Lessard-Sams Outdoor Heritage Council

Buckingham Creek Brook Trout Restoration Project

ML 2023 Request for Funding

General Information

Date: 05/31/2022

Proposal Title: Buckingham Creek Brook Trout Restoration Project

Funds Requested: $800,000

Manager Information

Manager's Name: Kate Kubiak
Title: Natural Resource Coordinator
Organization: City of Duluth
Address: 411 West 1st Street
City: Duluth, MN 55802
Email: kkubiak@duluthmn.gov
Office Number: 218-580-9150
Mobile Number:
Fax Number:
Website: https://duluthmn.gov/

Location Information

County Location(s): St. Louis.

Eco regions in which work will take place:

- Northern Forest

Activity types:

- Restore

Priority resources addressed by activity:

- Habitat

Narrative

Abstract

Buckingham Creek Brook Trout Restoration Project is a 3,800 foot stream restoration project that will also provide 6,000 feet of connectivity for Brook Trout and other aquatic organisms. Importantly, the Project will remove the

trout stream as an irrigation source for a golf course. The Project is time sensitive, requiring the stream restoration to integrate with the City of Duluth's planned renovation of Enger Park Golf Course in 2023. An established partnership between the City, Minnesota Department of Natural Resources and South St. Louis Soil and Water Conservation District will ensure that the Project is successfully implemented.

Design and Scope of Work

The City of Duluth (City) is partnering with the Minnesota Department of Natural Resources (MNDNR) and South St. Louis Soil and Water Conservation District (SWCD) to address the impacts of three man-made impoundments on the Buckingham Creek Brook Trout population. The ponds were built within the stream channel (in-line) and have significant negative impacts that include increased water temperature, barriers to passage of aquatic organisms, and periodic de-watering of the creek. The City and MNDNR have long discussed the need to restore the ecological functions of this stretch of Buckingham Creek and the City proposed a partnership to integrate watershed restoration with the scheduled 2023 renovation of the golf course. The project will stop appropriation from the stream, fill portions of in-line ponds, and restore a natural channel that return ecological functions: passing fish and other organisms; balanced sediment transport (not aggrade or erode); and limit flooding. Fill required to achieve the restoration will be sourced from next to Buckingham Creek and will create open-water wetland habitat that will be used to offset wetland mitigation requirements. The new wetland will have a higher surface water elevation than the nearby creek, which will push cold ground water toward the stream, cooling it during periods of low base flow. Sourcing restoration material on-site represents a cost effective and efficient means to integrate the desired objectives of all partners, as well as efficient use of State and Federal funds. In-line culverts that block aquatic organism passage will be replaced with small bridges that will provide better passage and reduce maintenance and risk of failure in high water conditions.

Project deliverables:
1) Restoration and daylighting of approximately 3,800 feet of stream channel;
2) Restoration of approximately 6,000 feet of stream connectivity for Brook Trout and other aquatic organisms and transport of appropriate sediment;
3) Replacement of up to six culverts that act as migration barriers;
4) Excavation of project materials from an on-site source reduces overall costs;
5) Open-water wetland created will satisfy MNDNR permit requirement to mitigate lost wetland functions resulting from the restoration;
6) Removal of the City's irrigation water appropriation from Buckingham Creek that negatively impact stream temperature and base flows

Based on temperature logger data collected by the MNDNR, some sections of Buckingham Creek have the coldest water of any Brook Trout stream within the City. The Project will improve existing habitat conditions within this critical natural resource and enhance its resilience to climate change. Enger Park and Buckingham Creek are located above under-served neighborhoods. There is an established parking and access location to Upper Twin Pond, which is managed for trout, on the downstream end of the Project.

How does the proposal address habitats that have significant value for wildlife species of greatest conservation need, and/or threatened or endangered species, and list targeted species?

Sixty-eight species of greatest conservation need to utilize headwater streams, including birds, turtles, frogs, fish, and insects. Stream habitat projects along the North Shore of Lake Superior are not designed with one species in mind; they are intended to benefit multiple stream and riparian area functions and habitats that benefit many of these rare species.

