Environment and Natural Resources Trust Fund

2027 Request for Proposal

General Information

Proposal ID: 2027-221

Proposal Title: Drought Adaptation and Resiliency Planning for Minnesota

Project Manager Information

Name: Jesse Berman

Organization: U of MN - School of Public Health

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Project Basic Information

Project Summary: Leading drought experts will partner with Minnesota communities to develop and pilot a statewide drought adaptation toolkit, strengthening natural resource resilience through locally informed, data-driven planning across sectors and regions

ENRTF Funds Requested: $536,000

Proposed Project Completion: June 30, 2030

LCCMR Funding 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.

Drought is one of Minnesota's most costly and often overlooked threats to our natural resources. While the state is known for abundant water, it experiences moderate drought nearly every year, along with periodic severe events. The 2021 drought—the worst in over thirty years—caused an estimated $10–$20 billion in damages, significantly affecting agriculture, harming parks, straining drinking water supplies, and restricting recreational activities. Climate forecasts predict more frequent and severe droughts, which threaten forests, wetlands, fisheries, and watershed health across the state. The Minnesota DNR is revising the statewide drought management guidelines; however, impacts and responses differ widely by region and sector. Although the current plan addresses general issues, it does not adequately address local priorities, incorporate community knowledge, or ensure that adaptation measures are practical at the decision-making level. This creates a significant planning gap: guidance that is not locally adapted and potentially missing scientific support for unique issues. There is a vital, time-sensitive opportunity to work with the DNR and other state agencies to bridge these gaps—developing regionally-based solutions that boost local preparedness and improve statewide drought strategies with local insights

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.

Our solution harnesses Minnesota's leading drought expertise to bolster local adaptation efforts. We will form a project advisory team consisting of top climate scientists, state agency representatives, and national drought specialists to oversee a structured, three-phase process. In Phase 1, community experts—including local planners, Tribal resource managers, conservation district staff, and water utility operators—participate in regional workshops that encourage two-way knowledge exchange between scientists and practitioners. Participants will share priorities, identify resource gaps, and collaboratively develop adaptation needs assessments. Phase 2 involves translating these workshop insights into a detailed drought-adaptation toolkit aligned with the NOAA Steps to Resilience framework. This toolkit will include regional drought impact summaries, proven adaptation strategies, implementation plans, and decision-support tools tailored to various sectors and regions. In Phase 3, the toolkit will be tested through up to three pilot projects integrated into existing local planning initiatives—such as county conservation plans, watershed strategies, or natural resource management plans. Each pilot will receive customized technical support from our academic and state agency partners, creating case studies that can be replicated. This bottom-up approach ensures the toolkit addresses real practitioner needs and provides practical outputs that directly support the DNR's statewide drought mitigation plan.

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 establish Minnesota as a national leader in drought resilience planning. Specific results include: (1) locally adapted drought resilience and adaptation plans created through structured regional engagement; (2) a science-based, practitioner-tested drought adaptation toolkit accessible statewide for resource managers; and (3) collaborative networks connecting local, Tribal, and state partners to enhance drought preparedness. These results directly support LCCMR priorities A5 (local climate resiliency plans), A6 (cross-sector collaboration and partnerships), A7 (interagency coordination), and B6 (education and technical assistance for water resource protection).

Activities and Milestones

Activity 1: Regional workshop design and local expert identification

Activity Budget: $107,550

Activity Description:
This foundational activity establishes the infrastructure for effective statewide engagement and knowledge exchange. We will form a project advisory team comprising leading drought scientists, state agency representatives, and community stakeholders to guide workshop design, content development, and participant recruitment. The team will design a series of five one-day drought adaptation workshops tailored to the distinct needs of Northeast, Central, Northwest, Southwest, and Southeast Minnesota. The design process will identify key regions and sectors most vulnerable to drought impacts and most likely to benefit from targeted adaptation strategies. Leveraging established networks through the DNR, UMN Extension, and national drought organizations, we will identify and recruit local governments, Tribal nations, watershed management districts, conservation districts, park and forest managers, drinking water utilities, and agricultural stakeholders as our community experts. Recruitment will prioritize representation across sectors, geographies, and communities historically underrepresented in state planning processes. Workshop structure will incorporate the latest science on drought trends, projections, and impacts while creating space for facilitated dialogue on regional concerns. The outcome will be a stakeholder-informed workshop series positioned to gather critical perspectives, build cross-sector relationships, and generate actionable input for developing a drought adaptation toolkit attuned to Minnesota's regional and sectoral differences.

