

**Environment and Natural Resources Trust Fund
2011-2012 Request for Proposals (RFP)**

LCCMR ID: 052-B

Project Title: Comprehensive Hydrologic Analysis of the Cedar River Watershed

Category: B. Water Resources

Total Project Budget: \$ \$182,000

Proposed Project Time Period for the Funding Requested: 2 yrs, July 2011 - June 2013

Other Non-State Funds: \$ 0

Summary:

The proposed regional analysis will provide the CRWD/TCWD with a key, essential tool to reduce peak flows, improve water quality, and manage development throughout the watershed.

Name: Bev Nordby

Sponsoring Organization: Cedar River Watershed District

Address: 1408 21st Ave NW Ste 2
Austin MN 55912

Telephone Number: 507-434-2603

Email: bev.nordby@mowerswcd.org

Web Address: cedarriverwd.org

Location

Region: SE

Ecological Section: Minnesota and NE Iowa Morainal (222M)

County Name: Mower

City / Township: 11 cities, 4 counties and 25 townships

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

2011-2012 MAIN PROPOSAL

PROJECT TITLE: Comprehensive Hydrologic Analysis of the Cedar River Watershed

I. PROJECT STATEMENT

The Cedar River Watershed District (CRWD) was established on April 25, 2007 to address significant flooding and water quality issues in the watershed. CRWD is located in southeast Minnesota, along the Iowa border, and covers 435 square miles in Mower, Dodge, Freeborn, and Steele Counties. The CRWD completed its first Watershed Management Plan (Plan) in late 2009 and is now implementing the Plan. The CRWD's overall approach is to reduce flooding in problematic areas, improve water quality, and regulate development and other activities so that existing flood conditions and water quality are not worsened. One of the key objectives in the CRWD Plan is to reduce flooding and peak flows on the Cedar River by 20%.

The CRWD is currently drafting rules to address flood control and water quality protection/improvement. Specifically, the draft rules require rate control and other provisions to prevent exacerbating existing flooding and water quality conditions. In addition, the CRWD Plan calls for actions to decrease the flooding risk throughout the watershed, including: setting 100-year flow rate goals for all CRWD subwatersheds, designating "priority" subwatersheds for implementing flood control measures, and implementing flood control measures. Completion of an existing conditions hydrologic and hydraulic (H & H) model is an essential first step in implementing these actions and the CRWD rules. However, because the CRWD is a new watershed district, it has not had the opportunity to complete an H & H model of the CRWD.

A complete H & H model will provide an effective, efficient, and essential/keystone tool that CRWD needs to:

- Understand flows throughout the watershed
- Plan for, site, and design flood control and water quality improvement measures
- Analyze potential impacts of proposed developments and other land-altering practices on the current drainage system
- Determine mitigation measures needed to ensure that flood problems are not worsened as a result of development
- Establish the 100-year floodplain that will be under the jurisdiction of the CRWD rules
- Assist in developing future water quality models the CRWD will use to analyze BMPs to improve water quality
- Provide essential design information to townships, counties, and smaller cities in the CRWD who are not in a position to perform comprehensive analyses because of cost constraints and/or the size of the tributary watershed
- Avoid the problems associated with taking a piece-meal approach to drainage system modifications; a piece-meal approach can result in future problems because all potential impacted areas were not analyzed.

The H & H regional model for the CRWD would include the Turtle Creek watershed (156 square miles), which is a significant tributary to the Cedar River, but under the jurisdiction of the Turtle Creek Watershed District (TCWD). The attached map shows the 591-square-mile watershed to be modeled (CRWD and TCWD). This regional approach to watershed management could also be used by other organizations across the state.

II. DESCRIPTION OF PROJECT ACTIVITIES

Activity 1: Prepare an existing conditions model for all of CRWD and TCWD Budget: \$ 150,000

Prepare and run H & H model for existing conditions in the CRWD and TCWD, including surveying of structures (e.g, culverts, bridges, agricultural ditch crossings, etc.), and data collection; summarize results in tables, maps, and memo.