The ecological functions of important aquatic ecosystems in the Duluth urban area have been negatively altered due to climate change and urban development. Negative impacts at the Project site include increased average water temperature, altered flow patterns, impoundments, degradation of floodplains and loss of riparian habitat. Brook Trout are a fish species of particular management concern by the MNDNR and there is an effort to evaluate the condition of Brook Trout watersheds along the North Shore of Lake Superior, including in and around Duluth. The focus is on the development of strategies to enhance their resilience to climate change and human development. The Project will substantially improve the ecological function of Buckingham Creek and enhance the resilience of its Brook Trout population. Improving stream function improves the quality of water entering the St. Louis River estuary and enhances the on-going effort to delist the it as a Great Lakes Area of Concern.

What is the degree of timing/opportunistic urgency and why it is necessary to spend public money for this work as soon as possible?

The City has a long, successful history of partnering with the MNDNR, the SWCD and other natural resource agencies to achieve complex outcomes for the natural resources that they mutually manage. Successful restoration efforts require a diverse and organized funding package. At Buckingham Creek, MNDNR has emphasized the need to reduce stress on the native Brook Trout population resulting from water appropriations, in-line ponds and undersized and perched culverts. The City is willing to significantly alter the planned renovation of Enger Park Golf Course to affect outcomes that positively impact the watershed. The cost of a restoration of this magnitude is significant and beyond the capacity of the City to fund alone. Funding partnerships necessary to support the restoration need to be secured quickly to integrate and match the available funding for the scheduled 2023 renovation of the Golf Course.

Describe how the proposal uses science-based targeting that leverages or expands corridors and complexes, reduces fragmentation or protects areas identified in the MN County Biological Survey:

The Project was initiated based on natural resource sampling conducted by MNDNR. MNDNR, SWCD, and other natural resource management partners in the Duluth area, are committed to developing and advancing science-based and programmatic approaches to enhance the resilience of local watersheds to climate change and urban development. At Buckingham Creek, this approach to integrating restoration of a cold-water Brook Trout stream with a planned golf course renovation represents an innovative and unique opportunity to substantially reduce the negative impacts that human activity has caused to this important natural resource. The project will also provide a model for having an ecologically stable stream channel with a healthy riparian area running through a golf course.

The City and MNDNR were partners during the development the Lower St. Louis River Habitat Plan (Habitat Plan). A science-based plan, it identified critical conservation targets for the estuary, including the watersheds that flow down the hillside to the river and Lake Superior. It identifies targets and strategies to address stressors and improve ecological function. One of 18 strategies identified was “restore natural drainage systems and processes”. This Project will significantly advance that strategy by addressing several issues related to habitat quality and connectivity. Buckingham Creek watershed is a largely natural corridor from the headwaters in Duluth Heights down to the Point of Rocks at the St. Louis River estuary. Although the golf course represents an altered landscape, it still provides ecological functions and a habitat corridor that benefits the watershed relative to other more destructive forms of urban development. The Project will reduce aquatic fragmentation by removing barriers to aquatic organism movement; restoring a natural stream channel type that will support balanced sediment transport; and reconnecting trout to habitat types critical to their survival.

In addition, the watershed headwaters are located just above the Project area and owned by St. Louis County. The

City has agreed to pursue the acquisition of those parcels for preservation and is completing an acquisition of 2,400 acres of County parcels that are important high-quality lands for preservation and recreation.

Which two sections of the Minnesota Statewide Conservation and Preservation Plan are most applicable to this project?

- H5 Restore land, wetlands and wetland-associated watersheds
- H6 Protect and restore critical in-water habitat of lakes and streams

Which two other plans are addressed in this proposal?

- Lower St. Louis River Habitat Plan
- Other : Great Lakes Restoration Initiative, Action Plan III

Describe how your program will advance the indicators identified in the plans selected:

Habitat Plan - Strategy #12: "restore natural drainage systems and processes". Project restores 3,800 feet of stream channel and restore lateral and longitudinal connectivity to 6,000 feet of stream for movement of Brook Trout and other aquatic organisms.

