



## Lessard-Sams Outdoor Heritage Council

Silver Lake Dam Fish Passage Modification  
Laws of Minnesota 2024 Accomplishment Plan

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### General Information

**Date:** 06/26/2024

**Project Title:** Silver Lake Dam Fish Passage Modification

**Funds Recommended:** \$2,368,000

**Legislative Citation:** ML 2024, Ch. 106, Art. 1, Sec. 2, Subd. 5(x)

**Appropriation Language:** \$2,368,000 the second year is to the commissioner of natural resources for an agreement with the city of Rochester to restore and enhance aquatic habitat in Silver Lake and the south fork of the Zumbro River by modifying the existing low-head dam in Rochester.

### Manager Information

**Manager's Name:** Matt Crawford

**Title:** Project Development Manager

**Organization:** City of Rochester - Public Works Department

**Address:** 301 37th St NW

**City:** Rochester, MN 55901

**Email:** mcrawford@rochestermn.gov

**Office Number:** 507-328-2411

**Mobile Number:**

**Fax Number:**

**Website:**

### Location Information

**County Location(s):** Olmsted.

**Eco regions in which work will take place:**

- Southeast Forest

**Activity types:**

- Restore

**Priority resources addressed by activity:**

- Habitat

## Narrative

### **Abstract**

The City of Rochester is proposing to modify the Silver Lake Dam with a fish passage rock arch rapids in 2025. This project is the first step in a comprehensive, long-term approach to modify all low head dams in the City to improve habitat connectivity in the South Fork Zumbro River network. The existing dam will be moved 700-ft upstream from the Broadway Avenue bridge, and fish passage ramp and wave pools constructed downstream of the dam crest. The dam conversion will add 16 miles of connected habitat and benefit state-threatened and native mussel species, as well as smallmouth bass.

### **Design and Scope of Work**

The Silver Lake Dam was constructed in 1937 and is located at the Broadway Avenue bridge over the South Fork Zumbro River. Nine other low head dams were constructed in the 1990's as flood control structures within the City of Rochester. These dams form fish barriers between the South Fork Zumbro River, Cascade Creek, Silver Creek, and Bear Creek.

The City of Rochester is proposing to modify the Silver Lake Dam with a fish passage rock arch rapids and wave pool channel by 2025. This project is the first step in a comprehensive, long-term approach to modify all low head dams in the City of Rochester for habitat connectivity. The existing concrete dam will be removed, and 700-ft of the upstream river channel will be shaped with rock fill with a cutoff wall control section at the upstream end of the fill. The City has an agreement with U.S. Army Corps of Engineers to maintain Silver Lake as a flow channel. The City will construct a 120-ft wide rock ramp in the existing riverbed directly downstream of the cutoff wall control section based on DNR guidance for Natural Channel Design in Dam Removals and Fish Passage. The fish passage channel will include a ramp slope no steeper than 3 percent, a series of 12-14 rock arch weirs with drops no greater than 0.8-ft between each weir, randomly placed fish gaps between weir stones, and a low flow channel to maintain fish movement under low flow conditions. Adjacent to the rock arch rapids fish ramp, the City will construct a series of 4-5 stepped, plunge pools formed by stone weirs that create wave features for tubers and kayakers, as well as fish habitat pools.

The proposed project was identified as a priority based on: 1) safety hazard of the recirculating currents that trap boaters and swimmers at the base of the dam, 2) increasing maintenance requirements of the aging Silver Lake Dam originally built in 1937, and 3) public support for environmental improvements to Silver Lake.

The proposed project is urgently needed to address the safety hazard the Silver Lake Dam poses to river users. The Silver Lake Dam is #23 on the 2021 MN DNR Dam Safety Project Priority List Legislative Report as a dam modification to restore fish passage. Modification of the largest dam in Rochester for fish passage is also a publicly visible first step to modifying all low head dams in Rochester and reconnecting river habitat along the South Fork Zumbro River network.

