
Total	\$1,650,000	\$1,550,000	-	\$3,200,000

Amount of Request: \$1,650,000

Amount of Leverage: \$1,550,000

Leverage as a percent of the Request: 93.94%

## Output Tables

**Table 1a. Acres by Resource Type**

Type	Wetlands	Prairies	Forest	Habitats	Total
Restore	0	0	0	7	7
Protect in Fee with State PILT Liability	0	0	0	0	0
Protect in Fee W/O State PILT Liability	0	0	0	0	0
Protect in Easement	0	0	0	0	0
Enhance	0	0	0	10	10
Total	0	0	0	17	17

**Table 2. Total Requested Funding by Resource Type**

Type	Wetlands	Prairies	Forest	Habitats	Total
Restore	\$0	\$0	\$0	\$1,500,000	\$1,500,000
Protect in Fee with State PILT Liability	\$0	\$0	\$0	\$0	\$0
Protect in Fee W/O State PILT Liability	\$0	\$0	\$0	\$0	\$0
Protect in Easement	\$0	\$0	\$0	\$0	\$0
Enhance	\$0	\$0	\$0	\$150,000	\$150,000
Total	\$0	\$0	\$0	\$1,650,000	\$1,650,000

**Table 3. Acres within each Ecological Section**

Type	Metro/Urban	Forest/Prairie	SE Forest	Prairie	Northern Forest	Total
Restore	0	0	0	0	7	7
Protect in Fee with State PILT Liability	0	0	0	0	0	0
Protect in Fee W/O State PILT Liability	0	0	0	0	0	0
Protect in Easement	0	0	0	0	0	0
Enhance	0	0	0	0	10	10
Total	0	0	0	0	17	17



**Table 4. Total Requested Funding within each Ecological Section**

Type	Metro/Urban	Forest/Prairie	SE Forest	Prairie	Northern Forest	Total
Restore	\$0	\$0	\$0	\$0	\$1,500,000	\$1,500,000
Protect in Fee with State PILT Liability	\$0	\$0	\$0	\$0	\$0	\$0
Protect in Fee W/O State PILT Liability	\$0	\$0	\$0	\$0	\$0	\$0
Protect in Easement	\$0	\$0	\$0	\$0	\$0	\$0
Enhance	\$0	\$0	\$0	\$0	\$150,000	\$150,000
Total	\$0	\$0	\$0	\$0	\$1,650,000	\$1,650,000

**Table 5. Average Cost per Acre by Resource Type**

Type	Wetlands	Prairies	Forest	Habitats
Restore	\$0	\$0	\$0	\$214,286
Protect in Fee with State PILT Liability	\$0	\$0	\$0	\$0
Protect in Fee W/O State PILT Liability	\$0	\$0	\$0	\$0
Protect in Easement	\$0	\$0	\$0	\$0
Enhance	\$0	\$0	\$0	\$15,000

**Table 6. Average Cost per Acre by Ecological Section**

Type	Metro/Urban	Forest/Prairie	SE Forest	Prairie	Northern Forest
Restore	\$0	\$0	\$0	\$0	\$214,286
Protect in Fee with State PILT Liability	\$0	\$0	\$0	\$0	\$0
Protect in Fee W/O State PILT Liability	\$0	\$0	\$0	\$0	\$0
Protect in Easement	\$0	\$0	\$0	\$0	\$0
Enhance	\$0	\$0	\$0	\$0	\$15,000

**Target Lake/Stream/River Feet or Miles**

1

# Parcel List

## Section 1 - Restore / Enhance Parcel List

Beltrami

Name	TRDS	Acres	Est Cost	Existing Protection?
South Shore of Lake Bemidji	14633215	17	\$1,650,000	Yes

