



Environment and Natural Resources Trust Fund

2027 Request for Proposal

General Information

Proposal ID: 2027-332

Proposal Title: Minnesota River Basin Water Storage BMP Prioritization

Project Manager Information

Name: Rita Weaver

Organization: Board of Water and Soil Resources

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Project Basic Information

Project Summary: Create a Minnesota River Basin model to prioritize the locations of water storage BMPs throughout the basin and evaluate the effects of the BMPs on the Minnesota River.

ENRTF Funds Requested: \$500,000

Proposed Project Completion: January 31, 2030

LCCMR Funding Category: Water (B)

Project Location

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

Region(s): SE, Central, Metro,

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

Region(s): Central, SE, SW, Metro,

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.

Increased precipitation and altered landscapes have increased flow rates in our streams and rivers, resulting in negative impacts to our water quantity and quality. This is especially prevalent in the Minnesota River Basin, where it is estimated that three-quarters of the sediment in the Mississippi River comes from the Minnesota River basin. Grant programs will pay for putting storage back on our landscape, but these programs are a scattershot approach, where the Minnesota River Basin really needs a strategic approach for storage Best Management Practices (BMPs).

Some practices, such as soil health BMPs, always have a positive effect on flow rates and water quality because they remove runoff from the system by evaporation or infiltration. While storage BMPs reduce peak flows and improve water quality more than soil health BMPs, the runoff is only delayed and not removed from the system. If care isn't taken during design and placement of the BMPs, there can be a negative impact on downstream receiving waters. This is why it is so important to have a strategic, planned approach with our storage BMPs.

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.

A basin-wide model is necessary to have a strategic, planned approach for water storage BMPs in the Minnesota River basin. This model will evaluate the effect of storage in each of the HUC8 drainage areas to the Minnesota River. Using this model, we can prioritize state funding for storage BMPs and support local governments when designing and planning storage BMPs in their One Watershed One Plan (1W1P) planning areas. Storage goals are required in the 1W1P and this model will help each planning area understand how their storage goals tie into the larger goal of improved water quality in the Minnesota River.

The MN River Basin model will also be used to evaluate any potential negative effects on the Minnesota River itself. As mentioned previously, if storage BMPs are not strategically placed, they can have a negative effect downstream. Our current approach to implementing storage does not look at the cumulative effect of storage on the Minnesota River.

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?

Storage BMPs are the most efficient way to reduce peak flow rates, and reducing peak flow rates is the best way to improve water quality. By holding water back on our landscape, we will be protecting, conserving, and preserving downstream lakes and rivers and the cumulative effect of these storage BMPs will enhance the Minnesota River. Reduced flow rates are a measurable outcome themselves, but the flow reduction will limit near bank erosion in the Minnesota River and its tributaries, resulting in an outcome of improved water quality across the Minnesota River Basin.

Activities and Milestones

Activity 1: Development of Request for Proposal and Consultant Selection

Activity Budget: \$500

Activity Description:

While BWSR will manage this grant, we will utilize a technical advisory committee (TAC) to provide input and review work and an outside professional technical contractor (consultant) to develop the model and prioritize the storage areas.

We have selected a TAC, consisting of engineers and scientists from the DNR, USACE, MPCA, the University of Minnesota, and the Minnesota River Collaborative (listed under collaborators). With the help of the TAC, we will develop a Request for Proposal (RFP) to complete the MN River Basin modeling and prioritization. When advertising and selecting a consultant for this work we will follow Minnesota’s Department of Administration’s requirements for seeking and evaluating vendors.

A general approach and specific deliverables are defined for this effort, as detailed in the activity descriptions. However, when selecting a consultant they must 1) show their outcomes will align with our scope of work, 2) provide details on their approach and what innovative ideas they can incorporate, 3) show their capacity to ensure work will be completed in a timely manner, and 4) show their experience to ensure they provide high quality work.

This activity will be paid for almost entirely by leveraged funds, so minimal ENRTF funds are requested.

Activity Milestones:

Description	Approximate Completion Date
Technical Advisory Committee Develops and Posts Request for Proposal	September 30, 2027
Interviews with Contractors Completed and Contractor Selection	December 31, 2027

Activity 2: Minnesota River Basin Model Creation and Verification

Activity Budget: \$400,000

Activity Description:

This activity will include having the selected consultant create a model for the MN River Basin. The general approach for this work will be to select modeling software that can evaluate both Hydrology and Hydraulics, and will be able to work with the USACE’s Minnesota River HEC-RAS model. The selected Minnesota River Basin model will represent storage at a HUC8 level, and the amount of storage in the HUC8 subwatersheds will be modified to evaluate the effect on the Minnesota River (using the HEC-RAS model). There are many models that can be used for this effort, but we expect the Minnesota River Basin model to utilize one of the following software packages: HEC-HMS, XP-SWMM/ICM, HEC-RAS, HSPF, or the new PTM-App hydrology tool.