Focus Area 4 (species and habitats) of the Great Lakes Restoration Initiative (GLRI), Action Plan III: The Project achieves objectives in "measures of progress" areas:

- 4.1.1 (acres of coastal wetland, nearshore, and other habitats restored, protected, or enhanced),
- 4.1.2 (miles of connectivity established for aquatic species) and
- 4.2.1 (species benefited where actions have been completed to significantly protect or promote recovery of populations).

Brook Trout and their habitat is a primary focus of the GLRI and state and federal natural resource managers that work cooperatively to advance its objectives. The Project leverages a $120,000 award to MNDNR for design of the restoration project.

Which LSOHC section priorities are addressed in this proposal?

Northern Forest

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

Describe how your program will produce and demonstrate a significant and permanent conservation legacy and/or outcomes for fish, game, and wildlife as indicated in the LSOHC priorities:

Brook Trout are significant to the aquatic ecosystems of this region as the only native stream-dwelling salmonid. It also serves as an indicator of healthy watersheds. Despite the region's abundance of public land, the ecological functions of streams are diminished by historic and present land use practices that degrade the aquatic ecosystem, most notably impacting Brook Trout and other sensitive and rare species. Restoring fish passage will provide the aquatic habitat required to support excellent cold water fish populations and benefit other aquatic organisms.

Climate change requires action to protect, restore, and reconnect the highest quality remaining habitats to support vulnerable species, such as Brook Trout. Effects of warming temperatures are compounded by the City's location at a northern latitude. Research has generally indicated that temperature increases have been greater in northern

latitudes and that Brook Trout are especially sensitive to these increases. The Project increases the probability that Brook Trout will continue to provide angling opportunities to the residents and visitors to Duluth and Minnesota. As stated earlier, Buckingham Creek has sections with the coldest water of 16 designated trout streams in Duluth, which enhances the importance of prioritizing it as a refuge during changing conditions. The City's partnerships with MNDNR and other natural resource management agencies are intended to preserve this valuable legacy for future generations.

What other fund may contribute to this proposal?

- N/A

Does this proposal include leveraged funding?

Yes

Explain the leverage:

The Project is an active and vital partnership between the City, MNDNR and SWCD. The MNDNR is seeking federal funding from the GLRI, Focus Area 4 to design the Project and also for construction. A total of $170,000 ($120,000 from GLRI and $50,000 in match from MNDNR) is in the final stages of being awarded by the GLRI to move the project from design through permitting and to construction. The MNNR will be seeking approximately $1,000,000 from the GLRI in the fall of 2022, to combine/match with potential LSOHC support. The City has also applied $85,000 to the design of the on-site material excavation area that will provide fill for restoration objectives and satisfy wetland mitigation requirements.

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.

This Project does not supplant any other funding sources for the same purpose.

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

The Buckingham Creek Brook Trout Restoration Project will be designed to be maintained by the natural processes that define this watershed system. Barring catastrophic events, this project will not require future adjustment, or clean-up. The MNDNR in collaboration with the SWCD and MPCA will monitor post-project physical and biological conditions within the restored reaches of Buckingham Creek, with the intent of documenting how restoration and reconnection of critical habitats positively impacts the Brook Trout population.

Identify indicator species and associated quantities this habitat will typically support:

The Project will reestablish migratory connection for Brook Trout between previously isolated reaches. This will enhance the ability of Brook Trout to access habitat types that are critical to their various life stages, including gravel spawning beds, cold water refuges and over wintering areas. This increased availability of diverse habitat types improves the chances of genetic exchange between currently isolated sub populations and therefore will improve the vitality of the entire Buckingham Creek Brook Trout population.

The estimated abundance below provides a general average for potential an aquatic indicator species in Minnesota. This average is generated from available data and published sources, and does not capture the variability inherent in populations. Natural populations, including healthy populations with good habitat, vary among locations, and also rise and fall within various aquatic ecosystems. Most fish surveys conducted by MNDNR produce an index of abundance (catch per unit effort) rather than a population estimate. For Buckingham Creek, we expect to raise Brook Trout abundance to approximately 40 pounds per acre.

