



# Environment and Natural Resources Trust Fund

## 2025 Request for Proposal

### General Information

**Proposal ID:** 2025-128

**Proposal Title:** Creating the Minnesota Well Index of the Future

### Project Manager Information

**Name:** Joel Larson

**Organization:** U of MN - Water Resources Center

**Office Telephone:** (612) 624-3738

**Email:** jplarson@umn.edu

### Project Basic Information

**Project Summary:** Create an updated, user-friendly Minnesota Well Index (MWI) interface, evaluate methods to make the MWI more comprehensive, and create educational materials for MWI users.

**ENRTF Funds Requested:** \$792,000

**Proposed Project Completion:** June 30, 2028

**LCCMR Funding Category:** Water Resources (B)

### 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.**

Lack of information on groundwater data and limited access to the data we do have hampers our ability to measure the effectiveness of ongoing groundwater protection efforts.

Private wells supply drinking water to around 1.2 million Minnesotans -- 20 percent of the state's population. These wells are vital infrastructure that not only provide drinking water, but also help us manage the amount and quality of our groundwater resources. Information for some of those wells is included in the Minnesota Well Index (MWI), a web application that provides access to data including locations, depths, construction specifications, and water quality characteristics. This information provides valuable insights for well users, contractors, and groundwater professionals as they assess drinking water quality, well construction, groundwater resource management, and environmental protection efforts.

However, the MWI uses an outdated interface that is not in line with best practices for sharing geospatial information with a large number of users. In addition, the MWI is not comprehensive, only including data on 50 to 60 percent of wells across the state. Finally, there is limited information on how private well owners and groundwater professionals can best use the MWI and how to interpret information that it provides.

### **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.**

Improving the MWI involves a multifaceted approach to enhance its accessibility, comprehensiveness, and usability. First, we will create an updated, fully functional, proof-of-concept interface to improve navigation and data retrieval. Implementing a modern interface with advanced searchability and interactive mapping will streamline access to well information for well users, water professionals, policymakers, and the public.

Second, we will pilot a process in Southeast Minnesota that will, if fully implemented, augment MWI comprehensiveness by adding data on additional wells. This effort would focus on the well inventory initiative that the Minnesota Department of Health (MDH) is promoting with eight counties in the karst region. It will also test the usefulness of having private well owners provide well location and construction information following attendance at water quality screening clinics.

Finally, we will leverage ongoing educational activities to create materials that assist MWI users in effectively utilizing the index. We will work with partners to identify information needs and collaboratively assess how to best develop resources to meet those needs.

This project builds on previous ENRTF funding, specifically through the geologic atlas program, which provides accurate well locations and a geological evaluation for these wells.

### **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?**

We will create a modern MWI interface, pilot a process to input data and create a more comprehensive index, and create links to a series of educational materials for private well owners being developed by the U of M and MDH. Furthermore, by ensuring accurate and comprehensive data from private water wells, this fully functional proof-of-concept will enable informed decision-making in water resource management and aid in drinking water and groundwater efforts. Finally, by linking educational materials and expanding MWI coverage, we will heighten community engagement and foster a culture of conservation and stewardship.

## Activities and Milestones

### Activity 1: Create an updated Minnesota Well Index web application for to provide a more user-friendly interface

**Activity Budget:** \$452,716

**Activity Description:**

Creating a new, proof-of-concept interface for the Minnesota Well Index will improve user experience for private well owners and groundwater professionals and ensure easy, seamless access to critical information about wells statewide. This activity includes three major tasks. First, the University of Minnesota will convene an advisory group that will define user needs and preferences, test the beta versions of the application, and serve as a steering committee for the project as a whole. The committee will include representatives from non-profit organizations (e.g., the Minnesota Groundwater Association, Minnesota Well Owners Organization, the private well industry (e.g., well drillers), the public sector (e.g., MDH), and private well owners.

Second, the University of Minnesota’s U-Spatial program will use input from the advisory workgroup to develop, test, and evaluate an intuitive and robust web application. Through iterative testing and feedback processes, we will identify and address potential issues and will refine the interface to optimize functionality and accessibility.

Finally, this activity will include coordination of the workgroup meetings to foster collaboration and transparency throughout the project.