Ideally the model will evaluate flooding conditions on the Minnesota River under continuous rainfall (as opposed to modeling one large event) to better understand the interactions of the different HUC8 drainage areas into the river along with the antecedent conditions in the basin. Historical flooding events on the river must be included in the modeling approach to verify the model accuracy.

This activity will be partially paid for by leveraged funds.

Activity Milestones:

Description	Approximate Completion Date
Evaluation and modification of the USACE Minnesota River HEC-RAS model.	February 28, 2028
Creation of an H&H model to interact with the MN River	October 31, 2028
Model verification to show modeling results replicate the current conditions of the River and the	January 31, 2029

Activity 3: Evaluation and Prioritization of Storage on the MN River Basin

Activity Budget: \$99,000

Activity Description:

This activity will utilize the model developed in the previous task. Storage will be systematically incorporated across the MN River basin to check the effects on the MN River itself. Depending on where the storage is located and how much storage is added, we expect to see different results, such as: no change on the MN River, reduced peaks and/or baseflow on the MN River, or even potentially increased peaks and/or baseflow on the MN River.

Storage will be evaluated on a HUC8 scale, meaning that we will understand the changes in flow on the Minnesota River as storage is added to a HUC8 watershed or the 1W1P planning area.

This activity will be partially paid for by leveraged funds.

Activity Milestones:

Description	Approximate Completion Date
Systematic Incorporation of Storage Areas across the MN River Basin	April 30, 2029
Evaluation of different scenarios to determine how the storage effects the MN River	June 30, 2029
Prioritizing and Ranking of HUC8 watersheds based on modeling results	August 31, 2029

Activity 4: Final Reporting and Dissemination of Information to the 1W1P planning areas

Activity Budget: \$500

Activity Description:

This activity will include the consultant developing a final report for the work completed, which will include their approach to the modeling and the results of their evaluation of storage. The report should also include design suggestions for how each 1W1P planning area should approach the design of their storage BMPs.

Since the model will be ready for future efforts, we will also require that the report include a suggested approach for measuring water quality improvements based on storage, and any other suggested future work (if needed).

BWSR staff will disseminate this information to our partners in the One Watershed One Plan planning areas through a series of meetings. This information will be utilized to reevaluate or support the storage goals in the 1W1P documents.

This activity will be paid for almost entirely by leveraged funds, so minimal ENRTF funds are requested. We also see this as an ongoing activity, which may extend past the “completion” date of this grant. However, any ENRTF funds will be utilized by the planned completion date.

Activity Milestones:

Description	Approximate Completion Date
Final Report	December 31, 2029
Dissemination of information to the LGUs	January 31, 2030

Project Partners and Collaborators

Name	Organization	Role	Receiving Funds
Ann Banitt (or delegated staff)	US Army Corps Engineers	Technical Advisory Committee and contact for MN River HEC-RAS model	Yes
Matt Drewitz (or delegated staff)	Minnesota Pollution Control Agency	Technical Advisory Committee and contact for HSPF models	No
Dan Reinarz (or delegated staff)	MN Department of Natural Resources	Technical Advisory Committee	No
Suzanne Jiwani	MN River Collaborative	Technical Advisory Committee	No
Joe Magner (or delegated staff)	University of Minnesota	Technical Advisory Committee	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.

The results of this work will be provided in a final report, which will include the ENRTF logo indicating ENRTF funds were used for this effort. This report will be completed within the grant timeline.

In addition to the report, the information will be disseminated to the 1W1P planning areas in the Minnesota River Basin. This will be funded by leveraged funds and completed by BWSR staff. In these meetings we will work with the 1W1P planning staff to review their storage goals (a requirement for the 1W1P) and provide design suggestions that will support both their local storage goals while keeping the Minnesota River in mind. We expect this dissemination effort to extent past the ENRTF grant timeline, but leveraged funds will be utilized BWSR staff to complete this work. This work falls under the normal effort of BWSR staff while working with our local governments.

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?

BWSR staff will work with LGUs in the 1W1P planning areas to inform and further prioritize their 1W1P storage goals. We expect the LGU's to use the results from the LCCMR 2022 funded "Strategic Framework to Guide Local Water Storage Implementation" to further refine locations for storage BMPs.

Funding for this work and for construction of the storage projects can be paid for through Watershed Based Implementation Funding, the Water Quality and Storage Program, or other BWSR grants. The outcome of this effort can also be used to evaluate cumulative water quality improvements on the Minnesota River.

