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

LCCMR ID: 007-A1

Project Title:

Groundwater Sustainability Through Resource Monitoring Pilot Project

LCCMR 2010 Funding Priority:

A. Water Resources

Total Project Budget: $ $96,000

Proposed Project Time Period for the Funding Requested: 2 years, 2010 - 2012

Other Non-State Funds: $ N/A

Summary:

This pilot program will show other counties how to protect this vital resource by documenting groundwater quality and sustainability.

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Sponsoring Organization: Ramsey Conservation District

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Location:

Region: Metro

County Name: Ramsey

City / Township: All cities in Ramsey County

_____ Knowledge Base _____ Broad App. _____ Innovation

_____ Leverage _____ Outcomes

_____ Partnerships _____ Urgency _____ TOTAL

MAIN PROPOSAL

PROJECT TITLE: Ambient groundwater quality and water level monitoring for Ramsey County

I. PROJECT STATEMENT

The general status of groundwater quality and water level knowledge in Minnesota needs to be monitored in order to manage the resource. This means collection of data, tracking trends, determination of background concentrations, and assessment of impacts of land use on this vital resource. Ramsey County can serve as a pilot program to achieve protection for this resource. Resource protection is not possible without regular monitoring.

Currently, no other state or local agency is providing groundwater quality information. As with other counties, drinking water aquifers in Ramsey County have been impacted by perfluorochemicals and volatile organic compounds but assessing the entire county's groundwater quality cannot be based on data from a series of contaminated sites. Additional ambient data is necessary.

As for groundwater level, the Department of Natural Resources contracts with Ramsey County District to read groundwater levels 10 times a year at 16 observation wells in the County. These sparse readings provide very little information on groundwater sustainability and recharge from precipitation.

The two fundamental goals of this pilot program are to show other counties how to improve water quality and evaluate groundwater sustainability. Water quality can only be improved if current conditions are first assessed and periodically updated. Sustainability of the resource can only be achieved when groundwater recharge is quantified and groundwater elevation variation is key to this understanding.

The proposed groundwater monitoring project will achieve these goals by collecting data necessary to base decisions on resource protection and conservation. Assumptions and decisions made in the absence of this type of information would be unfounded and long-term trend tracking would be impossible. Local focus on this issue is the best way to guide groundwater protection. Other counties could rely on this pilot project for approaching their own groundwater protection issues.

II. DESCRIPTION OF PROJECT RESULTS

Result 1: Groundwater quality monitoring **Budget:** $ 57,000

Ten (10) residential drinking water wells will be selected by the RCD for monitoring for year one and another 10 will be added in year two. The same 20 wells will be sampled in year three. Well owners will be identified and asked if they wish to participate in the program. Wells will be selected from across the county and would be from the subset that are screened in the shallow, unconfined aquifer. This is the aquifer most vulnerable to contamination from land uses such as stormwater infiltration or chemical releases. Funding is for three (3) years of annual laboratory analysis.

Deliverable	**Completion Date**
1. Baseline Water Quality Tracking Data and Project Template for other counties	*March, each year*

Result 2: Groundwater elevation monitoring **Budget:** $ 39,000

Groundwater elevation data collected by pressure transducers would be more frequent and accurate than data currently collected manually. Instead of the current 10 events a year measured by the Ramsey Conservation District, we anticipate 24 events a day (9,000 events a year). State, regional, and local agencies doing groundwater migration and recharge modeling will benefit from this intensive data collection. Nothing like this is currently being done on a county-wide basis. Other counties could rely on this pilot project for approaching their own groundwater protection issues.

Fourteen (14) of the sixteen (16) DNR observation wells will be selected by the RCD for monitoring in 2010. Another 14 wells would be selected in 2011 that would include areas of the county not currently represented in the well monitoring network. Wells representing lower aquifers, such as the Ironton-Galeville bedrock aquifer and the Mt. Simon bedrock aquifer would be added to the network.

