



Environment and Natural Resources Trust Fund

2027 Request for Proposal

General Information

Proposal ID: 2027-469

Proposal Title: Identifying and Prioritizing Water Storage Sites Throughout Minnesota

Project Manager Information

Name: Henry Van Offelen

Organization: Board of Water and Soil Resources

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Project Basic Information

Project Summary: This project applies an established framework across 33 Minnesota watersheds to identify and prioritize water storage sites that improve hydrology, water quality, stream stability, and climate resilience.

ENRTF Funds Requested: \$251,000

Proposed Project Completion: December 31, 2029

LCCMR Funding Category: Small Projects (G)

Secondary Category: Resiliency (A)

Project Location

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

Statewide

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

Statewide

When will the work impact occur?

During the Project and In the Future

Narrative

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

Minnesota's watersheds are increasingly impacted by altered hydrology and extreme rainfall events, resulting in flooding, elevated runoff, water quality degradation, and habitat loss. Local governments and landowners are interested in implementing landscape water storage practices to address these challenges, but most watersheds lack actionable guidance to strategically prioritize projects that provide multiple benefits.

A previous LCCMR-funded project developed a proven, science-based framework, GIS tools, and hydrologic modeling approaches to identify, evaluate, and prioritize landscape water storage opportunities. The framework was successfully tested in two demonstration watersheds, producing datasets, hydrologic analyses, and engagement materials that support local decision-making.

This project will apply the established framework to 33 additional HUC8 watersheds where PTMAp is available. Using the previously developed tools and methods, the project will generate comprehensive datasets of potential water storage locations and identify the highest-value opportunities within each watershed.

The resulting watershed-specific portfolios of prioritized water storage sites will provide decision-ready information that local partners can use to guide planning and implementation efforts to reduce peak flows, improve runoff management, enhance water quality, restore habitat, and increase watershed resilience.

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.

This project will apply an established, science-based framework to identify and prioritize landscape water storage opportunities in 33 HUC8 watersheds across Minnesota. The framework integrates GIS tools, hydrologic modeling, and local engagement to produce actionable information for watershed managers and local partners.

For each watershed, the project will: (1) generate a comprehensive dataset of potential water storage locations (wetlands, ponds, impoundments), (2) prioritize sites based on hydrologic impact, feasibility, and multi-benefit potential, and (3) package results into a water storage portfolio and host workshops to support engagement with local watershed partners and drainage authorities to inform development of water storage implementation strategies.

The project will produce a complete inventory of storage opportunities and a refined portfolio of approximately 10–50 high-priority sites per watershed, including maps, site attributes, and modeled scenarios. These outputs will provide a practical, decision-ready blueprint for local governments and watershed organizations to strategically invest in projects that reduce flooding, improve water quality, enhance habitat, and increase climate resilience.

By applying the framework across these watersheds, the project translates prior work into scalable, watershed-specific solutions that can support broader basin-scale modeling and planning efforts.

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?

This project will protect, conserve, and enhance Minnesota's natural resources by applying a proven framework to identify and prioritize landscape water storage opportunities (wetlands, ponds, impoundments) throughout Minnesota. Key outcomes include: (1) identification of potential water storage sites across 33 HUC8 watersheds, (2) development of site attributes to prioritize storage sites that align with watershed goals, and (3) a watershed specific storage portfolio that provides decision-ready guidance for use by local partners to reduce peak flows, enhanced water quality, and increased landscape resiliency to extreme rainfall and a changing climate.

Activities and Milestones

Activity 1: Generate water storage data and priorities for 33 HUC8 watersheds and upload to PTMApp.

Activity Budget: \$199,000

Activity Description:

This activity will develop water storage data for 33 HUC8 watersheds across the Minnesota River, Red River, and Mississippi River basins using previously developed GIS and hydrologic modeling tools integrated within PTMApp. Thirteen watersheds in the Minnesota River basin will be supported with leveraged funds.

Existing PTMApp datasets will serve as the foundation for this work. In select watersheds, datasets will be updated to ensure the effects of water storage can be evaluated in important drainage systems. These watershed updates will be completed through placement of additional priority resource points at key ditch system outlets which will enable future modeling of water storage impacts on these ditch systems.

Comprehensive datasets of potential water storage sites (wetlands, ponds, impoundments) will be generated for each watershed. Storage site data will include standardized attributes, including hydrologic benefit (e.g., runoff reduction), feasibility (e.g., number of landowners), and implementation considerations (e.g., permitting complexity). These attributes will be used to prioritize sites and develop watershed-specific portfolios with high-impact water storage opportunities.

Finalized prioritized datasets will be integrated into the existing PTMApp web-based infrastructure, providing accessible, decision-ready information for local governments and watershed managers.

