Environment and Natural Resources Trust Fund
2018 Request for Proposals (RFP)

Project Title: **ENRTF ID: 098-B**

Farmer Generated Water Quality Solutions

Category: B. Water Resources

Total Project Budget: $ 348,000

Proposed Project Time Period for the Funding Requested: 3 years, July 2018 to June 2021

Summary:

We are proposing an innovative farmer centered approach to define, plan and implement a watershed level strategy to address water quality issues in the Elm Creek Watershed in southern Minnesota

Name: Dean Current

Sponsoring Organization: U of MN

Address: 115 Green Hall, 1530 Cleveland Avenue North

Saint Paul MN 55108-6112

Telephone Number: (612) 624-4299

Email curre002@umn.edu

Web Address www.cinram.umn.edu

Location

Region: Central, Southwest, Southeast

County Name: Faribault, Jackson, Martin

City / Township:

Alternate Text for Visual:

Erosion potential in the Elm Creek Subwatershed

_____ Funding Priorities	_____ Multiple Benefits	_____ Outcomes	_____ Knowledge Base
_____ Extent of Impact	_____ Innovation	_____ Scientific/Tech Basis	_____ Urgency
_____ Capacity Readiness	_____ Leverage	_____ TOTAL	_____%

PROJECT TITLE: Farmer generated water quality solutions

I. PROJECT STATEMENT

We are proposing an innovative farmer centered approach to define, plan and implement a watershed level strategy to address water quality issues in the Elm Creek Watershed in southern Minnesota. As illustrated by the recent MPCA Nutrient Reduction Strategy, despite significant efforts by state and federal agencies and farmers throughout the state, we continue to have water quality problems that are constraining the state from meeting former Governor Carlson's goal of a fishable, swimmable and drinkable Minnesota River. Although progress has been made through past efforts there is a need to move those efforts to a higher level and meet our water quality goals. We have new research, planning tools and processes, and a better understanding of the changes and practices that will allow us to meet those goals but are not seeing the adoption by farmers necessary to address the problem. Farmers, for their part, often feel they have done their part by adopting and implementing a range of conservation and improved farming practices to address water quality issues and become frustrated with the top-down approach often used to implement conservation, with limited involvement of the farmer in designing programs, and cumbersome regulations and processes which do not take into account local and farm specific conditions. The overall goal of this project is to test and demonstrate a farmer centered approach, working closely with researchers, agency personnel and local crop consultants, bankers and other stakeholders to develop a watershed level action plan, define conservation practices that work for farmers, and pilot an innovative "conservation consultant" position that would work with farmers to facilitate the definition of appropriate and acceptable conservation options and assist them in navigating the necessary rules and regulations to receive state and federal support. Such an approach will lead to greater, more efficient and speedier adoption of conservation practices and achievement of water quality goals.

To accomplish our goals the following activities are proposed:
1) Prepare a watershed level strategy for addressing water quality issues; 2) hire and train a "Conservation consultant" to work with agencies and farmers to identify and implement conservation practices; 3) identify and design practices to address water quality 4) identify federal, state, local funding, training and implementation resources to implement the strategy; 5) establish and monitor baseline measurements that will allow us to gauge changes in water quality parameters in Elm Creek.

II. PROJECT ACTIVITIES AND OUTCOMES

The innovative nature of this project comes from the integral role of Elm Creek farmers and stakeholders in the process. Our project team has been working together for over 15 years and, through this project, will provide farmers a partnership and leadership role in identifying and implementing conservation practices.

Activity 1: *Develop a Watershed Level Strategy* **Budget: $60,000**

Identify and utilize appropriate tools, coordinate with ongoing planning efforts, and work closely with our landowner, researcher, agency and stakeholder team to develop a strategy to address water quality issues.

Outcome	Completion Date
1. Watershed level strategy prepared	*December, 2018*

Activity 2: *Conservation consultant* **Budget: $100,000**

Based on our work with farmers and agencies in the Elm Creek Watershed, we have identified issues related to the difficulties of signing up for conservation programs, the need to design or modify practices on an individual farm basis, and the lack of sufficient resources to provide support to an increased level of farmer adoption. We will implement a trial "Conservation consultant" program to address those issues.

Outcome	Completion Date
1. Hire and train a "Conservation consultant"	*December 2018*
2. Implement trial "Conservation consultant program"	*December 2020*
3. Evaluate and make recommendations to improve "Conservation consultant" program	*July 2021*

Activity 3: *With local farmers, identify appropriate conservation practices for Elm Creek* **Budget: $60,000**

Based on the water quality issues identified in Activity 1, we will develop a preliminary list of conservation practices based on current practice and NRCS guidelines, review and modify those practices to meet farmer's needs and develop a guide to appropriate options for Elm Creek.