The City has used many different media events to get input on the project from a diverse and large number of community members: March 2019 open house attended by 80 people, November 2020 virtual open house attended by 1,607 people, post card mailings to 480 residents around Silver Lake, and social media posts viewed by 15,000 people. More than 500 people have responded to online surveys with an overwhelming majority supporting the project. An EAW was approved in 2021.

## **Explain how the plan addresses habitat protection, restoration, and/or enhancement for fish, game & wildlife, including threatened or endangered species conservation**

This proposal addresses habitat restoration and connectivity for fish and mussels in the South Fork Zumbro River network.

The proposed project replaces 700 linear feet of stagnant water and silt substrate with free-flowing water, pools, and diverse rock/cobble substrate that supports filter feeders, spawning, and refuge. Movement of water over the rock arch rapids fish passage ramp has added benefits of decreasing water temperatures and increasing aeration of the Silver Lake reservoir discharge.

Based on independent mussel surveys conducted by Dr. Brett Ostby within the last five years, the river reach directly downstream of the Silver Lake Dam supports a biologically significant mussel assemblage, including two state-threatened species and possibly as many as 10 native species. Dr. Ostby has compared his survey findings with two comprehensive mussel surveys of the watershed (Bright et al. 1988, Ward et al. 2014) and DNR mussel survey records. Repeated surveys conducted by Dr. Ostby directly downstream of the Silver Lake Dam have demonstrated that this reach supports one of the better mussel assemblages in the Zumbro River Watershed compared to observations from the past 32 years. Few sites across the watershed had a comparable combination of both live richness and abundance. Improved habitat connectivity throughout the City of Rochester will benefit migration of native mussel hosts to upstream portions of the Zumbro River and its tributaries.

Silver Lake supports bluegill, black crappie, yellow perch, and largemouth bass. Recent biological assessments of Silver Lake, South Fork Zumbro River, and other tributaries (Cascade Creek, Silver Creek, and Bear Creek) reported smallmouth bass downstream of the Silver Lake Dam but not upstream. Modification of the Silver Lake Dam for fish passage would increase recruitment and the habitat range of smallmouth bass in the South Fork Zumbro River.

### **What are the elements of this plan that are critical from a timing perspective?**

Completion of this project is critical from a timing perspective because of the number of significant capital improvements needed to maintain the Silver Lake Dam which was built in 1937. The dam is approaching 100 years old and will require ongoing stringent maintenance and monitoring into the future. The City is seeking the proposed project to replace the aging mechanical dam with a low-maintenance fish passage rock arch rapids and wave pools that also improve connectivity and habitat. The timing of the proposed project coordinates with other maintenance activities and projects in Silver Lake Park, such as a sewer replacement, Silver Lake sediment removal, and pedestrian trail and bridge improvements.

### **Describe how the plan expands habitat corridors or complexes and/or addresses habitat fragmentation:**

The South Fork Zumbro River is a tributary to the Mississippi River in southeastern Minnesota. Currently, low head dams disconnect habitat in the South Fork Zumbro River and its tributaries: Silver Creek, Cascade Creek, Salem Creek, Willow Creek, and Bear Creek. Poor habitat and lack of connectivity were identified as primary stressors to impaired fish communities in the South Fork Zumbro River and tributaries in the Minnesota Pollution Control Agency 2016 Zumbro River Watershed Stressor Identification report.

Modification of the Silver Lake Dam will increase the length of connected river upstream of Lake Zumbro along the South Fork Zumbro River network by 16 miles (from 19 to 35 miles). Future modification of all low head dams in the City of Rochester will eliminate all major fish barriers and result in a total of over 190 miles of connected habitat in the South Fork Zumbro River watershed.

