

**Environment and Natural Resources Trust Fund  
2016 Request for Proposals (RFP)**

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**Project Title:**

**ENRTF ID: 087-B**

Integrated Water Management for Hugo, Lino Lakes, Rosemount

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**Category:** B. Water Resources

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**Total Project Budget:** \$ 698,700

**Proposed Project Time Period for the Funding Requested:** 3 years, July 2016 to June 2019

**Summary:**

Research and develop Integrated Water Management Plans for the Cities of Hugo, Lino Lakes, and Rosemount by evaluating water reuse pilot studies, groundwater modeling, economic implications, and emerging regulations.

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**Name:** Jamie Wallerstedt

**Sponsoring Organization:** City of Hugo, Lino Lakes, and Rosemount

**Address:** 14669 Fitzgerald Avenue North  
Hugo MN 55038

**Telephone Number:** (651) 286-8457

**Email** jwallerstedt@wsbenq.com

**Web Address** <http://www.ci.rosemount.mn.us/> ; <http://www.ci.hugo.mn.us/> ; <http://www.ci.lino-lakes.mn.us/>

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**Location**

**Region:** Metro

**County Name:** Anoka, Dakota, Washington

**City / Township:** Hugo, Lino Lakes, Rosemount

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**Alternate Text for Visual:**

The figure graphically demonstrates integrated water management planning research questions in the context of the proposed project on the local, regional, and state-wide levels. The figure also delineates the environmental, economic, and political study questions and inputs to the study; outlines the analysis that will be conducted; details the quantifiable and measurable outputs from the project; and highlights the benefits of Integrated Water Management Plans. Benefits include water quality and quantity improvements, aquifer recharge and protection, sustainable economic growth, positive infrastructure funding, and informed water policy.

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



**Environment and Natural Resources Trust Fund (ENRTF)**

**2016 Main Proposal**

**Project Title:** Integrated Water Management for Hugo, Lino Lakes, Rosemount

**PROJECT TITLE:** Integrated Water Management for Hugo, Lino Lakes, Rosemount

**I. PROJECT STATEMENT**

The Cities of Lino Lakes, Hugo, and Rosemount propose to collaboratively research the applicability and feasibility of instituting an integrated water management approach. Each city will utilize the research conducted to develop Integrated Water Management Plans that will guide implementation. A pilot study will be developed for each City to evaluate different aspects of integrated water management. Lino Lakes’ pilot study will evaluate storm water reuse for residential irrigation. Hugo’s pilot study will evaluate storm water infiltration systems for aquifer recharge. Rosemount’s pilot study will examine the reclamation of wastewater treated effluent for reuse purposes. The three Cities will utilize the analyses and results of the pilot studies, an evaluation of applicable regulations, and a quantification of economic benefits to develop Integrated Water Management Plans.

Historically, municipalities have managed the different types of water (i.e. storm water, drinking water, and wastewater) separately, when in fact the sources and sinks for each type are interconnected. With documented decreases in groundwater levels across the metropolitan area, the need for a more holistic, sustainable water planning method at the local level has become urgent. Integrated Water Management is a new water planning method that seeks to create policy and implementation links between all types of water. Integrated Water Management Plans may eventually replace traditional city planning efforts by evaluating all water resources in one document while creating water reuse and reclamation links to address increasing aquifer demands and encourage economic growth.

Lino Lakes, Hugo, and Rosemount have a combined population of 60,000 people and have relied on groundwater aquifers for both potable and non-potable water uses. Each city is located in areas of aquifer decline or sensitive aquifer recharge and, as such, has been individually working to implement various water reuse and conservation programs. The common goal of these initiatives is to reduce the use of groundwater for non-potable uses while promoting aquifer recharge. The cities have chosen to pursue this funding collaboratively to ensure that the integrated water management methods implemented are sustainable across the region. Not only will water management practices be improved within Hugo, Lino Lakes, and Rosemount, but local government units throughout the State will benefit from the results of the proposed project. Overall, Integrated Water Management Plans have the potential to increase groundwater recharge, reduce runoff, improve water quality, and encourage conservation.