Outcome	Completion Date
1. Identify short list of options – farmers, agency personnel and researchers	*December 2018*
2. Identify final list, "menu" of options with modifications for Elm Creek farmers	*December 2019*
3. Prepare guide for appropriate practices and modifications (ongoing)	*July 2020*

Activity 4: *Identify resources for implementation* **Budget: $60,000**

There are often several federal, state, county and local community resources available that go unused. We will develop a comprehensive list of resources and an evaluation of processes required to access those resources. This information will allow the conservation consultant to facilitate farmer access to those resources.

Outcome	Completion Date
1. Identify relevant resources	*July 2019*
2. Guidance document for accessing resources	*December 2019*

Activity 5: *Managing, monitoring, evaluation and final reporting* **Budget: $67,815**

Insert a clear and concise explanation of the activity you are proposing to do here.

Outcome	Completion Date
1. Synthesis of existing water quality monitoring information from Elm Creek	*December 2018*
2. Develop ongoing monitoring program for project outcomes and impacts	*December 2018*
3. Final Report	*July 2021*

III. PROJECT STRATEGY

A. Project Team/Partners

Rural Advantage: Linda Meschke, President of Rural Advantage will assist with coordination with farmers and for local events

Martin County SWCD Team: Will assist with local farmer and organizational contacts and coordination and work closely with the Conservation Consultant. **UMN**: Dean Current 0.23 FTE will coordinate project and work on financial aspects of program. Drs. Joe Magner at 0.02 FTE and Chris Lenhart at 0.09 FTE of UMN Bioproducts and Biosystems Engineering will assist with identifying treatment options and supervise water quality and analysis. **Advisory Board**: Will include project team plus local farm leaders, representatives of farmer organizations, and stakeholder groups. Uncompensated. **Conservation Consultant**: 0.50 FTE. A local individual with strong ties to the farming community will be hired to fill this position.

B. Project Impact and Long-Term Strategy

We expect the adoption of conservation practices to at least double with a subsequent reduction in water quality issues in the Elm Creek Watershed. We also plan to present our results to a broad range of stakeholders in the public and private sector and expect that this approach can be taken up in other watersheds in the Minnesota River Basin extending the impacts beyond the Elm Creek Watershed. We expect the "Conservation consultant" position to be successful, providing a useful model that could be used throughout Minnesota.

C. Timeline Requirements

We expect this project to be a pilot that will develop information and potential processes that could be adopted across a broad range of watersheds in Minnesota. If we are successful in the Elm Creek Watershed, we will develop a longer-term project to extend the results beyond the Elm Creek Watershed and would be seeking funding for such and expansion. Here again, we hope to develop the Conservation Consultant as a promising model for expansion in Minnesota and elsewhere.