**Which top 2 Conservation Plans referenced in MS97A.056, subd. 3a are most applicable to this project?**

- Long Range Plan for Fisheries Management
- State Comprehensive Outdoor Recreation Plan

**Explain how this plan will uniquely address habitat resilience to climate change and its anticipated effects on game, fish & wildlife species utilizing the protected or restored/enhanced habitat this proposal targets.**

Greater connectivity of stream habitat improves fish community resilience to aquatic life stressors resulting from future climate change. High imperviousness within urban areas and more extreme rainfall events predicted under future climate change are expected to increase the severity of stressors to aquatic life. Several streams come together in the City of Rochester and the removal of fish barriers will allow fish and macroinvertebrate populations to respond more quickly and be more resilient to stressors on aquatic life.

**Which LSOHC section priorities are addressed in this program?**

**Southeast Forest**

- Protect, enhance, and restore habitat for fish, game, and nongame wildlife in rivers, cold-water streams, and associated upland habitat

**Outcomes**

**Programs in southeast forest region:**

- Rivers, streams, and surrounding vegetation provide corridors of habitat ~ *The outcome of the proposed habitat corridor will be measured by the removal of the habitat barrier at the Silver Lake Dam and the miles of river habitat reconnected by the Silver Lake fish passage dam modification. The outcome of the proposed habitat corridor will be evaluated by partnering with MN DNR and other local mussel and fish biologists to complete pre- and post-construction mussel and fish species richness and abundance surveys to better quantify the benefits of fish passage dam modifications to native mussel assemblages and fish populations.*

**Per MS 97A.056, Subd. 24, Please explain whether the request is supplanting or is a substitution for any previous funding that was not from a legacy fund and was used for the same purpose.**

The proposed request does not supplant previous funding for the project. Rochester Public Utilities and the City of Rochester have committed a portion of the total budget. The proposed request would provide the remainder of funds needed. No other grant applications have been awarded to or submitted for this project.

**How will you sustain and/or maintain this work after the Outdoor Heritage Funds are expended?**

This project will be maintained through the City Flood Control Program which is funded through user fees and a local sales tax. Public Works Department staff will visually inspect and remove debris from the project on a bi-annual basis. After construction, the City will also fund a 3-year vegetation establishment and maintenance plan and solicit contractors as needed to modify the position of weir stones to maintain passable velocities for fish once the project has experienced a range of flow conditions.

**Actions to Maintain Project Outcomes**

Year	Source of Funds	Step 1	Step 2	Step 3
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2030+	City Flood Control Program	Spring/fall visual inspection and debris removal	-	-
2029	City Flood Control Program	Spring/fall visual inspection and debris removal	Native vegetation establishment and maintenance - Year 3	-
2028	City Flood Control Program	Spring/fall visual inspection and debris removal	Native vegetation establishment and maintenance - Year 2	-
2027	City Flood Control Program	Spring/fall visual inspection and debris removal	Native vegetation establishment and maintenance - Year 1	Weir stone adjustments to maintain velocities passable by fish

**Provide an assessment of how your program celebrates cultural diversity or reaches diverse communities in Minnesota, including reaching low- and moderate-income households:**

The Silver Lake Dam Modification project is located within Silver Lake Park which spans 134 acres around Silver Lake. The Silver Lake Park 2022 Master Plan community engagement process included a Diversity, Equity, Inclusion and Accessibility Focus Group and an East African Focus Group. These Focus Groups identified a desire for facilities to accommodate prayer in the park, which will promote access to the dam modification project by Muslim and East African community groups.

The Silver Lake Dam Modification project is also centrally located in Rochester and directly adjacent to Minnesota Pollution Control Agency-identified environmental justice census tracts with at least 40% of people reported income less than 185% of the federal poverty level and within 1-mile of environmental justice census tracts with 50% or more people of color. The proximity of the project to the urban core of Rochester provides diverse communities and low- and moderate- income households access to this habitat feature.