**Activity Milestones:**

Description	Approximate Completion Date
Complete initial advisory workgroup meetings to inform MWI web application	October 31, 2025
MNIT provides an initial copy of the relevant databases outside of the state IT firewall	October 31, 2025
Launch small-group beta version of MWI application and solicit feedback	May 31, 2026
Finalize incorporation of small-group beta feedback into application as appropriate	January 31, 2027
Complete usability testing and incorporate feedback into application	May 31, 2027
Launch public beta and solicit feedback	June 30, 2027
Finalize incorporation of public beta feedback into application as appropriate	December 31, 2027
Public launch of proof-of-concept web application	January 31, 2028
Develop recommendations for transition from proof-of-concept to full application	May 31, 2028

### Activity 2: Pilot a process to add construction information to the Minnesota Well Index databases for private wells constructed prior to 1975

**Activity Budget:** \$257,405

**Activity Description:**

The existing MWI contains no data on approximately 50-60% of wells constructed prior to 1975. Wells constructed after that date are required to meet state well code construction and sealing standards and submit a record to MDH. The lack of construction information for pre-1975 wells limits everyone’s efforts to properly manage them and assess their impacts on the safety and sustainability of groundwater used for drinking. To address this limitation, we propose a pilot project to add historic well data for an eight-county area in Southeast Minnesota where wells built prior to 1975 are particularly vulnerable to contamination from land use.

The Minnesota Geological Survey will provide guidance to the Minnesota Well Owners Organization (MNWOO) and county staff to match pre-1975 well construction information with inventoried wells and provide training for entering

pre-1975 well data into a format compatible with the well index. MNWOO will coordinate the collection, verification, and entry of this data across the pilot area.

This activity will promote community involvement and fill existing gaps in the dataset for the pilot area. The results of the process will be used to assess the effectiveness of expanding this effort statewide.

**Activity Milestones:**

Description	Approximate Completion Date
Acquire pre-1975 well construction information for pilot area from MGS	September 30, 2025
Establish workgroup to coordinate well inventory with data matching	November 30, 2025
Finalize strategy for data matching in the remaining 7 counties	April 30, 2026
Test matching pre-1975 data with well locations for Olmsted County	June 30, 2026
Match pre-1975 well construction data for wells in remaining seven counties	March 31, 2028
Publish evaluation of pilot project successes and challenges	May 31, 2028

**Activity 3: Create outreach and education materials to help well users and groundwater professionals use the updated MWI**

**Activity Budget:** \$81,879

**Activity Description:**

The University of Minnesota and its partners will create and publish a series of outreach and education resources to help private well owners, groundwater professionals, and policymakers use the updated MWI. The U of M Water Resources Center (WRC) will leverage the work group that informed the features and format of the updated MWI to provide input on these materials. Example materials may include user guides, tutorials, and other online resources.

The WRC is collaborating with MDH to develop a comprehensive education program focused on private well owners and groundwater professionals, and information focused on the updated MWI will easily integrate into this effort. This activity will partially fund two positions: an Extension educator and project coordinator to lead these efforts.

Developing these resources can empower stakeholders with the knowledge and skills needed to interpret and leverage the index's data for informed decision-making. These educational materials will cater to diverse user needs and proficiency levels, promoting greater engagement and utilization of the index across various sectors and disciplines.

**Activity Milestones:**

Description	Approximate Completion Date
Complete initial advisory workgroup meetings to inform outreach and education materials	March 31, 2026
Create draft of outreach and education materials based on stakeholder input on small-group beta MWI	June 30, 2026
Launch outreach and education materials for public beta of MWI application	October 31, 2026
Update materials based on to public beta feedback (continuous up to this date)	November 30, 2027
Launch final outreach and education materials with MWI proof-of-concept application	April 30, 2028

## Project Partners and Collaborators

Name	Organization	Role	Receiving Funds
Peter Wiringa	University of Minnesota - U-Spatial	Manage application development, participate in workgroup and related activities (Activity 1)	Yes
Olena Boiko	University of Minnesota - U-Spatial	Application developer (Activity 1)	Yes
Emily Bauer	Minnesota Geological Survey	Provide guidance and training to MNWOO for Activity 2	Yes
Jeffrey Broberg	Minnesota Well Owners Organization	Coordinate data collection and entry for Activity 2	Yes
Joel Larson	University of Minnesota - Water Resources Center	Project Lead, oversees development of educational materials (Activity 3)	Yes
Technical Staff from MDH Drinking Water Protection, Water Policy Center, and Well Management Section	MDH	Serve on the project advisory committees and as technical references for the existing MWI and other relevant databases	No

## 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?**

This project will develop an updated MWI interface that is available for use by the public. Partial funding to host the site long-term may be available by reallocating existing MWI support. However, additional funding would be required to fully replace the existing application and link new datasets developed through this project.