2018 Detailed Project Budget

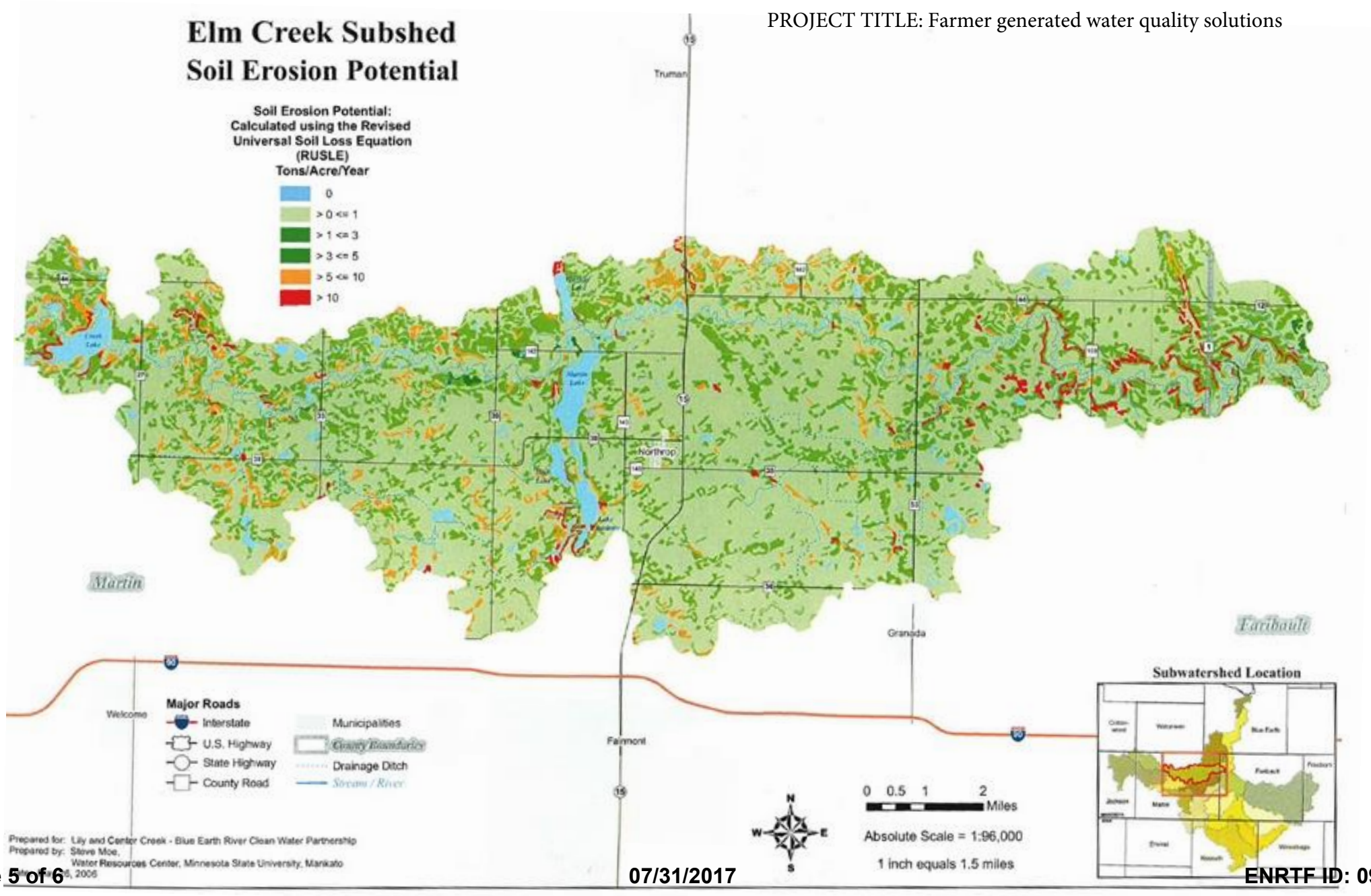
Project Title: *Farmer generated water quality solutions*

IV. TOTAL ENRTF REQUEST BUDGET *3* **years**

BUDGET ITEM	AMOUNT
Personnel:	$ -
Dean Current, PI and Research Associate, 0.23 FTE (33.5% fringe) for 3.0 years will coordinate the project at the University level and with partners in the Elm Creek Watershed.	$ 75,000
Dr. Lenhart Co-PI and Research Professor, 0.09 FTE (33.5% fringe) will supervise the Post-Doc . He will also work closely with the project team, farmers and stakeholders to identify practices that are both effective and acceptable to the farmer.	$ 21,000
Dr. Magner Co-PI and Research Professor, 0.02 FTE (33.5% fringe) will supervise the Graduate Research Assistant. He will also work closely with the project team, farmers and stakeholders to identify effective practices acceptable to the farmer.	$ 6,000
The graduate research assistant, 0.5 FTE (Fringe: $19.32/hr tuition, 15.% health insurance, 15% FICA) for 2.5 years, will gather information on resources available to implement conservation practices, meet and discuss resources with govt. agencies, farmers and stakeholders.	$ 100,185
The post-doc hydrologist .30 FTE (21.4% fringe)) will gather existing data on monitoring from the Elm Creek watershed, analyzing that data and preparing a report to inform the project.	$ 10,000
Professional/Technical/Service Contracts:	$ -
Professional Contract: A Conservation Consultant would be hired work with the team and farmers to identify conservation practices and work with farmers to access the resources they need to fund and implement practices and also facilitate the process of applying for funding.	$ 60,000
Professional Contract: Rural Advantage: Due the the importance of working closely with the community in this project the project will provide support to Rural Advantage to assist with planning and calling farmers to meetings and the supplies and activities needed for meetings and field days.	$ 21,000
Professional Contract: The Martin County SWCD will asssign the necessary additional resources for the increased adoption of conservation practices. They have close working relationships with the farmers and stakeholders we will be working with and are the "go to" agency for implementing conservation in the Elm Creek watershed.	$ 50,000
Equipment/Tools/Supplies:	N/A
Acquisition (Fee Title or Permanent Easements):	N/A
Travel: We will make approximately 10 trips per year to the Fairmont area for project meetings, trainings and coordination. At 0.535 per mile for 300 miles per trip and 30 total trips in the 3 years .	$ 4,815
Additional Budget Items:	N/A
TOTAL ENVIRONMENT AND NATURAL RESOURCES TRUST FUND $ REQUEST =	$ 348,000