Hugo, Lino Lakes, and Rosemount will collaborate with WSB & Associates, Inc. (WSB) for this project. WSB has provided the Cities with general engineering services for a number of years and has worked closely with each City in the design and monitoring of their existing water infrastructure systems and has the technical expertise required to complete the scope of this project.

**II. PROJECT ACTIVITIES AND OUTCOMES**

**Budget: \$ 419,300**

**Activity 1:** Develop and Conduct Pilot Studies in Hugo, Lino Lakes, and Rosemount. The Hugo study will estimate and improve the infiltration rate of the current systems. The Lino Lakes study will examine the runoff reduction and contaminant control for residential stormwater irrigation. The Rosemount study will determine the best use of treated wastewater effluent and the potential treatment required for reuse.

Outcome	Completion Date
1. Use the second half of the summer to refine monitoring and data collecting techniques.	11/2016
2. Monitor each existing system, evaluate infiltration, volume reduction, water quality for each site.	11/2017
2. Use monitoring data to determine the treatment required in Rosemount and the ways in which Lino Lakes and Hugo can improve their systems.	1/2018



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3. Implement improvements and monitor for a second season.	11/2018
4. Analyze data and determine how improvements should affect local reuse regulations.	2/2019

**Activity 2: Model Aquifer Recharge Resulting from Integrated Water Management Budget: \$ 139,800**

<b>Outcome</b>	<b>Completion Date</b>
1. Create City-specific groundwater models by refining the Metro 3 groundwater model.	1/2017
2. Quantitatively estimate aquifer recharge due to the irrigation and infiltration pilot studies.	2/2019

**Activity 3: Quantify infrastructure benefits of water reuse and the development of a 4<sup>th</sup> utility. Evaluate regulatory options. Budget: \$ 69,800**

<b>Outcome</b>	<b>Completion Date</b>
1. Determine economic benefit by quantifying potable water reduction and infrastructure needs.	12/2016
2. Research and estimate the cost of developing a 4 <sup>th</sup> utility for water reuse.	2/2017
3. Research current regulations surrounding water reuse.	4/2017
4. Determine regulations that should be considered locally.	6/2017
5. Using results from pilot studies, determine what regulations should be implemented.	3/2019

**Activity 4: Develop Integrated Water Management Plans Budget: \$ 69,800**

<b>Outcome</b>	<b>Completion Date</b>
1. From knowledge gained through Activities 1-4, create policy documents that link results from pilot studies, groundwater modeling, economic research, and regulatory research.	3/2019
2. Finalize Integrated Water Management Plans.	5/2019

**III. PROJECT STRATEGY**

**A. Project Team/Partners**

City of Hugo: \$232,900

City of Lino Lakes: \$232,900

City of Rosemount: \$232,900

The Cities will utilize their existing City Engineering Services provider, WSB & Associates, to conduct all research, create models and analysis, and develop the Integrated Water Management Plans.

**B. Project Impact and Long-Term Strategy**

Implementing three Integrated Water Management Plans in the Metropolitan area will improve water quantity and quality, promote aquifer recharge and protection, allow for sustainable economic growth, and lead to more informed water policy on the local level. The Plans will allow the Cities to provide consistent public communication and regulatory guidance for drinking water, surface water, groundwater, stormwater, and wastewater planning. The Plans developed by the Cities will serve as an example state-wide as other municipalities look to manage water resources more cohesively.

**C. Timeline Requirements**

It is estimated that the proposed project will require the entire 36 months allotted. Because the funds become available in the summer, the monitoring of current projects will take place in the summers of 2017 and 2018. The Plans will be finalized following the second monitoring season. It is not anticipated that additional funds through the ENRTF will be required.