How will the program directly involve, engage, and benefit BIPOC (Black, Indigenous, People of Color) and diverse communities:

Duluth faces deep racial disparities that cut across civic and cultural representation, educational outcomes, economic security, health, and more. Buckingham Creek and Enger Park straddle the Lincoln Park and Hillside neighborhoods. These are the most racially diverse neighborhoods in all of NE MN and have some of the lowest incomes. Nearly nineteen percent of residents identify as Black, Indigenous, and people of color (BIPOC). Residents can expect to live 11 years fewer than their more affluent neighbors to the east: residents of color can expect to live five years less than whites overall (St. Louis Co Public Health and Human Services)

Duluth is working 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 safe and enjoyable recreational assets and to provide the opportunity for nature-centered outdoor activities, especially for youth. Native Americans and immigrants tend to be highly represented as subsistence anglers. Restoration provides opportunities for public education about this valuable resource, introduction of angling to youth, and more occasions for interpretation and reflection that lead to environmental stewardship. Urban youth programs have used nearby Twin Ponds as local fishing education destination for over a decade. As a youth program site for hundreds of racially and culturally underrepresented low-income youth, Buckingham Creek and Twin Ponds serve as an urban nature-based experience for youth to learn about ecosystems, how to fish for sport and sustenance, and gain interest and comfort in spending time outdoors in nature-based settings.

OHF funding will ensure high quality habitats that provide ecosystem services like clean water and carbon sequestration that support environmental justice. The Project supports public access and benefits BIPOC communities through recreational opportunities that are close-to-home, culturally responsive and accessible to Minnesotans with disabilities.

Activity Details

Requirements

If funded, this proposal 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?
Yes

Where does the activity take place?

- Other : Public property administered by the City of Duluth

Land Use

Will there be planting of any crop on OHF land purchased or restored in this program?
No

Other OHF Appropriation Awards

Have you received OHF dollars in the past through LSOHC?
No

Timeline

Activity Name	Estimated Completion Date
Buckingham Creek Brook Trout Restoration	November, 2023

Budget

Totals

Item	Funding Request	Antic. Leverage	Leverage Source	Total
Personnel	-	-	-	-
Contracts	$800,000	$255,000	GLRI, MNDNR, City of Duluth	$1,055,000
Fee Acquisition w/ PILT	-	-	-	-
Fee Acquisition w/o PILT	-	-	-	-
Easement Acquisition	-	-	-	-
Easement Stewardship	-	-	-	-
Travel	-	-	-	-
Professional Services	-	-	-	-
Direct Support Services	-	-	-	-
DNR Land Acquisition Costs	-	-	-	-
Capital Equipment	-	-	-	-
Other Equipment/Tools	-	-	-	-
Supplies/Materials	-	-	-	-
DNR IDP	-	-	-	-
Grand Total	**$800,000**	**$255,000**	**-**	**$1,055,000**

Amount of Request: $800,000
Amount of Leverage: $255,000
Leverage as a percent of the Request: 31.87%
DSS + Personnel: -
As a % of the total request: 0.0%
Easement Stewardship: -
As a % of the Easement Acquisition: -

Describe and explain leverage source and confirmation of funds:
MNDNR received an award for $120,000 from GLRI, with a match of $50,000 from MNDNR for design, environmental review, permitting and construction contracting.
City has applied $85,000 to the design of restoration project elements
MNDNR expects $1,000,000 from GLRI for construction

Does this proposal have the ability to be scalable?
No

Please explain why this project can NOT be scaled:
Successful implementation of the restoration project requires that the stream restoration is integrated with the timeline for renovation of the golf course. All construction activities must be completed by the end of open-water season of 2023. The Partnership considers it feasible to complete this work by the end of 2023.

Contracts

What is included in the contracts line?
Restoration of 3,800 feet of stream restoration.
Replacement of up to 9, undersized, perched culverts under paths with bridges to restore 6,000 feet of stream connectivity.
Excavation of material from onsite to accomplish necessary filling of three in-line ponds to create foundation for stream restoration.