Outcome	Completion Date
1. Complete surveying and data gathering (the CRWD has two-foot contour LIDAR data; the surveying would only cover features not included in the LIDAR data)	September 2011
2. Prepare and run existing conditions model	June 2012
3. Summarize model results – memo, tables, maps	July 2012

Activity 2: Incorporate model results into CRWD Plan Budget: \$ 10,000

The CRWD will incorporate the model results into the CRWD Plan through a plan amendment process. The CRWD will use the model results in the future to develop flow control goals for each CRWD subwatershed. The CRWD will also use the model results to administer the CRWD Rules.

Outcome	Completion Date
1. Incorporate model results into CRWD Plan through plan amendment	January 2013

Activity 3: Monitor flows and water levels in the CRWD

Budget: \$17,000

The CRWD needs to quantify and understand where and when flooding problems occur. There are currently three active automatic flow gaging stations in the CRWD (one USGS station and two DNR/MPCA stations). The flow monitoring data is essential for the CRWD to properly calibrate the H & H model to ensure it is accurately predicting flows. As part of this work, the CRWD will install one additional flow gaging station to record flows during summer 2011 and beyond. All of this data will help the CRWD in the future to: 1) check the H & H model to make sure it accurately represents the Cedar River watershed, and 2) determine the effectiveness of the CRWD's flood control and regulation efforts.

Outcome	Completion Date
1. Monitor water levels and flow rates on primary flowages in the watershed, including the Cedar River, its tributaries and other water bodies, periodically and during flooding events. Monitoring will be a combination of reading stream staff gages and using automatic flow gaging stations.	June 2013
2. Photograph flooding events in the watershed, including aerial photographs during major flooding events.	June 2013
3. Collect rainfall data, including NEXRAD data for various storm events, from agencies and cooperators to be used for model refinement.	June 2013
4. Survey remnant debris lines and other water marks after flood events that indicate how high water rose during the flood event.	June 2013

Activity 4: Outreach

Budget: \$ 5,000

The CRWD will inform the local units of government about the model results and how the model can be used in the future.

Outcome	Completion Date
1. Inform CRWD cities, townships, and counties of the model results and the availability of CRWD services to analyze the impact of proposed drainage modifications.	June 2013

III. PROJECT STRATEGY

A. Project Team/Partners

The CRWD Board will provide ultimate project oversight, and the CRWD Administrator will provide ongoing project coordination and management. The CRWD will hire a surveying consultant and/or draw upon the services of the Mower SWCD to perform the surveying and other data collection, and will hire an engineering consultant to perform the H & H modeling. The CRWD will pay the consultants using funds from the ENRTF. The CRWD will also receive in-kind services from the Mower SWCD, including survey, data gathering, administrative, flow monitoring, photographic, and rainfall data collection assistance. Other partners include the counties, cities and townships in the watershed, and TCWD, that will provide information and other assistance to the CRWD during the course of this project, but at no charge to the CRWD.

B. Timeline Requirements

It is essential that the surveying task be performed immediately upon project start-up, as the information is needed before the model can be run; the task must also be completed before there is snow cover. After the model is completed and the results summarized/reported, then the CRWD can incorporate this information into the CRWD Plan, and use it to administer the CRWD rules, and assist in implementing flood control measures and water quality improvement BMPs. The CRWD will also run the model after key storm events and compare the results to measured/monitored flow data to further check the model's accuracy and to refine it if needed.

C. Long-Term Strategy and Future Funding Needs

As described above, the model will be used for many purposes in the future, and each of these activities will required CRWD funding. However CRWD does not anticipate that this project will require any additional LCCMR funding in the future. Also, the monitoring activities described in Activity 3 will continue in the future, but will not require additional LCCMR funding beyond the life of this project.