## Section 2 - Protect Parcel List

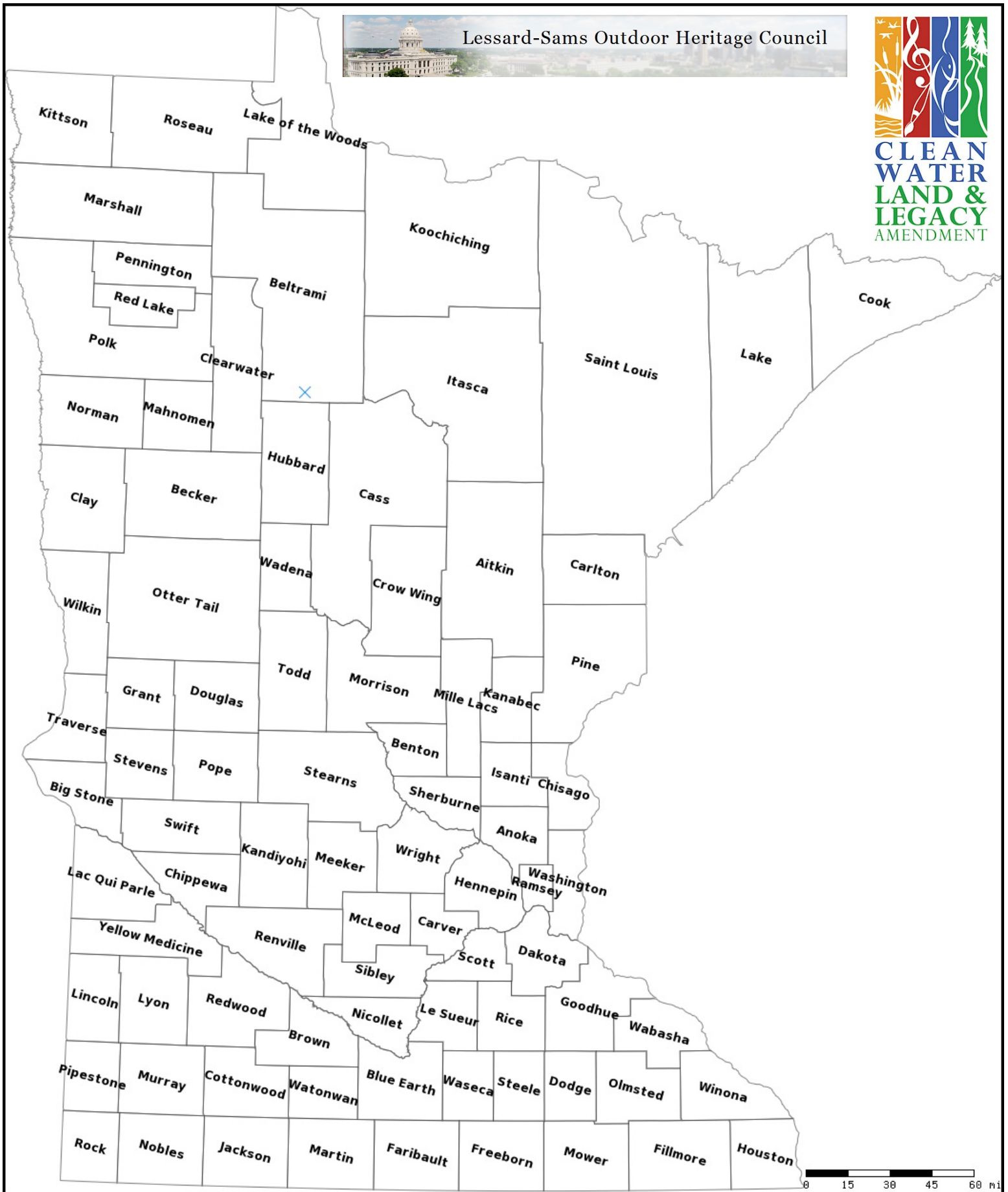
No parcels with an activity type protect.

### Section 2a - Protect Parcel with Bldgs

No parcels with an activity type protect and has buildings.

## Section 3 - Other Parcel Activity

No parcels with an other activity type.