Activity Milestones:

Description	Approximate Completion Date
Establish project advisory team	July 31, 2027
Identify key regions and sectors for targeted engagement	August 31, 2027
Develop workshop structure and content framework	December 31, 2027
Identify workshop locations and recruit community expert invitees	February 28, 2028
Distribute invitations and confirm participation	April 30, 2028

Activity 2: Drought Adaptation and Mitigation Workshop delivery

Activity Budget: $154,250

Activity Description:
Building on foundational design work, we will deliver up to five drought adaptation workshops across Minnesota's diverse regions, each facilitating structured two-way knowledge exchange between scientific experts and local practitioners. Sessions will open with regionally relevant presentations by UMN researchers and state climatologists covering drought trend data, climate projections, and documented impacts on natural resources, agriculture, and water systems. Facilitated breakout discussions will capture local drought concerns, current resilience strategies, adaptation priorities, and unmet resource needs from community experts. All participants will complete pre-workshop and post-workshop evaluations assessing knowledge gained, relevance of content, and priority actions identified. The project advisory team will guide content calibration across regions, ensuring each workshop reflects local conditions while maintaining methodological consistency statewide. Following each session, the team will produce comprehensive workshop summaries documenting key insights, regional challenges, proposed solutions, and participant recommendations. These summaries provide the empirical foundation for regionally specific adaptation strategies within the drought toolkit. Critically, this activity builds cross-sector relationships and trust networks essential for sustained drought resilience. By centering local expertise alongside scientific knowledge, the workshops generate

practitioner buy-in and ensure the resulting toolkit empowers resource managers to make informed, locally appropriate decisions for protecting Minnesota's natural resources.

Activity Milestones:

Description	Approximate Completion Date
Collect pre- and post-workshop evaluations from all participants	February 28, 2028
Produce comprehensive workshop summaries for each region	May 31, 2028
Deliver five regional drought adaptation workshops	November 30, 2028

Activity 3: Drought Adaptation Toolkit development

Activity Budget: $122,450

Activity Description:
This activity turns regional workshop insights into a practical drought adaptation toolkit for Minnesota's resource managers. It combines community-identified impacts, adaptation priorities, and resource gaps with current climate science and best practices. The toolkit offers four components: regional impact profiles, sector-specific adaptation strategies, implementation frameworks like NOAA's Steps to Resilience, and links to data, resources, and funding. Development is iterative, with input from the advisory committee and workshop participants. Community experts review draft materials for usability and relevance, providing feedback before finalization. The toolkit also includes case study templates and planning worksheets for local use. It serves as a standalone resource and enhances the DNR's statewide drought plan, ensuring the deliverables meet local and state needs.

Activity Milestones:

Description	Approximate Completion Date
Compile regional drought trend and projection data	July 31, 2028
Summarize drought impacts by region and sector	September 30, 2028
Develop evidence-based adaptation strategy compendium	October 31, 2028
Build implementation framework and decision-support resources	January 31, 2029
Conduct focus groups with community experts to test and refine toolkit usability	April 30, 2029

Activity 4: Pilot Projects and Toolkit Implementation

Activity Budget: $151,750

Activity Description:
This activity tests the toolkit through real-world drought adaptation pilots in three Minnesota communities, representing different regions, sectors, and planning contexts. Building on relationships from workshops and toolkit development, we will identify pilot sites and local partners, including governments, conservation districts, water utilities, or community groups. Each pilot starts with assessing local needs, followed by collaborative scoping and budgeting to ensure solutions are acceptable, feasible, and scalable. Support includes feasibility analyses, cost-benefit assessments, and technical help from academic and state partners. Throughout, the UMN team and consultants will provide facilitation, design support, and evaluation to make each project a replicable drought resilience model. Detailed case studies will document outcomes, lessons, barriers, and recommendations for broader adoption. Feedback will inform toolkit revisions, strengthening its statewide usefulness. These pilots demonstrate practical adaptation strategies and inform state planning by highlighting community solutions that fill process gaps, empowering communities, and boosting drought resilience in Minnesota.