V. OTHER FUNDS

SOURCE OF FUNDS	AMOUNT	Status
Other Non-State $ To Be Applied To Project During Project Period:	N/A	N/A
Other State $ To Be Applied To Project During Project Period:	N/A	N/A
In-kind Services To Be Applied To Project During Project Period:	N/A	N/A
Past and Current ENRTF Appropriation:	N/A	N/A
Other Funding History:		


Elm Creek Subshed
Soil Erosion Potential
Soil Erosion Potential:
Calculated using the Revised
Universal Soil Loss Equation
(RUSLE)
Tons/Acre/Year
0
> 0 <= 1
> 1 <= 3
> 3 <= 5
> 5 <= 10
> 10
Truman
Northrop
Martin
Granada
Faribault
Fairmont
Welcome
Major Roads
Interstate
U.S. Highway
State Highway
County Road
Municipalities
County Boundaries
Drainage Ditch
Stream / River
Prepared for: Lily and Center Creek - Blue Earth River Clean Water Partnership
Prepared by: Steve Moe,
Water Resources Center, Minnesota State University, Mankato
0 0.5 1 2
Miles
Absolute Scale = 1:96,000
1 inch equals 1.5 miles
Subwatershed Location

Project Title: Farmer generated water quality solutions

Project Manager Qualifications and Organization Description

Project Manager Qualifications:

Dr. Dean Current is the Program Manager for the Center for Integrated Natural Resources and Agricultural Management at the University of Minnesota. Dr Current has a background in Natural Resource Economics, forestry, agroforestry and farmer adoption of improved land use systems. Dr. Current has led interdisciplinary teams in Latin America, South and Southeast Asia and Minnesota. Dr. Current has been working on water quality and storage issues in the Minnesota River Basin for the last 15 years managing the University of Minnesota portion of a number of projects sponsored by the LCCMR, MPCA section 319, MDA, Xcel Energy's Renewable Development Fund as well as Federal and non-profit funding. Dr. Current was Co-PI for the University background research used to develop the "Voluntary Best Management Practices for Managing Brush land", and provided technical assistance for the BWSR Scoping study for a Clean Energy RIM Reserve Program. The work of Dr. Current and CINRAM has concentrated on the impact of perennial crops including bioenergy crops on water quality and storage in the Minnesota River Basin as well as evaluations of the impact of biomass crops for energy on the environment (See Xcel Project below). The Xcel project specifically addressed management practices for biomass crops.

Organization Description:

CINRAM is an interdisciplinary partner-based organization that catalyzes the development and adoption of integrated land use systems. CINRAM links the expertise of the Univ. of Minnesota with the experience and insights of people and organization who work with and have understanding of, opportunities and issues across the landscape. CINRAM has worked with Rural Advantage in Fairmont and the Martin County Soil and Water Conservation District as well as several farmers in the Elm Creek Watershed over the last 15 plus years. Those efforts have drawn funding from state and federal agencies and foundations. This project will build upon established partnerships and the research that has been undertaken over that time period and move the research into greater implementation of conservation practices.

CINRAM's efforts lead to:

- A more diversified agricultural and natural resource production base
- Increased profitability
- An enhanced environment
- Strengthened rural communities
- Productive landscapes generating income and environmental/ecosystem services

Examples of projects led by Dr. Current as Program Director of CINRAM:

- Crop Enterprise and Environmental Budgeting Tool (CE2T) for Biomass Cropping Systems.
- Elm Creek Tile Outlet Treatment Train for addressing water quality issues
- Xcel Energy - Lowering the Cost of Bio-energy Feedstocks while Providing Environmental Services – A Win-Win Opportunity. Includes research on payments for environmental services.
- MN Board of Water and Soil Resources - Scoping Study: Pricing and contract structure procedures for Minnesota Clean Energy RIM Reserve Program
- USDA - Bioenergy Plantings Targeted to Improve/ Enhance Water Quality – Pyrolysis
- USDA-NRCS-CESU - Innovative, Diversified Agroforestry Plantings in Support of Energy Security, Environmental Quality, and Local Economies: Linking Needs, Science, Programs and Partners.