



Environment and Natural Resources Trust Fund

2024 Request for Proposal

General Information

Proposal ID: 2024-196

Proposal Title: Enhancement of Environmental Aspects of Impoundments (Pilot Project)

Project Manager Information

Name: Morteza Maher

Organization: Middle-Snake-Tamarac Rivers Watershed District

Office Telephone: (218) 745-4741

Email: morteza.maher@mstrwd.org

Project Basic Information

Project Summary: This pilot project will look innovatively to the existing and planned impoundment projects to enhance their environmental aspects compared to their traditional design.

Funds Requested: \$126,000

Proposed Project Completion: June 30, 2026

LCCMR Funding Category: Small Projects (H)

Secondary Category: Environmental Education (C)

Project Location

What is the best scale for describing where your work will take place?

Region(s): NW

What is the best scale to describe the area impacted by your work?

Region(s): NW

When will the work impact occur?

In the Future

Narrative

Describe the opportunity or problem your proposal seeks to address. Include any relevant background information.

The problem is the mind set “Business as usual!” When there is a system even old that is working, there is less motivation to improve it. This applies to over 30 impoundments in the Red River Valley being operated manually. To operate these facilities, a person should commute from the watershed office to the facility, regulate the gate, travel several miles downstream to check the water elevation on the trigger points perhaps several times a day for each impoundment facility. Aside from inefficiency of staff time being spent on this very important task, we produce so much of vehicle related pollutions too. According to EPA’s information, vehicle related pollutions can be measured as a function of miles of travel, type and year model of the vehicle. This varies for each impoundment and each individual operating office. MSTRWD is one of the midsize Watershed Districts in the Red River valley with 1476 square miles of jurisdiction and that is why can be a good baseline to set the average distance parameter. According to EPA-420-B-16-006, Newfolden (this pilot project) can cause emitting approximately 1048, 4032, 28.2, 120.9 and 537.6 kg of NMOG, NOx, CO, Formaldehyde and PM respectively annually.

What is your proposed solution to the problem or opportunity discussed above? Introduce us to the work you are seeking funding to do. You will be asked to expand on this proposed solution in Activities & Milestones.

Gradual, consistent and purposeful change of status quo is the solution to change the mindset. However, the specific proposed solution to improve the existing operation method of over 30 impoundments is to install an automated/ remote control gate operating system. The system will include a control panel, hydraulic jack(s), water level sensors, and wireless communicating system. This will enable the operator to monitor water level and operate the gate in increments of an inch remotely. Also the automated data logger will provide a continues data base which will be used for future improvements to the operation manual. Newfolden Impoundment will be the first project in this program. It will be a 2 years project including: installation, operation, monitoring, data collection, documentation of lessons learned, and plan for the next project. Results of this project will be demonstrated to the public with an intention to express the short- and long-term benefits both environmentally and financially. This demonstration and presentation will ease the cultural change. The plan is to install this or similar system on all impoundments in the Red River Valley. This system will have some side environmental benefits that will be discussed later.

What are the specific project outcomes as they relate to the public purpose of protection, conservation, preservation, and enhancement of the state’s natural resources?

Below are the direct outcomes to the project:

- 1- With and assumption of 80% reduction of air pollutants the program will reduce: NMOG (25,152 kg/yr), NOx (96,768 kg/yr), CO (676.8 kg/yr), Formaldehyde (2901.6 kg/yr), PM (12092.4 kg/yr) in the Red River Valley. Also will reduce the gas consumption by 6816 Gal/yr.
- 2- Less flashier release of water will reduce the soil erosion which depending on the soil type it will vary for each location.
- 3- Smoother water level changes will enhance the habitat for over water nesting birds.

Activities and Milestones

Activity 1: Planning, Design, Manufacturing and Installation of Remote Control Gate Operation System (RCGOS).

Activity Budget: \$115,000

Activity Description:

Planning will include the Project Charter development, Stakeholder identification, high level scope definition, high level schedule development.

