

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

LCCMR ID: 056-B

Project Title: City of Rosemount Groundwater Observation Project

Category: B. Water Resources

Total Project Budget: \$ \$65,600

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

Other Non-State Funds: \$ 56,000

Summary:

Rosemount proposes to construct two groundwater observation wells and procure equipment for long term groundwater monitoring to ensure water supply sustainability.

Name: Andy Brotzler

Sponsoring Organization: City of Rosemount

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Location

Region: Metro

Ecological Section: Paleozoic Plateau (222L), Minnesota and NE Iowa Morainal (222M)

County Name: Dakota

City / Township:

| | | | |
|--------------------------|-------------------------|-----------------------------|----------------------|
| _____ 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: City of Rosemount Groundwater Observation Project

I. PROJECT STATEMENT

This project needs to be done to address the sustainability of Rosemount's water supply, and identify any impact pumping might have on other aquifers and surface water. This project will also contribute to regional monitoring of groundwater. Multi- aquifer monitoring in Rosemount has not been conducted at a scale that monitors spatial variations in water levels and interaction between aquifers, as this project proposes to do.

The goal is to monitor ground water to ensure sustainability of the drinking water and surface water resources, and monitor interactions between local precipitation and water levels over time. Rosemount intends on identifying sustainability issues before they become a problem, and contribute to the knowledge base of the aquifer by sharing data collected in this project.

Installing observation wells in multiple aquifers will measure the water levels in multiple aquifers over a long (indefinite) time period. This will allow local interactions between aquifers to be identified and quantified, and relationship between groundwater and climate to be measured.

The project includes:

- Construction of two observation wells, and operation of two others
- Acquiring and installing automated water level data acquisition devices
- Acquiring and installing an automated weather station that measures temperature, rainfall, and barometric pressure which is necessary for measuring groundwater levels over time.
- Compiling and analyzing data on water levels and other data essential for measuring water levels such as atmospheric pressure and rainfall, and maintaining the database developed through compilation of this data.

II. DESCRIPTION OF PROJECT ACTIVITIES

Activity 1: Construct two observation wells

Budget: \$ 51,700

Two observation wells shall be constructed, one to measure water level in the water table and one to measure water level in the Jordan aquifer.

The wells are expected to cost approximately \$51,700.

This cost includes design, bidding, construction, logging, development, and record drawing preparation. The wells will be constructed on property already owned by the City of Rosemount.

| Outcome | Completion Date |
|---|-----------------|
| 1. Construct two wells | March 2012 |
| 2. Through mud and geophysical logs, classify geology penetrated by wells | April 2012 |
| 3. Operate and maintain three observation wells | indefinite |

Activity 2: Acquire and install automated water level data measuring devices **Budget:** \$ 7,000

Four data loggers will be acquired and installed in the City's observation wells. Electric power will be brought to the four wells (two new, two existing).

The data loggers and electrical work is expected to cost approximately \$6,800.

The wells proposed in Activity 1. (above) and the two existing wells will each receive one data logger.

One weather station will be acquired and installed at the City's maintenance facility to calibrate water level data, at a cost of \$200. Water level changes with atmospheric pressure and rainfall.

| Outcome | Completion Date |
|--|-----------------|
| 1. Provide power to proposed observation well site | March 2012 |

| | |
|--|------------|
| 2. measure water levels using data loggers | April 2012 |
| 3. Operate and maintain data logging equipment and weather station | indefinite |

Activity 3: Acquire observation well

Budget: \$ 4,500

One existing well will be acquired and converted to an observation well (at no cost). Inspecting and logging the well will cost approximately \$4,500.

| Outcome | Completion Date |
|----------------------------------|-----------------|
| 1. Acquire, inspect and log well | April 2012 |
| 2. Operate and maintain well | indefinite |

Activity 4: Acquire data and maintain water level database

Budget: \$ 56,000 per year

Collect data from the City of Rosemount's observation wells, production wells, and weather station. Calibrate data collectors by measuring water level manually. Compile collected data into a database to be kept up to date on a bi-weekly basis.

The data collection, calibration, and database maintenance is expected to cost approximately \$56,000 per year in direct labor.

The City shall furnish personnel that are qualified and able to accomplish this task on an ongoing basis, at the City's expense.

| Outcome | Completion Date |
|---|-----------------|
| 1. Establish and maintain database | indefinite |
| 2. Calibrate data loggers and weather station | indefinite |

III. PROJECT STRATEGY

A. Project Team/Partners

The City of Rosemount will coordinate with a consultant to locate, design, and manage construction of two observation wells.

The City of Rosemount will contract well construction, electrical and instrument installation work. All of the above will receive a portion of the Trust Fund funds on a contract basis.