### Activity Details

#### Requirements

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

Yes

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

Yes

**Is the restoration and enhancement activity on permanently protected land per 97A.056, Subd 13(f), tribal lands, and/or public waters per MS 103G.005, Subd. 15 or on lands to be acquired in this program?**

Yes

**Where does the activity take place?**

- County/Municipal
- Public Waters

#### Land Use

**Will there be planting of any crop on OHF land purchased or restored in this program, either by the proposer or the end owner of the property, outside of the initial restoration of the land?**

No

**Will insecticides or fungicides (including neonicotinoid and fungicide treated seed) be used within any activities of this program either in the process of restoration or use as food plots?**

No

**Timeline**

<b>Activity Name</b>	<b>Estimated Completion Date</b>
Activity 4 – post-construction mussel and fish survey	September 2026
Activity 3 – construction complete	June 2026
Activity 2 – design, engineering, and permitting complete	June 2025
Activity 1 – pre-construction mussel and fish survey	September 2024

**Date of Final Report Submission:** 11/01/2029

**Availability of Appropriation:** Subd. 7.

Availability of Appropriation

(a) Money appropriated in this section may not be spent on activities unless they are directly related to and necessary for a specific appropriation and are specified in the accomplishment plan approved by the Lessard-Sams Outdoor Heritage Council. Money appropriated in this section must not be spent on indirect costs or other institutional overhead charges that are not directly related to and necessary for a specific appropriation. Money appropriated for fee title acquisition of land may be used to restore, enhance, and provide for public use of the land acquired with the appropriation. Public-use facilities must have a minimal impact on habitat in acquired lands.

(b) Money appropriated in this section is available as follows:

- (1) money appropriated for acquiring real property is available until June 30, 2028;
- (2) money appropriated for restoring and enhancing land acquired with an appropriation in this section is available for four years after the acquisition date with a maximum end date of June 30, 2032;
- (3) money appropriated for restoring or enhancing other land is available until June 30, 2029;
- (4) notwithstanding clauses (1) to (3), money appropriated for a project that receives at least 15 percent of its funding from federal funds is available until a date sufficient to match the availability of federal funding to a maximum of six years if the federal funding was confirmed and included in the original approved draft accomplishment plan; and
- (5) money appropriated for other projects is available until the end of the fiscal year in which it is appropriated.

**Budget**

*Budget reallocations up to 10% do not require an amendment to the Accomplishment Plan.*

**Totals**

<b>Item</b>	<b>Funding Request</b>	<b>Leverage</b>	<b>Leverage Source</b>	<b>Total</b>
Personnel	-	-	-	-
Contracts	\$2,368,000	\$2,632,000	City of Rochester Flood Control Program, City of Rochester Storm Water Utility Fund, Rochester Public Utilities	\$5,000,000
Fee Acquisition w/ PILT	-	-	-	-
Fee Acquisition w/o PILT	-	-	-	-
Easement Acquisition	-	-	-	-
Easement Stewardship	-	-	-	-
Travel	-	-	-	-
Professional Services	-	\$500,000	City of Rochester Flood Control Program	\$500,000
Direct Support Services	-	-	-	-
DNR Land Acquisition Costs	-	-	-	-
Capital Equipment	-	-	-	-
Other Equipment/Tools	-	-	-	-
Supplies/Materials	-	-	-	-
DNR IDP	-	-	-	-
<b>Grand Total</b>	<b>\$2,368,000</b>	<b>\$3,132,000</b>	-	<b>\$5,500,000</b>

**Amount of Request:** \$2,368,000

**Amount of Leverage:** \$3,132,000

**Leverage as a percent of the Request:** 132.26%

**DSS + Personnel:** -

**As a % of the total request:** 0.0%

**Easement Stewardship:** -

**As a % of the Easement Acquisition:** -

**How will this program accommodate the reduced appropriation recommendation from the original proposed requested amount?**

We will work with our partner at Rochester Public Utilities to increase their contribution for the removal of the dam and the associated maintenance costs and use the City's Storm Water Utility Fund to cover the remaining costs for the river conveyance improvements.

**Detail leverage sources and confirmation of funds:**

Rochester Public Utilities is committing \$1,500,000. The City of Rochester is committing \$882,000 from its Flood

Control Program, which is funded through user fees and a local sales tax, and \$750,000 from its Storm Water Utility Fund.