After the Gran is approved through LCCMR, the design will be developed by an engineering firm (HDR is the designer of the Newfolden Impoundment). Design will cover: Structural, Mechanical, Electrical, Instrumentation systems. Also during design, the procurement method will be determined.

Manufacturing and installation will follow the design and will end through a formal commissioning process including a training session for MSTRWD staff on operation and maintenance.

Below list of milestones will determine the high level schedule.

It is planned to use this system during the spring runoff of 2025 so the commissioning should be finished before end of March 2025.

Activity Milestones:

Description	Approximate Completion Date
Preliminary Design / Engineer's Report	August 31, 2024
Design Drawings and Specs	August 31, 2024
Bid Documents for Contractors	August 31, 2024
Installation	December 31, 2024

Activity 2: Operation and Data collection

Activity Budget: \$11,000

Activity Description:

Through this phase, MSTRWD staff will operate the new system for 2 years (partially funded by LCCMR), collect data, process those data to make useful information, share it with the water management community including Red River Valley Watershed Districts, plan for and conduct meetings and presentations with an intention to raise environmental awareness of the local community.

The last activity will be to draft plans for the next projects using lessons learned from this project, apply to the LCCMR funding for a similar project to make this a gradual and consistent process for a cultural change.

Activity Milestones:

Description	Approximate Completion Date
Develop Plans for the next project and submit application to LCCMR	March 31, 2026
Complete lessons learned document	June 30, 2026

Project Partners and Collaborators

Name	Organization	Role	Receiving Funds
Nate Dalager	HDR Inc.	Nate is the HDR's Branch manager at TRF. He is a civil engineer who have been running his team on this project (Newfolden Impoundment) since its inception. He will continue to lead the design team on this Retrofit project as well.	Yes

Long-Term Implementation and Funding

Describe how the results will be implemented and how any ongoing effort will be funded. If not already addressed as part of the project, how will findings, results, and products developed be implemented after project completion? If additional work is needed, how will this work be funded?

Newfolden Impoundment will be the first of similar Gate automation projects in the Red River Valley each project will be a predecessor to the next. Design, Installation and operation for 2 years is the scope included in this proposal and will be a cost share between LCCMR and the Watershed District (MSTRWD). Data and lessons learned from one project will be implemented in the next. And any further cost for maintenance and operation of the new system and realization report of the outcomes will be paid for by the MSTRWD.

Project Manager and Organization Qualifications

Project Manager Name: Morteza Maher

Job Title: Watershed District Administrator

Provide description of the project manager's qualifications to manage the proposed project.

Morteza (Mori) Maher has over 25 years of professional experience either as civil engineer or as a project manager. Except for his bachelor's degree in civil engineering from overseas, he obtained his master's degree from the University of Denver (DU) in Leadership and Organization Development and Project Management. He is a certified PMP (Project Management Professional) and soon to be PE (Professional Engineer).

He has a diverse background mostly in international heavy civil EPC projects. From 2021, he joined the MSTRWD (the local government unit) to manage the Watershed under the MN Statute 103D and 103E. He has been running 4 capital projects since then with flood hazard mitigation being their main purpose. However, Maher has been keeping his eyes on the environmental aspects of the project more than the statutorily required criteria.

His profile can be viewed online at Linked website.

Organization: Middle-Snake-Tamarac Rivers Watershed District

Organization Description:

Middle-Snake-Tamarac Rivers Watershed District (MSTRWD) established in 1970. It is located in NW Minnesota on the Red River Valley expanding its footprint over 5 different counties of Marshall, Polk, Pennington, Roseau, and Kittson. It is being served by 7 Board members and 5 staff members at its office at Warren MN. It operates and provide services to citizens, businesses and farmers of it's jurisdiction (over 1476 sq.miles) based on MN Statute 103D and 103E.