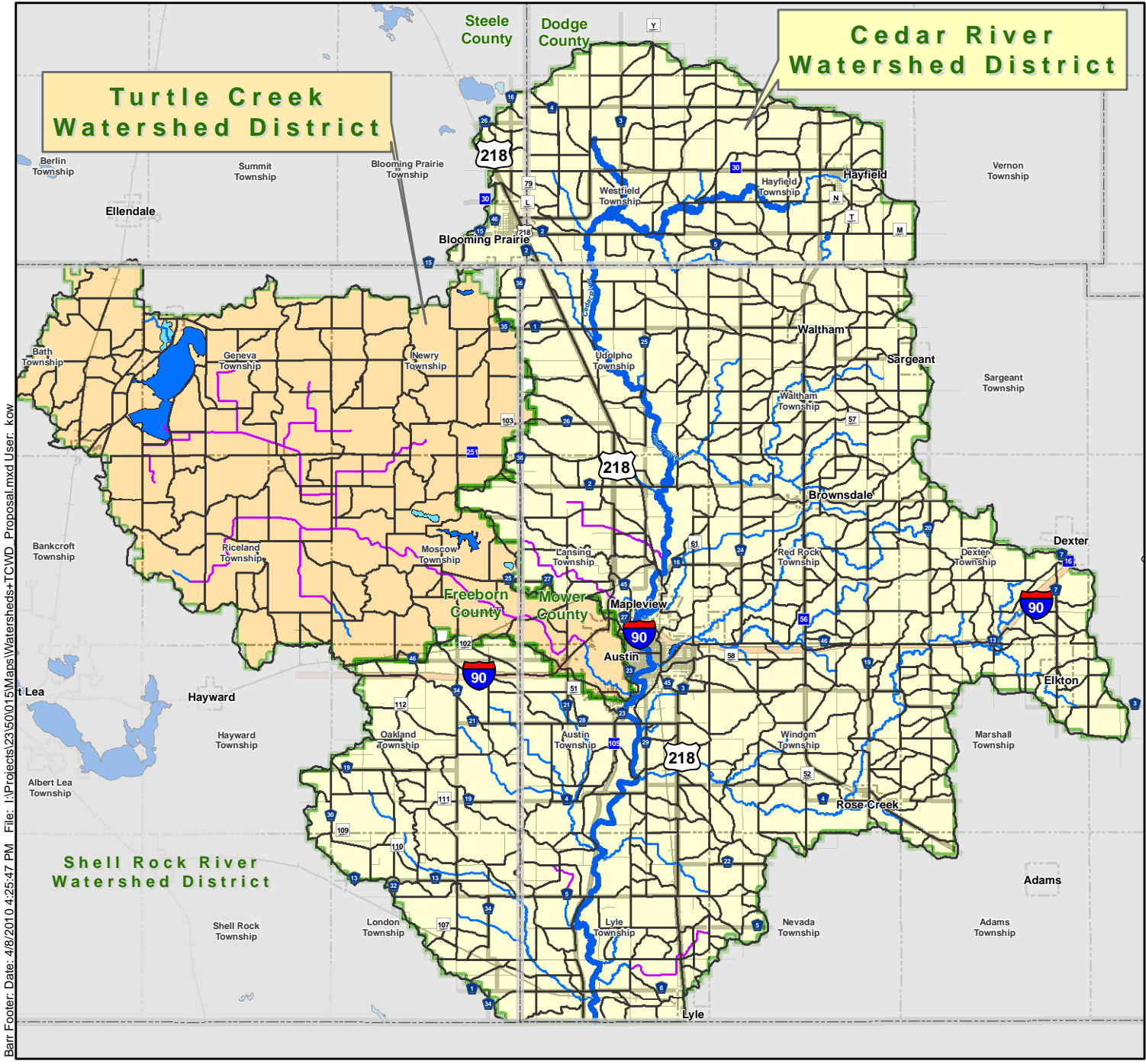
2011-2012 Detailed Project Budget

IV. TOTAL TRUST FUND BUDGET REQUEST - Two years

BUDGET ITEM	AMOUNT
Personnel: N/A - all work performed by contract or in-kind	N/A
Contracts:	\$ -
Surveyor - obtain structure information and other data needed for model (will provide jobs equivalent to two people on a temporary basis)	\$ 50,000
Engineering Consultant - provide overall project coordination, provide survey coordination, perform hydrologic and hydraulic modeling, summarize results in tables, maps, and memo, incorporate model results into CRWD Plan, assist in flow gage installation, and assist in outreach effort (will provide jobs equivalent to 1 FTE)	\$ 125,000
Aerial photographer - photograph up to three flood events	\$ 2,000
Equipment/Tools/Supplies:	\$ -
Equipment for one flow gaging station (not including installation)	\$ 5,000
Acquisition (Fee Title or Permanent Easements):	N/A
Travel:	N/A
Additional Budget Items:	N/A
TOTAL ENVIRONMENT & NATURAL RESOURCES TRUST FUND \$ REQUEST	\$ 182,000