## 2016 Detailed Project Budget

**Project Title:** Integrated Water Management for Hugo, Lino Lakes, Rosemount

### IV. TOTAL ENRTF REQUEST BUDGET 2 years

<u>BUDGET ITEM</u>	<u>AMOUNT</u>
<b>Professional/Technical/Service Contracts:</b> The cities will utilize their existing City Engineering Services provider, WSB & Associates, Inc (WSB). WSB will conduct all data collection and research and will be responsible for the development of the Integrated Water Management Plans.	
Project Manager: Integrated Water Management Plan development, research direction, pilot study development, project management.	\$ 150,000
Graduate Engineer: Pilot study development and implementation, data analysis, Integrated Water Management Plan development.	\$ 204,000
Water Resources Technician: Data acquisition and analysis	\$ 153,000
Hydrogeologist: Regional groundwater/surface water balance	\$ 150,000
Analytical Laboratory - Rosemount and Lino Lakes Pilot Study Soil and Water Samples	\$ 12,500
<b>Equipment/Tools/Supplies:</b>	
Metering and Data Loggers	\$ 7,200
Pond mapping equipment	\$ 15,000
Sampling equipment	\$ 5,000
<b>Travel:</b> Mileage (~2,000 miles)between data gathering; Cities of Lino Lakes, Hugo, and Rosemount; and WSB.	\$ 2,000
<b>TOTAL ENVIRONMENT AND NATURAL RESOURCES TRUST FUND \$ REQUEST =</b>	<b>\$ 698,700</b>