Activity Milestones:

Description	Approximate Completion Date
This activity tests the toolkit through real-world drought adaptation pilots in three Minnesota communities, representing different	May 31, 2029
Develop project scope and budget for each pilot	July 31, 2029
Implement pilot projects with technical assistance	December 31, 2029
Develop detailed case study summaries	March 31, 2030
Complete toolkit revisions based on pilot feedback	June 30, 2030

Project Partners and Collaborators

Name	Organization	Role	Receiving Funds
Rachel Lookadoo	University of Nebraska Medical Center	Ms. Lookadoo is a nationally recognized expert in drought adaptation planning, who will provide specific guidance on hosting drought adaptation workshops, targeting community experts, creation of the drought toolkit, and evaluation of the product following our pilot implementation.	Yes
Summer Woolsey	University of Nebraska Medical Center	Ms. Woolsey has extensive experience running drought adaptation workshops, including preparation, planning, summarizing findings, and producing communication documents to share results. She will support the development of our regional drought workshops, provide feedback during the events, and advise the creation of our final drought toolkits.	Yes
Heidi Roop	University of Minnesota Climate Adaptation Partnership	Dr. Roop is a climate expert in the UMN Climate Adaptation Partnership who will provide expertise in drought and water stress in Minnesota for both the workshops and toolkit development. She will additionally support the identification of relevant community partners and experts through her network at UMN Extension.	Yes
Ryan Harp	University of Minnesota Climate Adaptation Partnership	Dr. Harp is a climatologist with expertise in drought and weather related science. He will attend all regional workshops and serve as an expert on drought/weather related topics, help facilitate the events, and assist on toolkit development and dissemination.	Yes
Jesse Bell	University of Nebraska Medical Center	Dr. Bell is a globally recognized expert in human impacts of drought and water insecurity. He has previously been supported to hosting national workshops to evaluate drought impacts and produce impact reports. He will provide guidance in performing this at the state-level for Minnesota	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.
We aim for the DNR to openly share the findings and provide online access to the toolkit, facilitating ongoing use by Minnesota's planners and resource managers. The results will additionally be disseminated via the National Integrated Drought Information System, advancing drought planning efforts in various regions and positioning Minnesota as a model for other states and regions to follow. We will also provide our community-experts with our toolkit that resulted from their participation.

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 supports Minnesota's long-term resilience goals and enhances the statewide drought mitigation strategy by incorporating local strategies into the larger state framework. We aim for the DNR to openly share the findings and provide online access to the toolkit, facilitating ongoing use by Minnesota's planners and resource managers. The results will be disseminated via the National Integrated Drought Information System, advancing drought planning efforts in various regions and positioning Minnesota as a model for others. The partnerships formed will support local initiatives via existing agency and extension networks, preventing the need for additional ENRTF funding.

Project Manager and Organization Qualifications

Project Manager Name: Jesse Berman

Job Title: Associate Professor

Provide description of the project manager's qualifications to manage the proposed project.
Dr. Jesse Berman, an Associate Professor of Environmental Health Sciences at the University of Minnesota School of Public Health, has over 15 years of research leadership focusing on drought, climate, and environmental health. His studies have established important links between drought exposure and health issues, including cardiovascular disease, respiratory illness, premature death, and occupational stress among Midwestern farmers. With 55 peer-reviewed publications—including 31 as the lead or student author—and funding from NIH, NASA, NOAA, and the Great Plains Institute for Agricultural Health, Dr. Berman has developed a highly productive research program on drought impacts. He has spoken at national drought summits, contributed to interagency workshops on drought and health, and maintains active collaborations with the University of Nebraska Medical Center, a leader in drought and health research. For this project, Dr. Berman leads a diverse team with expertise in drought impacts. The team features state climatologists providing drought-trend data, UMN Extension specialists connected to rural and agricultural communities, Minnesota DNR partners with state-level planning experience, and national drought-adaptation consultants familiar with NOAA's framework. This mix of academic, state-agency, community-engagement, and national expertise is unmatched in Minnesota. Dr. Berman will oversee all project phases—from forming the advisory team and designing workshops to developing the toolkit and evaluating the pilot—ensuring scientific rigor, stakeholder accountability, and timely results.

Organization: U of MN - School of Public Health

Organization Description:
The University of Minnesota is the flagship university in Minnesota. The School of Public Health is number six ranked public health university program at a public institution in the U.S.