Activity Milestones:

Description	Approximate Completion Date
Review and update PTMApp data in select watersheds to ensure important drainage systems are evaluated.	December 31, 2027
Generate comprehensive water storage site datasets for all watersheds using established tools.	October 31, 2028
Prioritize water storage sites for use to develop water storage portfolios for each watershed.	February 28, 2029
Load finalized water storage datasets into PTMApp web to make them accesible.	August 31, 2029

Activity 2: Develop 33 watershed portfolios and engage watershed partners to implement water storage portfolios.

Activity Budget: \$52,000

Activity Description:

This activity will develop water storage portfolios for each watershed and provide hands-on training and technical assistance to local watershed partners so they can use local knowledge to develop a water storage strategy.

This will be accomplished by creating a water storage portfolio (prioritized storage sites, maps, example hydrographs) and engaging local water managers through a series of up to six workshops across the Minnesota River, Red River, and Mississippi River basins. Workshops will train participants to use water storage portfolios and associated PTMApp hydrologic modeling tools to evaluate and develop water storage scenarios within their watersheds.

Participants will learn to interpret site attributes, assess hydrologic benefits, and identify high-priority opportunities for implementation. These workshops will build local capacity and support partners in developing practical, multi-benefit

water storage strategies to meet their watershed goals.

Workshop outcomes and supporting materials will be documented and incorporated into the PTMApp knowledge base online to provide ongoing guidance for local governments and watershed organizations.

Activity Milestones:

Description	Approximate Completion Date
Develop water storage portfolios for 33 HUC8 watersheds	June 30, 2029
Organize and conduct up to six workshops within the Minnesota, Red, and Mississippi River basins	November 30, 2029
Document workshop outcomes and provide guidance materials through PTMApp knowledgebase.	December 31, 2029

Project Partners and Collaborators

Name	Organization	Role	Receiving Funds
Rita Weaver	Board of Water and Soil Resources	As BWSR chief engineer, Rita oversees BWSR's water quality and storage program. The results of her "Minnesota River Basin Water Storage BMP Prioritization" proposal (2027-332) will be integrated with the data generated with this proposal to further refine storage site priorities for the HUC8 watershed in the MN River Basin.	No
Drew Kessler	Houston Engineering, Inc.	Houston Engineering, Inc is the established vendor for development and maintenance of the PTMApp contract with the Board Of Water and Soil Resources. Their services will be used to complete tasks within this proposal through this established contract.	Yes
Udai Singh	Board of Water and Soil Resources	As manager of the PTMApp contract, Udai will oversee integration of work completed in this project with PTMApp.	No

Dissemination

Describe your plans for dissemination, presentation, documentation, or sharing of data, results, samples, physical collections, and other products and how they will follow ENRTF Acknowledgement Requirements and Guidelines.

Project results will be disseminated through direct engagement, statewide outreach, and integration into existing decision-support tools to ensure broad use and long-term accessibility. Water managers will be directly engaged through workshops (Activity 2) in the Minnesota River, Red River, and Mississippi River basins, where participants will be trained to use watershed-specific water storage portfolios to support planning and implementation. These hands-on workshops will build local capacity and promote adoption of water storage strategies that improve hydrology and resilience.

Results will also be shared through presentations at regional and statewide professional conferences (e.g., MNGIS/LIS, MASWCD, Minnesota Watersheds, Water Resources Conference) to increase awareness and encourage application by practitioners across Minnesota. A BWSR Snapshot article and internal training will further support dissemination and use.

All datasets, maps, and tools will be made publicly available through PTMApp, ensuring long-term access and usability. Integration into PTMApp provides a sustainable platform for ongoing use, updates, and application by local governments and partners, supporting implementation and improved natural resource management statewide.

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?

The water storage portfolios developed for 33 watersheds in this project results will be available for use in existing watershed planning and implementation processes in Minnesota. The water storage sites identified in this project will be integrated into BWSR's PTMApp, an established web application. Adding water storage sites to PTMApp ensures long-term data accessibility for local governments and partners. BWSR has the staff capacity to maintain these data and the prioritized portfolios to support local governments in using them to developing watershed-specific water storage strategies for implementation.