Additional funding will be required for the statewide expansion of the regional pilot project to add pre-1975 well data to the MWI.

The education materials developed to support users of the updated Minnesota Well Index can be hosted on the U of M Extension website at no additional cost.

## Project Manager and Organization Qualifications

**Project Manager Name:** Joel Larson

**Job Title:** Associate Director, Water Resources Center

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

Mr. Larson is the Associate Director of the University of Minnesota's Water Resources Center (WRC), where he bridges

the spectrum of research to application to address the state's most pressing water issues. He manages the WRC's outreach and engagement programs, including the Water Resources Extension team. He also represents the University on a range of external boards and advisory committees, including the Board of Water and Soil Resources and the North Central Region Water Network.

Prior to joining the UMN, Mr. Larson worked at the climate program at the U.S. Department of Agriculture. He served as the acting director of the Southeast Regional Climate Hub and developed the USDA Building Blocks for Climate Smart Agriculture and Forestry, the department's initiative to reduce greenhouse gas emissions from agriculture, forests, and rural communities. Before coming to USDA, Mr. Larson served as chief of staff, adviser, and social scientist at the Bureau of Land Management. He started at the BLM as a Presidential Management Fellow, shortly after finishing his MPP degree from the Humphrey Institute. He earned his B.A. in geography from Macalester College.

In his role at the Water Resources Center, Mr. Larson manages a team of Extension educators and communicators focused on urban stormwater management, agricultural water use, drinking water, and groundwater management. He collaborates with a wide range of partners, including private and non-profit organizations; local, state and Federal government agencies; and others at the University of Minnesota.

**Organization:** U of MN - Water Resources Center

**Organization Description:**

The University of Minnesota focuses its work on the land grant mission of world-class education, groundbreaking research, and community-engaged outreach. Within the U of M, the Water Resources Center's (WRC) mission is to, "Advance the science of clean water for all Minnesotans through innovation, workforce development, and knowledge exchange." The WRC is a unit of the College of Food, Agriculture, and Natural Resource Sciences and University of Minnesota Extension and, in doing so, advances the U of M mission by developing collaborations with partners across the public, private, and nonprofit sectors.

The WRC focuses its work on the intersection of land, water, and people. Specifically, it supports the role of Minnesota's land grant institution by focusing research, education, and engagement on five thematic areas: 1) Urban Stormwater, 2) Agriculture and Rural Watersheds, 3) Decentralized Wastewater, 4) Groundwater and Drinking Water, and 5) Surface Water and Aquatic Ecosystems.

## Budget Summary

Category / Name	Subcategory or Type	Description	Purpose	Gen. Ineligible	% Benefits	# FTE	Classified Staff?	\$ Amount
<b>Personnel</b>								
Joel Larson		PI, Project Manager			37.1%	0.15		\$29,152
TBH - Project Coordinator		Coordinate project activities, organize input meetings, create project reports, and serve as the point of contact for partner and public input			33.5%	0.3		\$28,455
TBH - Extension Educator		Develop outreach and education materials for the updated MWI			37.1%	0.3		\$35,966
Peter Wiringa		U-Spatial Manager - Manage application development, participate in workgroup and related activities			37.1%	0.15		\$21,894
Olena Boiko		U-Spatial web developer. Develop the updated Minnesota Well Index web application.			37.1%	2.76		\$352,759
Emily Bauer		MGS staff to provide guidance and training to MNWOO for Activity 2. Create reference table for easy retrieval. Provide training for data entry into the MWI.			37.1%	0.04		\$4,220
TBH - Data Entry Personnel		MGS temporary staff to scan pre-1975 well construction data. Verify and upload additional well data			33.5%	0.5		\$27,733
							<b>Sub Total</b>	<b>\$500,179</b>
<b>Contracts and Services</b>								
Minnesota Well Owners Organization	Professional or Technical Service Contract	Coordinate the collection and data entry of pre-1975 well information for eight counties in SE Minnesota provided by MGS, MDH, or private well owners.				1.25		\$206,250
MDH MNIT Services	Internal services or fees (uncommon)	MNIT will provide a working copy of databases currently unavailable outside of state firewalls (\$46,086). Provide regular updates to these databases so that the new MWI includes the most recent data (\$7,489 for each year x 3 = \$22,467)				0		\$68,553
							<b>Sub Total</b>	<b>\$274,803</b>