Deliverable	**Completion Date**
1. Baseline Groundwater Elevation Sustainability Data and Project Template for other counties	*March, each year*

III. PROJECT STRATEGY

A. Project Team/Partners

Groundwater quality monitoring: *Ramsey Conservation District - Selection of wells for monitoring, annual collection of groundwater samples, compiling of data, sharing of data with Metropolitan Council, DNR, MDH, and the MPCA.*

Groundwater elevation monitoring*: Ramsey Conservation District - Installation and downloading of the automated transducers, selection of additional wells, compiling and sharing of data with Metropolitan Council, DNR, MDH, and the MPCA.*

B. Timeline Requirements

Groundwater quality monitoring: Determine wells to sample - August 2010. Samples would be collected in the summer of each of the three years. Selection of additional wells - June 2011. Sharing of data would be accomplished within three months of receipt of analytical data.

Groundwater elevation monitoring*: Necessary modifications of two out of 14 DNR observation wells would be accomplished by August 2010. Purchase and installation of pressure transducers would be by September 2010.* Additional wells to be selected by January 2011.

C. Long-Term Strategy

After the first three years of this monitoring program, local water jurisdictions (watershed districts and WMOs) will fund continuation of this effort fully through the Ramsey Conservation District. This approach can be used achieve resource protection for other counties that are heavily reliant on groundwater.

Project Budget

Ramsey Conservation District Groundwater Quality and Elevation Monitoring Program

IV. TOTAL PROJECT REQUEST BUDGET (*3* years)

BUDGET ITEM	AMOUNT
Personnel: Ramsey Conservation District (Geoffrey Nash: Well selection, groundwater quality sampling, groundwater elevation equipment installation, groundwater elevation data downloading, data quality assurance/quality control, sharing and publication of data.) 15 % of time.	$ 36,000
Contracts: Water quality laboratory analysis (contract out).	$ 39,000
Contracts: Well driller: Modification to at least two observation wells to allow installation of pressure transducers (contract out).	$ 4,000
Equipment/Tools/Supplies: 28 *Pressure transducers (measuring groundwater hydrostatic head), 2 Barometric pressure transducer for compensation, and 1 Rugged Reader for downloading data in the field.)*	$ 17,000
TOTAL PROJECT BUDGET REQUEST TO LCCMR	$ 96,000

V. OTHER FUNDS

SOURCE OF FUNDS	AMOUNT	Status
Other Non-State $ Being Applied to Project During Project Period:	$ -	*Indicate: Secured or Pending*
Other State $ Being Applied to Project During Project Period:	$ -	*Indicate: Secured or Pending*
In-kind Services During Project Period:	$ -	
Remaining $ from Current Trust Fund Appropriation (if applicable):		*Indicate: Unspent? Not Legally Obligated? Other?*
Funding History:	N/A	

Project Manager Qualifications and Organization Description

Ramsey Conservation District

Project Manager Qualifications:

Geoffrey Nash, P.G. (Licensed Professional Geologist) has 30 years of experience as a geologist, mostly in the environmental consulting business. His last 10 months have been as the Groundwater Coordinator for the Ramsey Conservation District, with the main task of revising the Ramsey County Groundwater Protection Plan. His other District responsibilities include managing a cost share grant program for sealing of unused residential water supply wells and assisting water jurisdictions and cities with groundwater-related issues. Mr. Nash has also served on the Board of Managers for the Nine Mile Creek Watershed District for the last 5 years.

Organization Description:

The mission of the RCD is to encourage the protection and improvement of Ramsey County's natural resources in our urban/suburban environment. The Ramsey County Board of Commissioners delegated the revision of the County Groundwater Protection Plan to the Ramsey Conservation District.

Organizational goals and objectives established by of the Ramsey Conservation District to accomplish its mission:

- Promote environmental protection and natural resource stewardship
- Protect and improve surface water quality
- **Protect and improve groundwater (drinking water) quality in Ramsey County**
- Minimize flooding
- Preserve unique landforms and ecosystems and promote the conservation of land by discouraging inappropriate land use
- Protect and improve wildlife habitat
- Create and participate in partnerships for efficient and cost-effective natural resource management and environmental protection
- Encourage the restoration/use of native vegetation for land and water conservation
- Promote the establishment/creation of natural areas (green space) within our redeveloping landscapes