

**Environment and Natural Resources Trust Fund
2010 Request for Proposals (RFP)**

LCCMR ID: 172-F

Project Title:

Education to Reduce Peak Flows and Streambank Erosion

LCCMR 2010 Funding Priority:

F. Environmental Education

Total Project Budget: \$ \$290,000

Proposed Project Time Period for the Funding Requested: 3 years, 2010 - 2013

Other Non-State Funds: \$ \$0

Summary:

We will equip SWCDs and others to inform and motivate landowners to adopt practices that reduce flow-related streambank and ravine erosion, dominant sources of sediment-related impairments in agricultural areas.

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Sponsoring Organization: U of MN

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Location:

Region: Statewide

County Name: Statewide

City / Township:

_____ Knowledge Base	_____ Broad App.	_____ Innovation
_____ Leverage	_____ Outcomes	
_____ Partnerships	_____ Urgency	_____ TOTAL

PROJECT TITLE: Education to Reduce Peak Flows and Streambank Erosion

I. PROJECT STATEMENT

1. Education and incentive programs have primarily been focused on conservation practices for reducing in-field erosion. However, research indicates that 65-70% of the sediment leaving the Minnesota River originates from streambanks, bluffs, and ravines, and that these contributions have increased over time. Increases in sediment that result from unstable stream channels are due to increasing frequency and magnitude of annual peak flows – those with return periods of 1.5 – 2 years. The increases in peak flows are attributed, in part, to loss of wetlands, surface and subsurface drainage, and changes in land cover. Rural streams in other agricultural areas of the state have similar flow-related impairments. Reducing peak flows and streambank erosion is a recommendation of the LCCMR-Statewide Conservation and Preservation Plan.

2. The long-term goal of this project is to reduce streambank, bluff, and ravine erosion, and thereby reduce sediment and turbidity impairments in Minnesota's streams and rivers. This will improve habitat for fish and aquatic plants, and reduce infill rate of Lake Pepin and other lakes. The project will be carried out in agricultural areas of the state containing or contributing to significant turbidity and sediment impairments.

3. The project will accomplish the above goal by increasing landowner/operator:

- Awareness of excessive streambank, bluff, and ravine erosion
- Knowledge of how stream – sediment relationships change with increasing flows and what causes changes in flows
- Motivation and information necessary for adoption of practices that reduce flow-related impairments, including restored and constructed wetlands, temporary water storage areas, controlled drainage, tile outlet modification, ravine stabilization, and others.

Because of the large number of landowners/operators across agricultural areas of the state, we will engage existing agencies and organizations, including soil and water conservation districts (SWCDs), watershed districts (WDs), UM Extension, NRCS, and others in providing the education and assistance. They will also provide the link to state and federal cost-share, incentive, and technical assistance programs that will help landowners/operators adopt flow-mitigation practices. UM researchers and educators working with partners will:

- Develop science-based education materials to support the education program
- Carry out focus groups, pilot field demonstrations and workshops with landowners and managers to refine messages, education materials, and methods
- Provide training to locally-based organizations on education approaches and materials
- Evaluate landowner and manager response to the education program

II. DESCRIPTION OF PROJECT RESULTS

Result 1: Science-based education materials, methods, and messages developed and tested	Budget: \$138,860
UM research and Extension faculty with agency and other partners will develop an illustrated booklet and associated teaching materials describing how streams evolve in response to changes in flows, what causes changes in flows, and what practices will moderate flow-related sediment impairments. These materials will be made available in print and electronic formats. Extension staff, working with SWCDs, WDs, and others will carry out focus groups, pilot field demonstrations and workshops with landowners and managers to refine messages, education materials, and methods. Our target is 3 each of focus groups, trial workshops, and trial field exercises.	

Deliverable Illustrated booklet and draft teaching materials. Curriculum and teaching materials adapted to target audiences.	Completion Date September 30, 2011
Result 2: "Train-the-Trainer" program equips locally-based organizations with education approaches and materials	Budget: \$127,457
Extension staff and partners will conduct "train-the-trainer" workshops and field exercises for staff of SWCDs, WDs, Extension and others. Our target is twenty workshops and field exercises for staff of these organizations.	
Deliverable Locally-based organizations equipped with education approaches and materials, with a target of staff from 30 counties represented. In each county, these staff would deliver education and assistance to a minimum of 80 landowners/managers over a three year period, for a total of 2400 reached in workshops and field exercises. A wider audience will be reached with accompanying awareness information in local media.	Completion Date December 30, 2012
Result 3: Evaluation of landowner/manager response to the education program	Budget: \$23,683
UM staff will conduct surveys of landowners/operators that have attended locally led workshops and field exercises to determine extent of adoption or intent of adoption of recommended practices as a result of project activities.	
Deliverable Survey report of extent of adoption or intent of adoption of recommended practices as a result of project activities.	Completion Date June 30, 2013