<b>Equipment, Tools, and Supplies</b>								
							<b>Sub Total</b>	-
<b>Capital Expenditures</b>								
							<b>Sub Total</b>	-
<b>Acquisitions and Stewardship</b>								
							<b>Sub Total</b>	-
<b>Travel In Minnesota</b>								
	Miles/ Meals/ Lodging	Mileage, hotel, and per diem for project team - Up to 12 stakeholder meetings for 4 project staff. Mileage reimbursement of \$0.67/mile. Hotels and per diem within defined limits.						\$6,000
							<b>Sub Total</b>	<b>\$6,000</b>
<b>Travel Outside Minnesota</b>								
							<b>Sub Total</b>	-
<b>Printing and Publication</b>								
	Printing	Printed materials for up to 12 stakeholder engagement meetings	Learning and discussion at stakeholder engagement meetings.					\$1,000
	Printing	Printed education and outreach materials for development and rollout of updated MWI	Materials for users of proof-of-concept MWI interface					\$2,318
							<b>Sub Total</b>	<b>\$3,318</b>
<b>Other Expenses</b>								
		Food/drink for attendees at up to 12 stakeholder meetings (average of \$200 per meeting)	Provide refreshments at stakeholder meetings					\$2,400
		Room rental for up to 12 stakeholder input meetings (average of \$150 per meeting)	Provide space for stakeholder meetings					\$1,800



		\$50 stipends for up to 10 usability testers to inform the development of the updated MWI	Provide nominal stipend for usability testers					\$500
		\$200 stipends to be provided to up to 15 participants of the stakeholder input process to compensate them for time and travel.	Compensate advisory committee members for their time and travel costs.					\$3,000
							<b>Sub Total</b>	<b>\$7,700</b>
							<b>Grand Total</b>	<b>\$792,000</b>

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
<b>State</b>				
In-Kind	Minnesota Department of Health - Water Policy Center - 2023 Session Law, Chapter 40, Article 2, Section 7 (b) "\$1,500,000 the first year and \$1,500,000 the second year are for ensuring safe drinking water for private well users, including studying the occurrence and magnitude of contaminants in private wells; developing guidance and conducting outreach and education about well testing and mitigation; awarding grants to local governments; and designing voluntary interventions to reduce health risks to private well owners." Well Management Section - \$30,303 in funding shall be appropriated to the commissioner of health and deposited in the state government special revenue fund.	Staff from the Drinking Water Protection, Water Policy Center, and Well Management Section to serve on the project advisory committees and as technical references for the existing MWI and other relevant databases (3 staff at 0.05 FTE each for 3 years, total of 0.45 FTE)	Secured	\$90,909
			<b>State Sub Total</b>	<b>\$90,909</b>
<b>Non-State</b>				
In-Kind	Minnesota Groundwater Association	In-kind contribution assessed at \$75/hour. 300 hours contributed for Activity 1, 200 hours for Activity 2, and 140 hours for Activity 3. Total of 640 hours.	Secured	\$48,000
In-Kind	Minnesota Well Owners Organization	In-kind contribution assessed at \$75/hour. 300 hours contributed for Activity 1, 200 hours for Activity 2, and 140 hours for Activity 3. Total of 640 hours.	Secured	\$48,000
In-Kind	University of Minnesota Usability Services	Testing usability of the new web application by conducting 20 hours of remote usability assessments.	Secured	\$26,000
			<b>Non State Sub Total</b>	<b>\$122,000</b>
			<b>Funds Total</b>	<b>\$212,909</b>

**Total Project Cost: \$1,004,909**

**This amount accurately reflects total project cost?**

Yes

## Attachments

### Required Attachments

#### *Visual Component*

File: [3e22ac93-1e3.pdf](#)

#### *Alternate Text for Visual Component*

Graphics showing a cross-section of the Minnesota Karst Landscape, an example of the current Minnesota Well Index, and an example of an updated interface. The text explains that this project will result in an updated interface, a pilot to provide more complete data, and new MWI outreach materials for users....

### Supplemental Attachments

*Capital Project Questionnaire, Budget Supplements, Support Letter, Photos, Media, Other*

Title	File
Larson LCCMR U of M SPA Letter of Support	<a href="#">eda8be45-3d1.pdf</a>
MGS Letter of Support	<a href="#">60293997-bda.pdf</a>
MNWO Letter of Support	<a href="#">e3be3e72-e10.pdf</a>

## Administrative Use

**Does your project include restoration or acquisition of land rights?**

No

**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, Sponsored Projects Administration

**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:**

Peter Wiringa, U of M; Bruce Olsen, MGWA; Jeff Stoner, MGWA; Jeff Broberg, MNWOO; Tony Runkel, MGS; Bob Tipping, MDH; Tannie Eshenaur, MDH