V. OTHER FUNDS

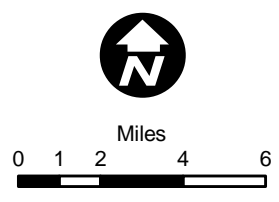
SOURCE OF FUNDS	AMOUNT	Status
Other Non-State \$ Being Applied to Project During Project Period:	N/A	
Other State \$ Being Applied to Project During Project Period:	N/A	
In-kind Services During Project Period:	\$ -	
Mower SWCD - install flow monitoring equipment, and assist with surveying, data gathering, project administration, flow monitoring, photographing of flood events, and collecting rainfall data	\$ 25,000	Secured
Turtle Creek WD - provide structure data and other information needed for model	\$ 2,000	Pending
Counties, cities and townships in CRWD - provide additional information needed for model and monitoring	\$ 5,000	Pending
Remaining \$ from Current ENRTF Appropriation (if applicable):	N/A	
Funding History:	N/A	



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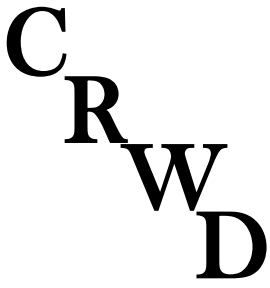
Legend

- MDNR Public Waters Inventory**
 - MDNR Public Waters Basins
 - MDNR Public Waters Wetlands
- MDNR Public Watercourse**
 - MDNR Public Waters Stream
 - MDNR Public Waters Ditch (publicly or privately held)
- Subwatersheds
- Cedar River Watershed District Legal Boundary
- Turtle Creek Watershed District Legal Boundary
- County Boundary
- City and Township Boundaries



Subwatersheds of the Cedar River and Turtle Creek Watershed Districts





Project Manager Qualifications

Bev Nordby

Cedar River Watershed District

Administrator of the Cedar River Watershed District
3 years (2007 - establishment of the CRWD)
District Manager, Mower Soil & Water Conservation District
23 years

1408 21st Ave. NW
Austin, MN 55912
507-434-2603

Qualifications:

- Coordinated the effort of the establishment of the CRWD
- Coordinated the process of the developing the 10 year watershed plan.
- Project Manager of the TMDL process for Turbidity in the Cedar River Basin
- Project Manager of the Clean Water Legacy Stream Water Assessment Grant
- 10 years of coordination for the AgBMP Loan Program
- Administrator of several grants to include U of MN 2 Stage Ditch System, several MPCA, BWSR and DNR grant opportunities
- Helped establish Basin Alliance for the Lower Mississippi in MN (BALMM) and served as first Chair.
- Supervisor of 4 staff
- Appointed by the Governor to the Citizen’s Committee to select the Citizen Representatives to the LCCMR

www.cedarriverwd.org

Watershed Purpose:

To reduce stream flows and protect and improve water quality in the Watershed.

Board of Managers

Organization Description

Cedar River Watershed District

*Steve Kraushaar
Chair*

The Cedar River Watershed District was established in April 2007 in response to the Mower County Board of Commissioners petition to the State of Minnesota to address flooding and water quality issues in the watershed.

*Harlan Peck
Vice Chair*

Watershed Districts are a special purpose unit of local government governed under Minnesota State Statue 103D.

*Al Layman
Secretary*

The goals for the CRWD is reducing peak flows in the watershed by 20% and improve water quality through:

*Mike Jones
Treasurer*

- Public Involvement and Education
- Support and implementation of best management practices
- Water quality and quantity monitoring program
- Research and implement BMP’s to reduce peak flows

*Dan Regner
Al Kording
Jim Gebhardt
Managers*

*Bev Nordby
Administrator*