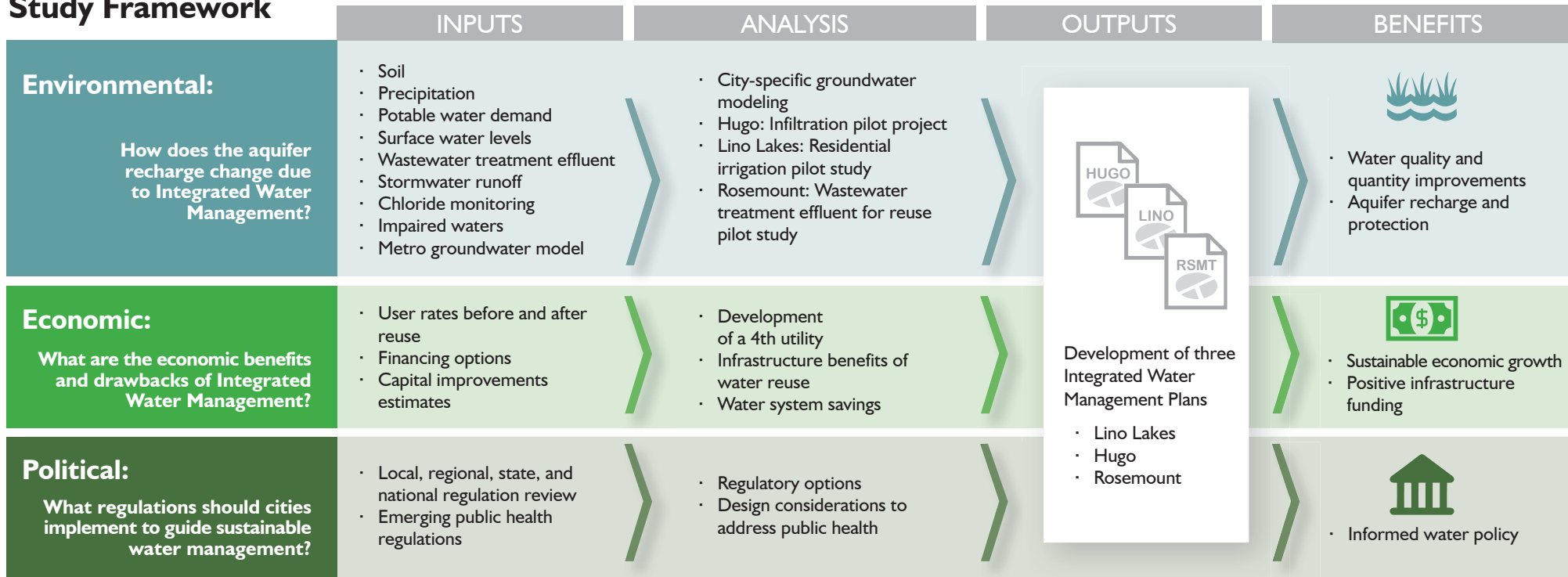
### V. OTHER FUNDS

<u>SOURCE OF FUNDS</u>	<u>AMOUNT</u>	<u>Status</u>
<b>Other Non-State \$ To Be Applied To Project During Project Period: N/A</b>	\$ -	
<b>Other State \$ To Be Applied To Project During Project Period: N/A</b>	\$ -	
<b>In-kind Services To Be Applied To Project During Project Period:</b>	\$ -	
City of Hugo: City Engineer	\$ 18,600	Secured
City of Lino Lakes: City Engineer	\$ 18,600	Secured
City of Rosemount: City Engineer/Public Works Director	\$ 18,600	Secured
<b>Funding History:</b>		
Hugo: Money towards developing a stormwater CIP and designing and constructing existing water reuse and infiltration projects	\$ 1,000,000	Secured
Lino Lakes: Money towards a residential water reuse feasibility study.	\$ 15,000	Secured
Lino Lakes: Money towards the design and construction of a residential water reuse system.	\$ 300,000	Pending
Rosemount: Money towards previous water reuse studies.	\$ 18,000	Secured
Rice Creek Watershed District: Oneka Ridge Golf Course Water Reuse System & Monitoring	\$ 113,700	
<b>Remaining \$ From Current ENRTF Appropriation: N/A</b>	<b>\$ -</b>	

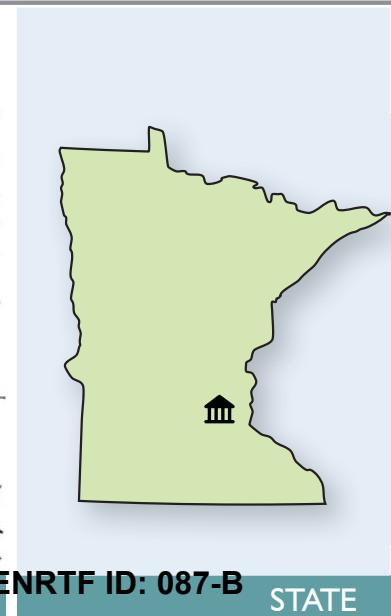
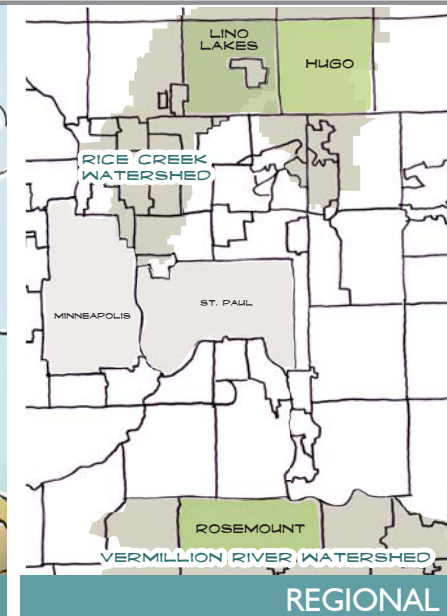
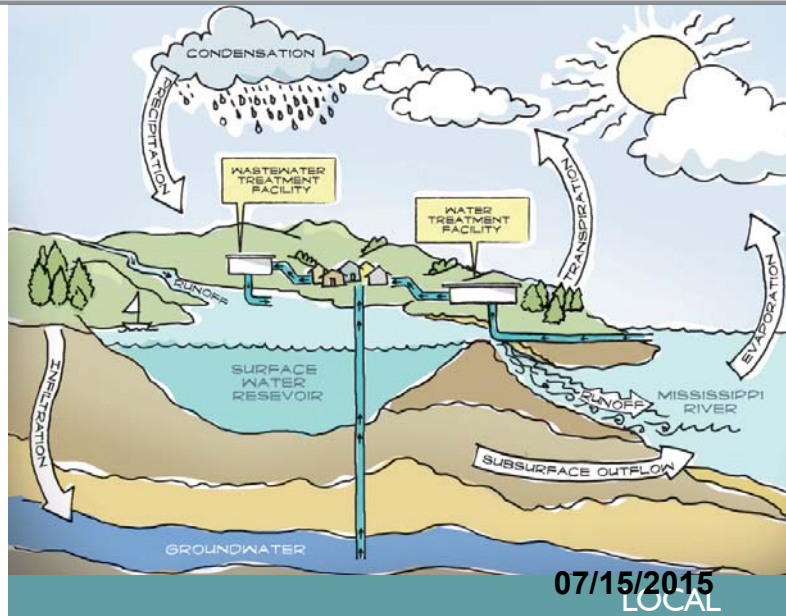