III. PROJECT STRATEGY

A. Project Team/Partners

Education program lead: Karen Terry, UM Extension

Technical content lead: Ken Brooks, UM Professor, Forest Hydrology

Project manager: Les Everett, UM Water Resources Center (WRC) Agronomist

Technical content: Bruce Vondracek, USGS Fisheries Biologist; John Beckwith, NRCS

Education materials: Ann Lewandowski, UM WRC

Education program development and delivery: Craig Schrader, Gary Wyatt, Wayne Schoper, UM Extension; Linda Meschke, Rural Advantage, Martin SWCD; Ann Lewandowski

B. Timeline Requirements

Three years are required to carry out this project. Development of education materials, testing materials and education methods, and adjusting them according to target audience response will require one year. Conducting train-the-trainer sessions and evaluations requires two years. Summer field exercises are required for both the testing and delivery phases.

C. Long-Term Strategy

The extent of flow-related impairments in rural watersheds has only recently been documented, so development of education materials and methods addressing landowners/operators on this topic has not occurred prior to this project. In the long term, education materials and methods developed in this project will need to be periodically revised to incorporate new research results and education methods. Should the program tested here prove successful, UM Extension and partners would be encouraged to add it as an ongoing program such as that for Shoreland Education.

Project Budget

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IV. TOTAL PROJECT REQUEST BUDGET (Three years)

BUDGET ITEM	AMOUNT
Personnel:	
Education materials development and events coordination, 75% position for 3 years, 75.6 % salary, 24.4 % fringe	\$ 142,560
Extension Educator, 30% position for 3 years, 75.6% salary, 24.4% fringe	\$ 65,038
Services:	
Stream booklet and teaching aids design and printing	\$ 29,000
Local hosts' costs for focus groups, workshops, and field exercises	\$ 25,900
Print final evaluation survey report and followup materials	\$ 1,000
Supplies:	
Participant notebooks and education materials	\$ 7,532
Travel: (all in-state)	
Information collection and education materials development	\$ 2,000
Preparation and delivery of focus groups, trial workshops, trial field exercises	\$ 4,620
Preparation and delivery of workshops and field exercises	\$ 10,850
Coordination and completion of evaluation	\$ 1,500
TOTAL PROJECT BUDGET REQUEST TO LCCMR	\$ 290,000

V. OTHER FUNDS

SOURCE OF FUNDS	AMOUNT	Status
In-kind Services During Project Period:	\$ -	

**Project Title: Education to Protect Rural Streams and Rivers
Project Manager Qualifications and Organization Description**

Project Manager and Administrative Lead:

Les Everett, Agronomist, University of Minnesota Water Resources Center.

- Since 1995 has proposed and managed five projects from PCA (319), two from MDA, and four from NRCS that, in partnership with UM Extension, have provided outreach and on-farm research in the areas of crop nutrient, manure, feedlot, tillage, and grazing management.
- Serves on both the Stakeholder Advisory Board and Science Advisory Panel for the Lake Pepin and Minnesota River TMDLs.
- Was co-chair of the Land Use Practices Team for the LCCMR Statewide Conservation and Preservation Plan.
- Is the UM representative to the NRCS State Technical Committee.

Project Technical Lead:

Ken Brooks, Hydrologist, Professor, UM Dept. Forest Resources.

- Taught courses and conducted research in hydrology and watershed management at the University of Minnesota since 1975.
- Author & co-author of over 95 publications including 5 books on hydrology and watershed management.
- Professional hydrologist as certified by the American Institute of Hydrology.

Project Education Lead:

Karen Terry, UM Extension Educator, Water Resources:

- Water resources educator with Extension since 2006.
- Worked with the MN DNR for 15 years as a stream ecologist, concentrating on research and outreach.
- Is the lead educator on the Extension-funded pilot project called Streamside Ecology, designed to teach stream system functions to local government leaders.

Organization Description:

The University of Minnesota Water Resources Center facilitates interdisciplinary research, education, and outreach on water resources. It hosts the Water Resources Science graduate program with faculty affiliates across many UM Departments. In collaboration with UM Extension as well as state and federal agency partners, it develops and delivers outreach and professional education programs on shorelands, on-site sewage treatment, agricultural practices and other topics. The WRC hosted and chaired the Lake Pepin and Minnesota River TMDL Science Advisory Panels.