Federal Funds

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

Are the funds confirmed?
No

What is the approximate date you anticipate receiving confirmation of the federal funds?
01/01/2023

Output Tables

Acres by Resource Type (Table 1)

Type	Wetland	Prairie	Forest	Habitat	Total Acres
Restore	0	0	0	6	6
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	0
Total	**0**	**0**	**0**	**6**	**6**

Total Requested Funding by Resource Type (Table 2)

Type	Wetland	Prairie	Forest	Habitat	Total Funding
Restore	-	-	-	$800,000	$800,000
Protect in Fee with State PILT Liability	-	-	-	-	-
Protect in Fee w/o State PILT Liability	-	-	-	-	-
Protect in Easement	-	-	-	-	-
Enhance	-	-	-	-	-
Total	**-**	**-**	**-**	**$800,000**	**$800,000**

Acres within each Ecological Section (Table 3)

Type	Metro/Urban	Forest/Prairie	SE Forest	Prairie	N. Forest	Total Acres
Restore	0	0	0	0	6	6
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	0	0
Total	**0**	**0**	**0**	**0**	**6**	**6**

Total Requested Funding within each Ecological Section (Table 4)

Type	Metro/Urban	Forest/Prairie	SE Forest	Prairie	N. Forest	Total Funding
Restore	-	-	-	-	$800,000	$800,000
Protect in Fee with State PILT Liability	-	-	-	-	-	-
Protect in Fee w/o State PILT Liability	-	-	-	-	-	-
Protect in Easement	-	-	-	-	-	-
Enhance	-	-	-	-	-	-
Total	**-**	**-**	**-**	**-**	**$800,000**	**$800,000**

Average Cost per Acre by Resource Type (Table 5)

Type	Wetland	Prairie	Forest	Habitat
Restore	-	-	-	$133,333
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	-	-	-	-	$133,333
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

3,800 feet

Outcomes

Programs in the northern forest region:

- Improved availability and improved condition of habitats that have experienced substantial decline ~ *The MNDNR possesses historical stream water temperature data. The MPCA will be collecting additional water temperature data more broadly within the project area during the summer of 2022. MPCA will also be sampling Brook Trout within the project area in 2022 and fin clips will be collected to determine genetic variation in sub-populations between the isolated pockets of fish. MNDNR will process the tissue samples for genetic analysis in partnership with the University of Minnesota. All of these types of data will be collected after completion of the project and in multiple years to document outcomes.*