The City of Rosemount will provide, at their expense, qualified personnel to collect data and maintain the database, and fund the operations and maintenance of observation wells.

B. Timeline Requirements

The observation wells can be designed starting in July of 2011. The design process will take three months.

The instrument package will be requested in August of 2011, and operational by April of 2012. The well will be put out for bids or quotes based on the design (above). This will take one month from request for bids to award approval by City Council.

Well construction is expected to start in November of 2011, to be completed by March of 2012. Instrumentation shall be installed and calibrated by April, 2012.

Project shall be completed and operational by October of 2012.

C. Long-Term Strategy and Future Funding Needs

This project will require operation and maintenance from the completion date indefinitely into the future. The City of Rosemount will fund 100% of operations and maintenance relating to this project, once it is constructed and in service.

2011-2012 Detailed Project Budget
City of Rosemount Groundwater Observation

IV. TOTAL TRUST FUND REQUEST BUDGET one year

| BUDGET ITEM | AMOUNT |
|---|---------------|
| Personnel: One service worker will be required to collect and process data collected in this project, per year. The time required to accomplish these tasks is the equivalent of 34% of one full-time employee. Approximately \$23,800 is salary and the remaining \$32,200 is benefits. The City of Rosemount will bear these costs, and are accounted for in Section V. below. | \$ - |
| Contracts: A consultant will be retained to design, manage, observe, and record the construction of two observation wells, inspect the existing observation well, and the installation of water level monitoring equipment.. | \$ 11,500 |
| Contracts: A licensed well drilling contractor will be retained to construct two observation well in separate aquifers. | \$ 41,000 |
| Contracts: A electrical contractor will be retained to install electric power to the water level observation equipment. | \$ 4,800 |
| Contracts: A well logging contractor will be retained to perform video and geophysical logs of the existing observation well | \$ 3,100 |
| Equipment/Tools/Supplies: Four submersible data loggers with transducers will be purchased. | \$ 5,000 |
| Equipment/Tools/Supplies: One weather station will be purchased. | \$ 200 |
| TOTAL ENVIRONMENT & NATURAL RESOURCES TRUST FUND \$ REQUEST | \$ 65,600 |

V. OTHER FUNDS

| SOURCE OF FUNDS | AMOUNT | Status |
|---|---------------|------------------------------|
| Other Non-State \$ Being Applied to Project During Project Period: The City of Hugo will provide funds for operations and maintenance of the observation wells and for data acquisition and processing once the system is in service. The amount shown is per year for an indefinite time. | \$ 56,000 | Secured internal funds |



Existing observation well

Existing observation well

Construct two new observation wells



0 0.125 0.25 0.5 Miles

2011-2012 Attachment Item #6

Project Manager Qualifications and Organization Description

Project Manager – Andy Brotzler, PE (WSB & Associates)

Andy has over ten years of experience in the area of municipal and transportation engineering. For the past seven-and-a-half years, he has been the City Engineer for the City of Rosemount and was recently appointed Director of Public Works/City Engineer. As Director of Public Works/City Engineer, he leads the Public Works Department which includes Operations and Engineering and actively participates in all aspects of a senior management role within the City. Andy has overseen the development of the city's comprehensive water supply, sewer and surface water plans. He is also Rosemount's Wellhead Protection Plan manager.

Over the years, Andy has led numerous public improvement projects with the city of Rosemount that include neighborhood reconstruction projects, county road turn back improvement projects, municipal cooperative agreement projects, and municipal state aid projects. Through his involvement with these projects, Andy has significant experience with the public involvement process, the Chapter 429 process, and coordination with jurisdictional agencies. Andy is fully capable of successfully managing this groundwater observation grant, and is knowledgeable in the conditions, characteristics, and demands of the Rosemount area aquifers.

Organization Description – City of Rosemount

Located in eastern Dakota County, Rosemount was incorporated as a Town in 1875 and as a City in 1975. The surrounding Township and the City merged in 1971. The Rosemount Public Works and Engineering Departments are responsible for the design, construction, and maintenance of the City's streets, water, sanitary sewer, and storm sewer systems. Public Works staff is also responsible for maintaining the parks, sidewalks, trails, and all City buildings and vehicles.

Rosemount's water system provides an average of 2.5 million gallons of water per day, pumping from the Jordan aquifer through eight wells. In order to ensure that the people of Rosemount have clean, safe drinking water and adequate fire protection, the groundwater supply must be sustainable over time. The City of Rosemount proposes to monitor groundwater levels and local recharge to meet the goal of water sustainability.

City Mission Statement

Rosemount offers opportunities to live, work, shop, play, and learn while maintaining our unique history. We continue to enhance our small town character and pride through neighborhood, park, downtown, school, and community activities.