Other ENRTF Appropriations Awarded in the Last Six Years

Name	Appropriation	Amount Awarded
Pollinator and Beneficial Insect Strategic Habitat Program	M.L. 2021, First Special Session, Chp. 6, Art. 5, Sec. 2, Subd. 08b	\$750,000

Lawns To Legumes Program Phase 2	M.L. 2021, First Special Session, Chp. 6, Art. 6, Sec. 2, Subd. 08p	\$993,000
Lawns To Legumes Program Phase 2	M.L. 2021, First Special Session, Chp. 6, Art. 5, Sec. 2, Subd. 08m & 20b	\$1,040,000
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: Rita Weaver

Job Title: BWSR Chief Engineer and State Drainage Engineer

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

Rita Weaver is a Civil Engineer with over 20 years of water resources engineering experience. She has studied the effect of water storage her entire career, starting with modeling storage basins across the Cedar River Watershed to determine how they would reduce flooding in the City of Austin. Other notable projects include working on the team to calibrate the Red River of the North hydrologic model, evaluating flood effects on the Mississippi River as part of a FEMA flood study, and serving on the technical panel for the 2022 LCCMR project “Strategic Framework to Guide Local Water Storage Implementation”.

In addition to being the Chief Engineer for the Board of Water and Soil Resources and the State's Drainage Engineer, she manages the Water Quality and Storage Program (103F.05) for the state. She has been working with local governments to implement storage in the Minnesota River basin and sees firsthand the need for a basin-wide model to help prioritize how we use state funding for storage. She has a thorough understanding of how important it is to strategically approach the placement and design of storage, in order to not see negative effects downstream. While the Water Quality and Storage Program requires that applicants evaluate downstream effects, she is concerned that we do not yet fully understand the potential effect of the approach we are taking to storage on the Minnesota River itself.

Rita also teaches Hydrology and Eco-sensitive Design to Civil Engineering Technology students at Dakota County Technical College as an adjunct professor.

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 be consistent with that role and fortunately the staff that are supporting the storage work across the state, such as through grant reviews, grant monitoring, and supporting local partnerships, can be covered by other appropriations. Therefore, only a minimal salary request is being made as part of this proposed project.

Budget Summary

Category / Name	Subcategory or Type	Description	Purpose	Gen. Ineligible	% Benefits	# FTE	Classified Staff?	\$ Amount
Personnel								
Project Manager		Manage the overall project messaging, marketing, budget, and outcomes. Convene, oversee, and manage TAC meetings. Note that the salary for this staff person is covered under the Water Quality and Storage Budget so additional funds are not being requested for staff time. All TAC members will also be paid for using leveraged funds.			0%	0.9	X	-
							Sub Total	-
Contracts and Services								
TBD	Service Contract	Contract will be paying for the modeling, prioritization, and final reporting as described in Activities 2-4.				0		\$500,000
							Sub Total	\$500,000
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	\$500,000

Classified Staff or Generally Ineligible Expenses

Category/Name	Subcategory or Type	Description	Justification Ineligible Expense or Classified Staff Request
<p>Personnel - Project Manager</p>		<p>Manage the overall project messaging, marketing, budget, and outcomes. Convene, oversee, and manage TAC meetings. Note that the salary for this staff person is covered under the Water Quality and Storage Budget so additional funds are not being requested for staff time. All TAC members will also be paid for using leveraged funds.</p>	<p>Classified : ENRTF funds will not be used to pay for this staff, leveraged funds will be used. This will be a continuation of duties for the project manager to support the Water Quality and Storage Program (103F.05)</p>

Non ENRTF Funds

Category	Specific Source	Use	Status	Amount
State				
In-Kind	Water Quality and Storage Program Funds (103F.05)	The Water Quality and Storage program is defined in MN Statute 103F.05. This modeling effort will support the program by helping local governments further prioritize and design storage BMPs in their 1W1P planning areas. It will also help the local governments understand how their local efforts fit into the overall improvement of the water quality and quantity in the Minnesota River	Secured	\$500,000
			State Sub Total	\$500,000
Non-State				
			Non State Sub Total	-
			Funds Total	\$500,000

Total Project Cost: \$1,000,000

This amount accurately reflects total project cost?

Yes

Attachments

Required Attachments

Visual Component

File: [5c0f2842-708.docx](#)

Alternate Text for Visual Component

The visual includes two figures that simplify the concept of how runoff from the MN River Basin is represented in a runoff hydrograph of the Minnesota River, and how important it is to have a strategic, planned approach when adding storage to a watershed....

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?

No

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:

NA

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