Other ENRTF Appropriations Awarded in the Last Six Years

Name	Appropriation	Amount Awarded
Lawns To Legumes Program Phase 2	M.L. 2021, First Special Session, Chp. 6, Art. 6, Sec. 2, Subd. 08p	\$993,000
Strategic Framework to Guide Local Water Storage Implementation	M.L. 2022, , Chp. 94, Art. , Sec. 2, Subd. 03o	\$200,000
Watershed and Forest Restoration: What a Match!	M.L. 2022, , Chp. 94, Art. , Sec. 2, Subd. 08j	\$3,318,000
Conservation Reserve Program State Incentives	M.L. 2022, , Chp. 94, Art. , Sec. 2, Subd. 10e	\$750,000

Project Manager and Organization Qualifications

Project Manager Name: Henry Van Offelen

Job Title: Clean Water Specialist

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

Henry Van Offelen, has been the board of Water and Soil Resources Clean Water Specialist in the Red River Basin for six years. For more than 20 years he has worked on water management issues throughout Minnesota with a focus on the Red River Basin. He recently complete the LCCMR project "Strategic Framework for to Guide Local Water Storage Implementation". He developed the original GIS tools to identify water storage opportunities (drained wetlands, ponds, impoundment) which have now been integrated with PTMApp. He has extensive experience with watershed plan implementation, watershed hydrology, and project management.

Organization: Board of Water and Soil Resources

Organization Description:

BWSR Mission Statement and Charge: Improve and protect Minnesota's water and soil resources by working in partnership with local organizations and private landowners. BWSR is the state soil and water conservation agency, and it administers programs that prevent sediment and nutrients from entering our lakes, rivers, and streams; enhance fish and wildlife habitat; and protect wetlands. The 20-member board consists of representatives of local and state government agencies and citizens.

BWSR has a proven history of providing grants to local partners to support their conservation efforts. This proposed project would enhance BWSR's role to support efforts to strategically plan for and provide strategic assistance to local partners that implement water storage across the state.

Budget Summary

Category / Name	Subcategory or Type	Description	Purpose	Gen. Ineligible	% Benefits	# FTE	Classified Staff?	\$ Amount
Personnel								
							Sub Total	-
Contracts and Services								
Houston Engineering, Inc.	Service Contract	Houston Engineering, Inc will be contracted to complete all work associated with Activity 1 and Activity 2. The company is the sole source contractor for development, maintenance, and outreach of the PTMApp application under state contract.				1		\$251,000
							Sub Total	\$251,000
Equipment, Tools, and Supplies								
							Sub Total	-
Capital Equipment								
							Sub Total	-
Acquisitions and Stewardship								
							Sub Total	-
Travel In Minnesota								
							Sub Total	-
Travel Outside Minnesota								
							Sub Total	-
Printing and Publication								

							Sub Total	-
Other Expenses								
							Sub Total	-
							Grand Total	\$251,000

Classified Staff or Generally Ineligible Expenses

Category/Name	Subcategory or Type	Description	Justification Ineligible Expense or Classified Staff Request
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Non ENRTF Funds

Category	Specific Source	Use	Status	Amount
State				
Cash	The Water Quality and Storage Program. Laws of Minnesota 2023, Chapter 60, Article 1, Sec. 4(p)	Funds from the Water Quality and Storage Program will be used to complete water storage portfolios for 13 HUC8 watersheds in the MN River basin (Activity 1) and to support workshops in the Minnesota River Basin	Secured	\$148,500
In-Kind	BWSR staff time.	Project management and reporting. Coordination of completion of Activity 1. Development and participation in workshops in Activity 2.	Secured	\$25,000
			State Sub Total	\$173,500
Non-State				
			Non State Sub Total	-
			Funds Total	\$173,500

Total Project Cost: \$424,500

This amount accurately reflects total project cost?

Yes

Attachments

Required Attachments

Visual Component

File: [2e6f10f1-959.pdf](#)

Alternate Text for Visual Component

Overview Graphic of Proposed Project. Overview of types of data to be derived throughout Minnesota and project activities and outcomes....

Administrative Use

Does your project include restoration or acquisition of land rights?

No

Do you understand that travel expenses are only approved if they follow the "Commissioner's Plan" promulgated by the Commissioner of Management of Budget or, for University of Minnesota projects, the University of Minnesota plan?

N/A

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

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?

Yes

Does your project include the pre-design, design, construction, or renovation of a building, trail, campground, or other fixed capital asset costing \$10,000 or more or large-scale stream or wetland restoration?

No

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 as "the provision of care, treatment, education, training, instruction, or recreation to children")?

No

Provide the name(s) and organization(s) of additional individuals assisting in the completion of this proposal:

Rita Weaver. Mike Nelson.

Do you understand that a named service contract does not constitute a funder-designated subrecipient or approval of a sole-source contract? In other words, a service contract entity is only approved if it has been selected according to

the contracting rules identified in state law and policy for organizations that receive ENRTF funds through direct appropriations, or in the DNR’s reimbursement manual for non-state organizations. These rules may include competitive bidding and prevailing wage requirements

Yes, I understand