# INTEGRATED WATER MANAGEMENT FOR HUGO, LINO LAKES, ROSEMOUNT

## Study Framework



## Regional Context



**Project Manager Qualifications:**

**Jamie Wallerstedt, PE, MS in Civil Engineering, WSB & Associates, Inc.**

Ms. Wallerstedt has over eleven years of civil and environmental engineering experience. Her expertise encompasses water reuse system design and management, water and wastewater planning, and water quality studies. Ms. Wallerstedt received her B.C.E. and M.S. from the University of Minnesota in Civil Engineering. Ms. Wallerstedt specializes in the management and design of water reuse systems, storm sewer systems, sanitary sewer systems, water distribution systems, water and wastewater treatment systems, and remediation technologies. She has extensive experience using water system modeling software. Ms. Wallerstedt has worked collaboratively with municipalities throughout the State of Minnesota to develop water rate studies, supply plans, comprehensive plans, and infiltration and inflow reduction plans. Through this experience, she has developed a thorough understanding of writing well-developed and implementable planning documents. Ms. Wallerstedt has assisted communities in the State of Minnesota with exploring funding alternatives for water programs. As such, she has expertise in economic development and cost considerations for water management.

**Select Grants Received**

- Clean Water State Revolving Fund
- Department of Natural Resources Appropriations
- Wellhead Protection Grants
- Source Water Implementation Grants
- Wellhead Sealing Grants
- Point Source Implementation Grants
- Clean Water Act 319(h) Grants
- Board of Water and Soil Resources Grants

**Organization Information:**

**City of Hugo**

The City of Hugo is dedicated to the stewardship of its water resources. The City of Hugo has many measures in place to promote the conservation of appropriate reuse of its water resources. The City has completed the Oneka Ridge Golf Course water reuse project in cooperation with the Rice Creek Watershed District. In addition, the City is working to complete three more water reuse projects to use as pilot/case studies. The City will strive to “reduce, reuse and replenish” our water resources for the purposes of being good stewards of the resource by: conserving water that is pumped from the ground; responsibly managing the City’s municipal infrastructure; reducing fees, charges, or water bills for those who conserve water; encouraging the recycling of water where possible; and working with residents and businesses to slow the growth rate of water usage.

**City of Lino Lakes**

The water resources in Lino Lakes are one of the things that residents enjoy most about living here- whether it’s fishing, canoeing, swimming, or just relaxing by the shore. Our water resources also provide valuable habitat to many different birds, mammals and fish while recharging our drinking water supply by slowing runoff and infiltrating it into the ground. Lino Lakes is currently working with residential developers to explore water reuse options within private developments.

**City of Rosemount**

The City of Rosemount works hard to provide adequate amounts of clean, safe water to its residents and businesses. Water conservation and water reuse, especially during peak summer usage months, will help ensure that the water system can provide enough water for primary needs such as drinking water and fire suppression. The City is currently in discussions with private developers, the MCES wastewater treatment division, and industrial users to evaluate options for reuse.