## Lake Bemidji South Shore Restoration and Enhancement

### Legend

- Protect in Easement
- ▲ Protect in Fee with PILT
- Protect in Fee W/O PILT
- ★ Restore
- ✕ Enhance
- ✚ Other

## **South Shore of Lake Bemidji Restoration**

An initial site visit of the City of Bemidji property on the south side of Lake Bemidji was conducted on May , 2014. The entire length of the shoreline property was walked and possibilities for restoration work were discussed. The area between the shore of the lake and the bike trail is in a natural state with varying degrees of restoration needed. In some areas there are abundant native vegetation and trees and shrubs and minimal restoration is needed. In other areas with more impact from the previous industrial plant have more nonnative weeds and very little native vegetation. In these areas a full restoration starting with killing off the nonnative weeds will be needed. In particular the area to the East of the proposed swimming beach could be restored to native upland vegetation that would benefit pollinators and create a buffer to filter any runoff from the development proposed south of the bike trail. Along the shore in various areas additional trees and shrubs could be added. Also as you move East along the shoreline transitional zone plants or aquatic plants could be added to the shoreline such as native sedges and blue flag iris. Areas for upland restoration are approximately 2.5 acres. Particularly in areas close to the public access on the East side additional native shoreline vegetation could be added if the old wood chips piled up on shore could be removed. Species such as wool grass, blue flag iris, prairie cord grass and many sedges could be planted to stabilize this shoreline and provided some much needed habitat in these areas. See photo below.





Once these areas are restored to native plants on the shoreline, the roots and plants will heave and move with the shoreline during ice push and protect the shoreline once it thaws. I see no need for rock rip rap at this site. Unnecessary rock will get heaved by the ice and does much more damage along a shoreline because it does not flex like the roots of trees, shrubs and plants.

It is doubtful that emergent aquatic vegetation will be restored out in the lake at this site. With the wave and ice action and hard sand substrate underneath it is doubtful that any emergent vegetation ever grew in this location on the lake. Looking back at the 1940's aerial photo there is no evidence of emergent vegetation at this site.

There is one small area of erosion on the far eastern part of the property behind the new hotel that is being built. This area, approximately 30 feet long could be stabilized by biologs or brush bundles, regraded at a less than 3:1 slope, covered in erosion control fabric and planted and seeded in native plants. This is an area where a walking path ends at the lake and is likely a nice viewing area of the lake for users of the bike path. See photo below:

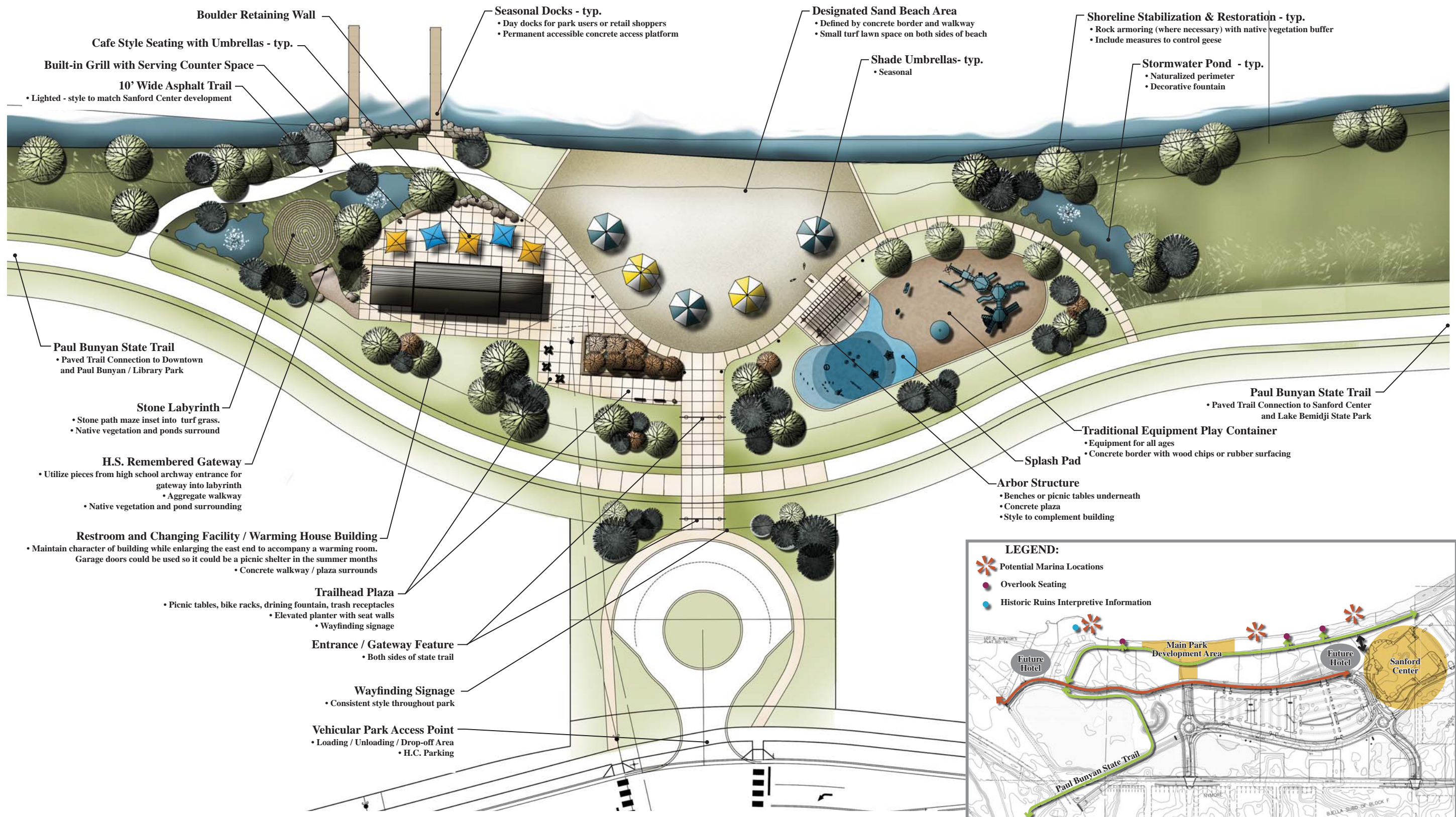


Heather Baird  
Aquatic Habitat Specialist Sr.  
MN DNR



# South Shore Park Master Plan

City of Bemidji, Minnesota



Preliminary Master Plan

# Summary

## Lake Bemidji South Shore Restoration

June, 2014

### ***Woody Debris Removal:***

- Project would remove approximately 8400 cubic yards of woody debris from the lake bottom and shore of Lake Bemidji – roughly 840 dump trucks of material.
- The project would extend into the lake about 200 feet from shore and for a distance along the shoreline of 1500 feet. The excavation and removal of the debris would be to a depth of 12”.
- 300,000 square feet of Lake Bemidji would be cleaned up.
- The excavated woody debris would be brought to shore where it will be screened into various sizes. We have contacted various local landscape companies that would be willing to take the screened wood chips and they would make them into mulch.
- 26,000 square feet of lake shore would be raked and restored
- 900 cubic yards of beach sand would be imported to create the lake bottom for the beach area.
- To date, the city has spent approximately \$50,000 on design, bidding and permits.
- The following permits have already been obtained for the project:
  - DNR Public Waters Permit
  - Army Corps of Engineers Permit – Initial Proffered Permit
  - MPCA Solid Waste/Beneficial Reuse
  - Section 106 Review
  - Bois Forte Band of Ojibwe Clearance Letter
  - Leech Lake Band of Ojibwe Clearance Letter



### ***Restoration and Enhancement of Lakeshore:***

- City will restore the approximately one mile of shoreline to its native state
- Project will plant:
  - 800 Native Shrubs (#2)
  - 10 Native Trees (#10)
  - 10,000 Native Plugs
  - Native Seed Mix
- Site includes all land between the State's Paul Bunyan Trail and Lake Bemidji and is adjacent to the DNR Aquatic Management Area
- Site will remain in permanent public ownership
- City is committed to long-term weeding and maintenance of site
- Restoration will have significant positive impact on water quality and aquatic habitat in Lake Bemidji

### ***Regional Park Development:***

- Will utilize roughly 20% of the proposed site
- City park that will serve regional and statewide user groups, connecting people to the outdoors
- Will provide public educational opportunities in water quality and restoration of the natural environment to better develop Minnesota's stewards of tomorrow
- Will serve as a national model of how environmental, public and economic interests can successfully be supported in a community