Budget Summary

Category / Name	Subcategory or Type	Description	Purpose	Gen. Ineligible	% Benefits	# FTE	Classified Staff?	$ Amount
Personnel								
Jesse Berman		Oversee and lead all aspects of the project			36.6%	0.45		$98,652
Heidi Roop		Provide climate and drought expertise, guidance for workshop partners through UMN extension, evaluate completed toolkit			36.6%	0.12		$28,104
Ryan Harp		Drought expert; provide expertise at all workshops related to drought and climate; support toolkit development; support pilot project implementation			36.6%	0.6		$64,636
Project Manager		Will help with administrative tasks related to the project (e.g. workshop development, pilot project development, dissemination)			36.6%	0.45		$37,772
Student Research Assistant		Will help with workshop creation and tasks			0%	0.1		$6,353
							Sub Total	**$235,517**
Contracts and Services								
TBD	Service Contract	Workshop planning and community connection				0.25		$45,000
TBD	Service Contract	Hosting of the workshop, including travel and setup, compilation of workshop outcomes, follow-up with partners to gain additional insight.				0.25		$79,000
TBD	Service Contract	Development of drought adaptation and preparedness toolkit. Implementation of toolkit through pilot projects with relevant community partners. Evaluation and adjustment of final toolkit.				0.25		$85,000
University of Nebraska Medical Center	Subaward	UNM team will provide drought expertise unavailable in-state. They will assist with workshop planning, attend limited workshops for guidance, and assist with synthesizing findings into the toolkit. Personnel costs represent the entire requested budget.		X		0.6		$83,000
							Sub Total	**$292,000**

Equipment, Tools, and Supplies								
							Sub Total	**-**
Capital Equipment								
							Sub Total	**-**
Acquisitions and Stewardship								
							Sub Total	**-**
Travel In Minnesota								
	Miles/ Meals/ Lodging	Includes 4 three-night UMN travel fleet vehicle rentals, 1 two-night UMN travel fleet vehicle rental, 3 person one-night hotel stays, 10 person three-night hotel stays and daily per diem at UMN approved rates.	Travel and lodging for hosting the initial drought adaptation workshops (est. 5 total in northeast, northwest, southwest, southeast, and central MN).					$5,032
	Miles/ Meals/ Lodging	8 two-night hotel stays and 3 three-night vehicle rental for transportation all at UMN vehicle rental and per diem rates	Follow-up pilot projects and drought implementation with community partners					$3,451
							Sub Total	**$8,483**
Travel Outside Minnesota								
							Sub Total	**-**
Printing and Publication								
							Sub Total	**-**
Other Expenses								
							Sub Total	**-**
							Grand Total	**$536,000**

Classified Staff or Generally Ineligible Expenses

Category/Name	Subcategory or Type	Description	Justification Ineligible Expense or Classified Staff Request
Contracts and Services - University of Nebraska Medical Center	Subaward	UNM team will provide drought expertise unavailable in-state. They will assist with workshop planning, attend limited workshops for guidance, and assist with synthesizing findings into the toolkit. Personnel costs represent the entire requested budget.	The University of Nebraska team represents a nationally recognized group of drought experts led by Dr. Jesse Bell (no support requested), a public health climatologist, who have performed workshops solicited by NOAA's National Integrated Drought Information System (see letter of support) for assessing responses to drought adaptation and mitigation strategies. Dr. Bell's group is one of the only in the nation to have performed this type of work. Through their guidance and expertise, we can assure the most effective and cost-efficient approach for gathering data in Minnesota and best use of our funds. The Minnesota Department of Natural Resources had previously recommended Dr. Bell's team as the best in the nation for performing this type of work.

Non ENRTF Funds

Category	Specific Source	Use	Status	Amount
State				
			State Sub Total	**-**
Non-State				
In-Kind	University of Nebraska Medical Center	These in-kind funds from the U.Nebraska will be used to support all of Dr. Bell's effort and contribution to this project.	Secured	$28,113
			Non State Sub Total	**$28,113**
			Funds Total	**$28,113**

Total Project Cost: $564,113

This amount accurately reflects total project cost?

Yes

Attachments

Required Attachments

Visual Component

File: 6f3d5591-b3c.pdf

Alternate Text for Visual Component

An info graphic for Building Drought Resilience in Minnesota. The background is the state of Minnesota with drought impacts near the top, followed by community workshops, drought toolkit development, local plans and projects, all to produce a drought-resilient Minnesota....

Supplemental Attachments

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

Title	File
Board Letter University of Minnesota	7b5ee2e8-c5a.pdf
Letter of Support Bolton and Menk	d344febf-45f.pdf
Letter of Support from UNMC	31781d78-d11.pdf
Letter of Support from NOAA NIDIS	db1533be-72f.pdf
Letter of Support from the Minnesota Department of Health	3803c4be-f70.pdf

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?

Yes, I understand the UMN Policy on travel applies.

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:

Kristina McReynolds, Sponsored Projects Administration University of Minnesota

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