**Does this project have the ability to be scalable?**

No

### **Contracts**

**What is included in the contracts line?**

Construction contract awarded through a public bidding process to remove the existing concrete structure, construct the rock arch rapids for fish passage and rock weir wave pools, construct the cutoff wall control section, and stabilize the river banks and seed with native vegetation.

### **Federal Funds**

**Do you anticipate federal funds as a match for this program?**

No



**Output Tables**

**Acres by Resource Type (Table 1)**

Type	Wetland	Prairie	Forest	Habitat	Total Acres
Restore	-	-	-	5	5
Protect in Fee with State PILT Liability	-	-	-	-	-
Protect in Fee w/o State PILT Liability	-	-	-	-	-
Protect in Easement	-	-	-	-	-
Enhance	-	-	-	-	-
<b>Total</b>	-	-	-	5	5

**Total Requested Funding by Resource Type (Table 2)**

Type	Wetland	Prairie	Forest	Habitat	Total Funding
Restore	-	-	-	\$2,368,000	\$2,368,000
Protect in Fee with State PILT Liability	-	-	-	-	-
Protect in Fee w/o State PILT Liability	-	-	-	-	-
Protect in Easement	-	-	-	-	-
Enhance	-	-	-	-	-
<b>Total</b>	-	-	-	\$2,368,000	\$2,368,000

**Acres within each Ecological Section (Table 3)**

Type	Metro/Urban	Forest/Prairie	SE Forest	Prairie	N. Forest	Total Acres
Restore	-	-	5	-	-	5
Protect in Fee with State PILT Liability	-	-	-	-	-	-
Protect in Fee w/o State PILT Liability	-	-	-	-	-	-
Protect in Easement	-	-	-	-	-	-
Enhance	-	-	-	-	-	-
<b>Total</b>	-	-	5	-	-	5

**Total Requested Funding within each Ecological Section (Table 4)**

Type	Metro/Urban	Forest/Prairie	SE Forest	Prairie	N. Forest	Total Funding
Restore	-	-	\$2,368,000	-	-	\$2,368,000
Protect in Fee with State PILT Liability	-	-	-	-	-	-
Protect in Fee w/o State PILT Liability	-	-	-	-	-	-
Protect in Easement	-	-	-	-	-	-
Enhance	-	-	-	-	-	-
<b>Total</b>	-	-	\$2,368,000	-	-	\$2,368,000

**Average Cost per Acre by Resource Type (Table 5)**

Type	Wetland	Prairie	Forest	Habitat
Restore	-	-	-	\$473,600
Protect in Fee with State PILT Liability	-	-	-	-
Protect in Fee w/o State PILT Liability	-	-	-	-
Protect in Easement	-	-	-	-
Enhance	-	-	-	-

**Average Cost per Acre by Ecological Section (Table 6)**

Type	Metro/Urban	Forest/Prairie	SE Forest	Prairie	N. Forest
Restore	-	-	\$473,600	-	-
Protect in Fee with State PILT Liability	-	-	-	-	-

Protect in Fee w/o State PILT Liability	-	-	-	-	-
Protect in Easement	-	-	-	-	-
Enhance	-	-	-	-	-