The Board of managers meet twice a month on regular meetings to solve drainage problems and make positive changes with a mind set to both safeguard the environment and the black gold of the area (fertile soil of the Red River Valley) and to increase the GDP of the area by providing state of the art solutions to drainage problems. They hire consultants to help them through this process. They join conferences and university research programs to learn more and act more sustainably on the MSTRWD's day to day business.

Budget Summary

Category / Name	Subcategory or Type	Description	Purpose	Gen. Ineligible	% Benefits	# FTE	Classified Staff?	\$ Amount
Personnel								
Administrator		Project Manager			30%	2		\$5,000
Administrator Assistant		Book keeper/ Accountant			30%	2		\$3,000
Engineering Technician		Quality inspection/ Commissioning and training for operation			30%	2		\$7,000
							Sub Total	\$15,000
Contracts and Services								
HDR Engineering	Professional or Technical Service Contract	Design and coordination with Manufacturing entities				20,000		\$20,000
							Sub Total	\$20,000
Equipment, Tools, and Supplies								
	Equipment	Control Panle, Camera, Water level sensors, Hydraulic Jacks, etc.	To integrate the whole system and function as designed.					\$67,000
							Sub Total	\$67,000
Capital Expenditures								
		Construction and installation of all components	Installation and interlocking the whole system	X				\$23,000
							Sub Total	\$23,000
Acquisitions and Stewardship								
							Sub Total	-
Travel In Minnesota								

							Sub Total	-
Travel Outside Minnesota								
							Sub Total	-
Printing and Publication								
	Printing	Printing and publication of reports and presentations	To implement the cultural change, printing material and potential publication will be needed. The budget line item is just a place holder and will be updated as the project will evolves.					\$1,000
							Sub Total	\$1,000
Other Expenses								
							Sub Total	-
							Grand Total	\$126,000

Classified Staff or Generally Ineligible Expenses

Category/Name	Subcategory or Type	Description	Justification Ineligible Expense or Classified Staff Request
Capital Expenditures		Construction and installation of all components	<p>The "operation" of the system will not cost the ENRTF, rather it will be an in kind cost share by MSTRWD.</p> <p>Additional Explanation : After manufacturing of components, they will be installed and interlocked in this step. Operation and Maintenance of the whole project will be done through the MSTRWD office including this retrofit.</p>

Non ENRTF Funds

Category	Specific Source	Use	Status	Amount
State				
			State Sub Total	-
Non-State				
In-Kind	Local government allocation	all the operation and maintenance cost of this retrofit system will be paid by the MSTRWD from it's local source of finace.	Secured	\$16,000
Cash	Red River Watershed Management Board (RRWMB)	Cost share to leverage the LCCMR funding of this retrofit project.	Potential	\$10,000
			Non State Sub Total	\$26,000
			Funds Total	\$26,000

Attachments

Required Attachments

Visual Component

File: [8b2f697e-513.pdf](#)

Alternate Text for Visual Component

Attached is a high level factsheet about the project. And below is a link describing the type of system/ idea to be developed. It doesn't necessarily mean the SCADA system will be the only solution though.

<https://www.youtube.com/watch?v=nIFM1q9QPJw...>

Administrative Use

Does your project include restoration or acquisition of land rights?

No

Does your project have potential for royalties, copyrights, patents, or sale of products and assets?

No

Do you understand and acknowledge IP and revenue-return and sharing requirements in 116P.10?

N/A

Do you wish to request reinvestment of any revenues into your project instead of returning revenue to the ENRTF?

N/A

Does your project include original, hypothesis-driven research?

No

Does the organization have a fiscal agent for this project?

No

Does your project include the design, construction, or renovation of a building, trail, campground, or other capital asset costing \$10,000 or more?

Yes

Do you propose using an appropriation from the Environment and Natural Resources Trust Fund to conduct a project that provides children's services, as defined in Minnesota Statutes section 299C.61 Subd.7?

No