Parcels

Sign-up Criteria?
No

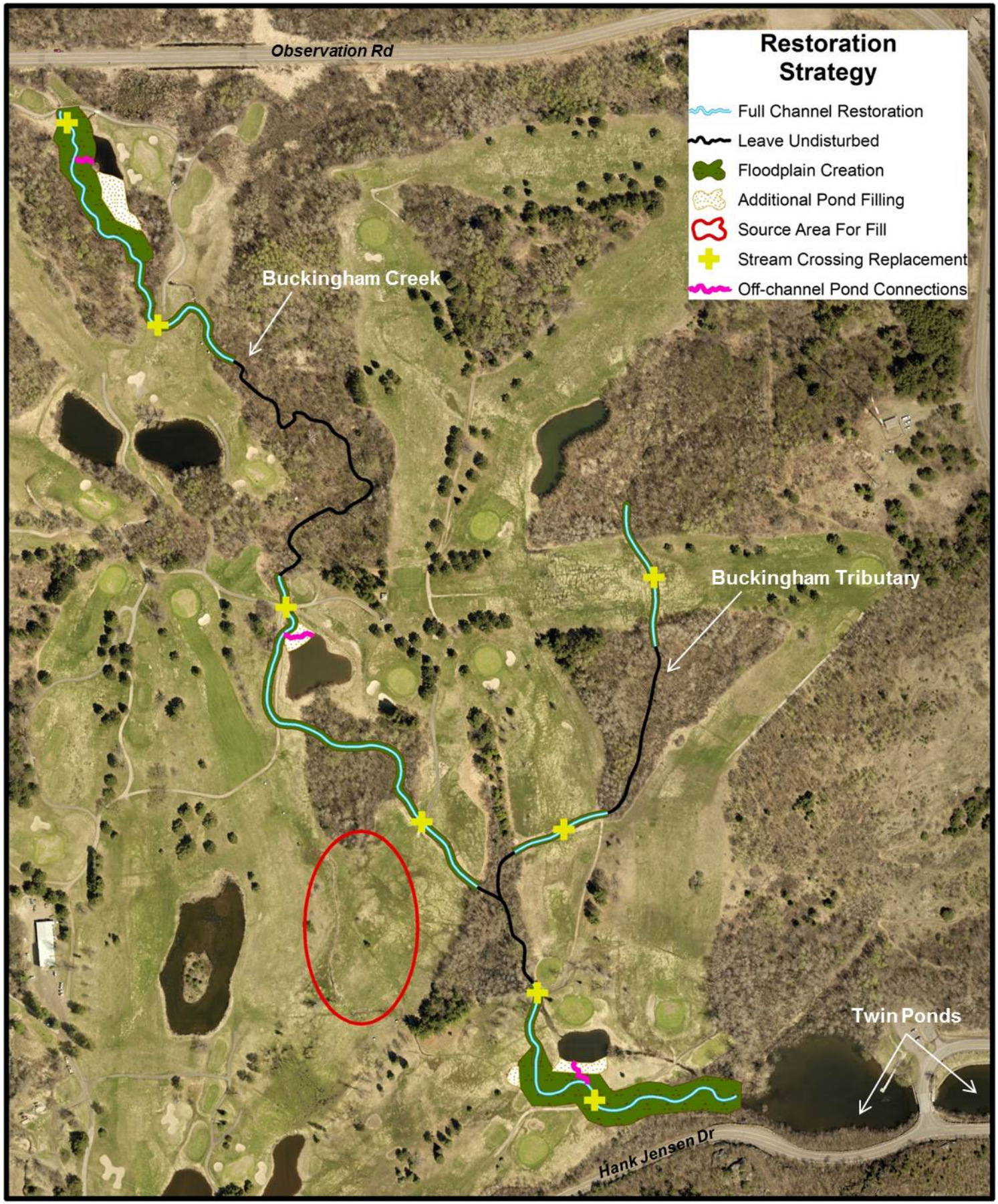
Explain the process used to identify, prioritize, and select the parcels on your list:
The City and MNDNR have discussed the need to restore Buckingham Creek for 18 years. An opportunity arose to integrate the restoration in conjunction with renovation of the golf course.

Restore / Enhance Parcels

Name	County	TRDS	Acres	Est Cost	Existing Protection
Buckingham Creek Brook Trout Restoration	St. Louis	05014228	6	$800,000	Yes

Parcel Map

- Protect in Easement
- Protect in Fee with PILT
- Protect in Fee W/O PILT
- Restore
- Enhance
- Other



0 125 250 500 Feet

Buckingham Creek

N W E S

South St. Louis
SOIL & WATER CONSERVATION DISTRICT

May 25th, 2022

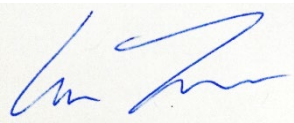
Mayor Emily Larson
City of Duluth
411 West 1st Street
Duluth MN 55804

Dear Mayor Larson,

The South St. Louis Soil and Water Conservation District (SSL SWCD) is writing in support of the proposed work to restore Buckingham Creek within the Enger Park Golf Course in the City of Duluth. Our office knows that this small urban stream holds the coldest water of all streams in the City of Duluth and that it is also home to native brook trout. Although some trout currently reside in the stream, we are aware of the effects the in-line ponds at the golf course have on water temperatures, stream connectivity, and trout habitat. The vision to restore the stream channel in this area is one that we share with the MN DNR and the City of Duluth.

The SSL SWCD looks forward to expanding our partnerships on this project to create a resilient stream. We support the efforts of the City of Duluth's proposal to restore Buckingham Creek.

Sincerely,



Ann Thompson
Conservation Specialist
South St Louis Soil and Water Conservation District
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