

**Environment and Natural Resources Trust Fund  
2020 Request for Proposals (RFP)**

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**Project Title:**

**ENRTF ID: 115-B**

Assess Water Quality and Flood Retention Structures

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**Category:** B. Water Resources

**Sub-Category:**

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**Total Project Budget:** \$ 500,000

**Proposed Project Time Period for the Funding Requested:** June 30, 2022 (2 yrs)

**Summary:**

The unintended consequences of Minnesota's important agricultural success has been alteration of natural hydrology. This study quantifies water storage needs, solutions, and benefits, and may serve others as a template.

**Name:** Michelle Overholser

**Sponsoring Organization:** Yellow Medicine River Watershed District

**Job Title:** \_\_\_\_\_

**Department:** \_\_\_\_\_

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**Location:**

**Region:** Statewide

**County Name:** Statewide

**City / Township:**

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**Alternate Text for Visual:**

Hauschild – Thange Reservoir and Outlet built in 1980

_____ 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) 2020 Main Proposal Template**

The assessment will gather information on the multiple benefits, from three to four water storage and food retention structures around the state, including but not limited to, reducing sediment, suspended solids, nutrients, and peak flows, while providing habitat and wildlife benefits and protecting infrastructure. In addition, the assessment would quantify the cost and benefits of additional structures or infiltration practices, that would be required to improve flood mitigation and meet water quality goals in Minnesota's watersheds. The Yellow Medicine River Watershed District will work collaboratively with the Board of Water and Soil Resources and other agencies to assess and quantify cumulative environmental benefits of existing and planned water storage and flood-retention structures statewide.

There is general agreement that Minnesota should continue efforts to retain water on the land for a defined period of time in order to reduce flood peak flows and to improve water quality and aquatic ecology. A fundamental obstacle is understanding which best management practices are most effective in specific landscape settings. Flood damage reduction projects have proven to be an effective tool to reduce flood peaks and to improve downstream water quality, thus mitigating the effects of agricultural practices and replacing the need for many smaller best-management practices. In some areas, these structures have been in place for many years. However, the beneficial impacts of the facilities have not been assessed. Streams with these structures, and with historical streamflow and water-quality information and calibrated watershed models, provide unique opportunities to assess the beneficial impacts afforded by these structures. This project would utilize historical information and additional modeling to estimate the effectiveness of these structures in variety of locations across the state. This information would then be used to assess the location and numbers or structures that would be needed to reduce flood peaks and to mitigate the effects of unmanaged or uncontrolled agricultural drainage.

Agricultural drainage has provided many benefits that allow farmers better access to croplands and to complete farming operations in a timely manner. Without agricultural drainage on much of Minnesota's croplands, increases in soil productivity and crop yields would be difficult and economic returns would be diminished. While the drainage of Minnesota's croplands provides benefits, there are some downstream issues with unmanaged or uncontrolled agricultural drainage, which may increase flooding, may affect available water recharge to wetlands, may impact migrating waterfowl populations in the spring, and may possibly degrade downstream water quality. Increasing the use of water storage and flood retention structures, of various sizes, may provide an opportunity to mitigate the impacts of uncontrolled or unmanaged agricultural drainage in some areas. However, a thorough evaluation of the benefits of water storage and flood retention structures has not been completed. The completion of watershed computer models for water quality assists in providing a unique opportunity to assess the beneficial effect of water storage and flood retention structures and to examine the potential benefits of increasing the numbers of these structures across the state.

The study also will present an assessment of alternatives to large impoundment structures such as dispersed storage and water infiltration into the soil of this conservation practice and will identify locations for additional structure installations.

## **II. PROJECT ACTIVITIES AND OUTCOMES**



## Environment and Natural Resources Trust Fund (ENRTF) 2020 Main Proposal Template

**Activity 1: Determine extent of existing retention basins, historical monitoring data and water quality models.**

**Activity 2: Determine Cumulative Impact of Existing Projects and whether alternatives to large impoundments would be more cost effective**

**Activity 3: Determine extent of projects needed to fully meet watershed goals**

**ENRTF BUDGET: \$500,000**

<b>Outcome</b>	<b>Completion Date</b>
<i>1. Identify three to four retention locations having water quality information and models.</i>	<i>December 31, 2020</i>
<i>2. Model watersheds with retention basins to assess cumulative benefits and impacts for water quality and flood retention.</i>	<i>July 1, 2021</i>
<i>3. identify and prioritize the needs for statewide retention projects to meet water quality goals.</i>	<i>June 30, 2022</i>

*The Red River Watershed Management Board will assist in collaborating and partnering with the Yellow Medicine River Watershed District.*

*It is expected that this project will assist in determining the amount of retention basins needed in specific watersheds for water quality and flood reduction*

## 2020 Proposal Budget Spreadsheet

**Project Title:**

**IV. TOTAL ENRTF REQUEST BUDGET** *[Insert # of years for project] years*

BUDGET ITEM (See "Guidance on Allowable Expenses")	AMOUNT
Personnel: Project Manager - Michelle Overholser - \$200,000; Staff to be determined - \$100,000	\$ 300,000
Professional/Technical/Service Contracts: Consultant by RFP to identify three to four structures and model simulations	\$ 180,000
Equipment/Tools/Supplies:	\$ 15,000
Acquisition (Fee Title or Permanent Easements):	\$ -
Travel: Per Diem and Miles to study sites according to Commissioner's Plan	\$ 5,000
Additional Budget Items:	\$ -
<b>TOTAL ENVIRONMENT AND NATURAL RESOURCES TRUST FUND \$ REQUEST =</b>	<b>\$ 500,000</b>

**V. OTHER FUNDS** *(This entire section must be filled out. Do not delete rows. Indicate "N/A" if row is not applicable.)*

SOURCE OF FUNDS	AMOUNT	Status
Other Non-State \$ To Be Applied To Project During Project Period:	\$ -	
Other State \$ To Be Applied To Project During Project Period:	\$ -	
In-kind Services To Be Applied To Project During Project Period:	\$ -	
Past and Current ENRTF Appropriation:	\$ -	
Other Funding History:	\$ -	



**In 2018, Michelle Overholser started with the YMRWD as the Administrator. She is responsible for the all the daily activities of the District, including but not limited to, Administrative duties, financial activities and reporting, and technical support for District activities. Ms. Overholser is also currently the facilitator, daily contact, and fiscal agent for the Yellow Medicine One Watershed One Plan. Ms. Overholser has a working knowledge of ArcGIS and various watershed modeling programs such as SAMs, PTMapp and ACPF, which will aid in overseeing the modeling simulations proposed in this project.**

**As the Yellow Medicine River Watershed District's representative, Michelle Overholser would act as the project manager. The Yellow Medicine River Watershed District is a local unit of government established in 1971 through a petition of its residents to the MN Board of Water and Soil Resources. The jurisdiction covers 685 square miles, located within four counties in Southwest Minnesota, that drain to the Yellow Medicine River. In December of 2016, the Yellow Medicine River had one of the first One Watershed One Plan's approved and adopted. In 2014, the District completed a full terrain analysis, culvert inventory and hydro conditioning of the Digital Elevation Model. This is work that has been completed through previous projects that will greatly benefit the completion of this project.**