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

700

## Parcels

### Parcel Information

#### Sign-up Criteria?

No

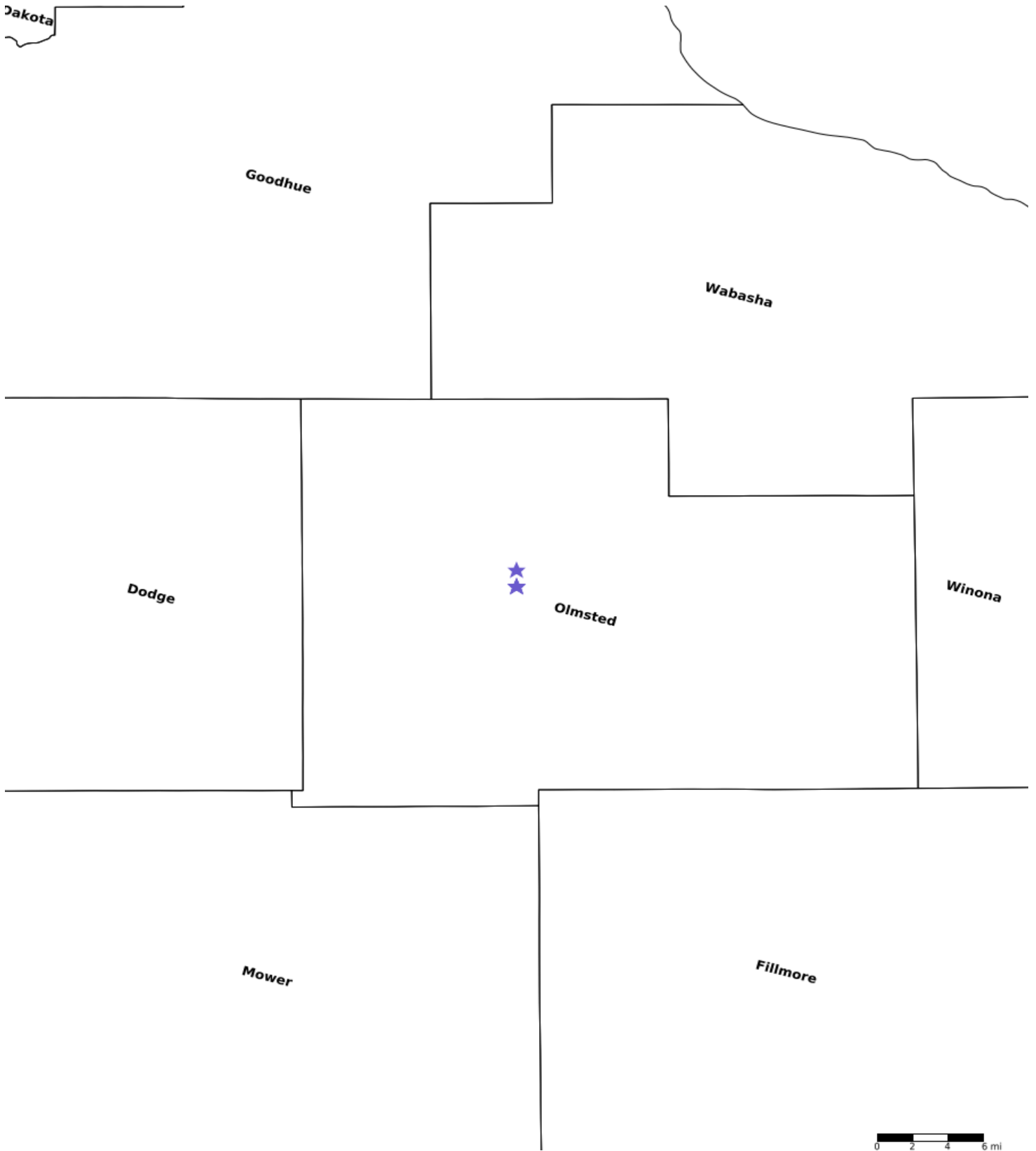
#### Explain the process used to identify, prioritize, and select the parcels on your list:

The City of Rochester owns the parcels containing the proposed project.

### Restore / Enhance Parcels

Name	County	TRDS	Acres	Est Cost	Existing Protection	Description
Parcel ID 743511016143	Olmsted	10714235	9	-	Yes	5e MUNICIPAL-PUBLIC SERVICE-OTHER
Parcel ID 742644016208	Olmsted	10714226	2	-	Yes	5e MUNICIPAL-PUBLIC SERVICE-OTHER
Parcel ID 743511016209	Olmsted	10714235	1	-	Yes	5e MUNICIPAL-PUBLIC SERVICE-OTHER
Parcel ID 743511016196	Olmsted	10714235	1	-	Yes	5e MUNICIPAL-PUBLIC SERVICE-OTHER

# Parcel Map



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