

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

LCCMR ID: 054-B

Project Title: City of Hugo Groundwater Observation

Category: B. Water Resources

Total Project Budget: \$ \$118,700

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

Other Non-State Funds: \$ 55,000

Summary:

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

Name: Jay Kennedy

Sponsoring Organization: City of Hugo

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Location

Region: Metro

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

County Name: Anoka, Ramsey, Washington

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 Hugo Groundwater Observation

I. PROJECT STATEMENT

This project needs to be done to address the sustainability of Hugo'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 Hugo 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. Hugo 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 four observation wells in two separate aquifers
- 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.
- Operating and maintaining observation wells
- 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 four observation wells

Budget: \$ 85,500

Four observation wells shall be constructed, two to measure water levels in the water table and two to measure water levels in the Jordan aquifer.

The four wells are expected to cost approximately \$85,500.

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 Hugo.

Outcome	Completion Date
1. Construct four wells	March 2012
2. Through mud and geophysical logs, classify geology in each well	April 2012
3. Operate and maintain six observation wells	indefinite

Activity 2: Acquire and install automated water level data measuring devices **Budget:** \$33,000

Electric power will be brought to two wells proposed in Activity 1. (above). The other four observation wells already have electric power on-site. Data loggers will be acquired and installed in each of the City's six observation wells.

The data loggers and electrical work is expected to cost approximately \$33,000.

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

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	indefinite

Activity 3: Acquire and install automated weather station **Budget:** \$ 200

One weather station will be acquired and installed at the City's maintenance facility.

The weather station is expected to cost approximately \$200.

Outcome	Completion Date
1. Acquire, install, and calibrate weather station	April 2012
2. Measure pressure, temperature, and rainfall data	April 2012
3. Operate and maintain weather station	indefinite

Activity 4: Acquire data and maintain water level database **Budget:** \$ 55,000 per year

Collect data from the City of Hugo'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 \$55,000 in direct labor.

The City shall furnish personnel that are qualified and able to accomplish this task on an ongoing basis.

Outcome	Completion Date
1. Establish and maintain database	indefinite
2. Calibrate data loggers	indefinite

III. PROJECT STRATEGY

A. Project Team/Partners

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

The City of Hugo will coordinate with the power supplier to provide electric service to the wells that require power for instrumentation.

The City of Hugo will contract well construction and instrument installation work.

All of the above will receive a portion of the Trust Fund funds on a contract basis.

The City of Hugo 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 electric service for the instrument package will be requested in August of 2011, with completion by April of 2012.

The wells 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 November 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 Hugo will fund 100% of operations and maintenance relating to this project, once it is constructed and in service.

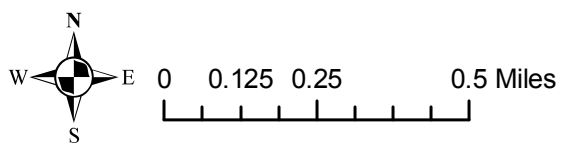
2011-2012 Detailed Project Budget
City of Hugo Groundwater Observation

IV. TOTAL TRUST FUND REQUEST BUDGET one year

<u>BUDGET ITEM</u>	<u>AMOUNT</u>
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 33% of one full-time employee. Approximately \$22,000 is salary and the remaining \$33,000 is benefits. The City of Hugo 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 four observation wells and the installation of water level monitoring equipment.	\$ 17,500
Contracts: A licensed well drilling contractor will be retained to Construct four observation wells in two separate aquifers.	\$ 68,000
Contracts: A electrical contractor will be retained to install electric power to the water level observaton equipment.	\$ 27,000
Equipment/Tools/Supplies: Six submersible data loggers with transducers will be purchased.	\$ 6,000
Equipment/Tools/Supplies: One weather station will be purchased.	\$ 200
TOTAL ENVIRONMENT & NATURAL RESOURCES TRUST FUND \$ REQUEST	\$ 118,700

V. OTHER FUNDS

<u>SOURCE OF FUNDS</u>	<u>AMOUNT</u>	<u>Status</u>
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.	\$ 55,000	Secured internal funds



2011-2012 Attachment Item #6

Project Manager Qualifications and Organization Description

Project Manager – Jay Kennedy, PE (WSB & Associates)

Jay is a registered professional engineer with over 15 years of experience in municipal and civil engineering projects including streets, storm sewers, water distribution systems, sanitary sewer systems, water and wastewater treatment, site grading, park improvements, development review, and municipal state aid systems. His current responsibilities include management of planning, coordination, design, and construction administration of a wide variety of municipal projects. Jay has been a staff or consultant City Engineer for the past 12 years and is currently the City Engineer for the Cities of Mahtomedi and Hugo.

Over the years, Jay has been directly involved with the construction and reconstruction of city streets, utilities, and park improvements. The projects have ranged in cost from \$200,000 to over \$4,000,000. All of these projects included significant contact with residents, elected officials, and other agencies. Management of the assessment process, as well as presentations at public hearings are all part of Jay's role. Jay is fully capable of successfully managing this groundwater observation grant, and is knowledgeable in the conditions, characteristics, and demands of the Hugo area aquifers.

Organization Description – City of Hugo

Located in western Washington County, Hugo was incorporated as a City in 1972. The Hugo 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.

The City of Hugo obtains its water from four deep wells in the Prairie du Chien-Jordan aquifer. The water is then pumped into the distribution system following chlorinating, fluoridating and the addition of polyphosphate. In 2006 the average usage was 802,000 gallons per day. The City pumped over 293 million gallons for the year. In order to ensure that the people of Hugo have clean, safe drinking water and adequate fire protection, the groundwater supply must be sustainable over time. The City of Hugo proposes to monitor groundwater levels and local recharge to meet the goal of water sustainability.