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

Project Title: **ENRTF ID: 186-H**

Roseau Lake Watershed: Targeted Water Quality Improvement

Category: B. Water Resources

Total Project Budget: $ 135,250

Proposed Project Time Period for the Funding Requested: July 16 to September, 2017

Summary:

Advanced geospatial modeling in conjunction with local professional knowledge will identify the top 100 field scale Best Management and Conservation Practices to improve water quality in the Roseau Lake watershed.

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Sponsoring Organization: MN DNR

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Web Address

Location

Region: NW

County Name: Roseau

City / Township:

Alternate Text for Visual:

n/a

_____ Funding Priorities _____ Multiple Benefits _____ Outcomes _____ Knowledge Base

_____ Extent of Impact _____ Innovation _____ Scientific/Tech Basis _____ Urgency

_____ Capacity Readiness _____ Leverage _____ TOTAL _____%

I. PROJECT STATEMENT

The MN Department of Natural Resources (DNR) and International Water Institute (IWI) will partner with other state agencies, the Roseau River Watershed District, and other local partners to develop a comprehensive water quality improvement plan for the Roseau Lake Watershed. The project will directly complement the efforts of the MN Department of Natural Resources and the Roseau River Watershed District to implement the Roseau Lake Rehabilitation Project which will reduce flood damages and improve wildlife habitat. This project will provide a roadmap and marketing strategy for implementing projects in this watershed to improve water quality and ensure long-term sustainability of the Roseau Lake rehabilitation. This project is consistent with Laws of Minnesota 2015, First Special Session, Chapter 4, Section 140. WATER RETENTION PROJECTS.

This project will build on existing technologies developed with Clean Water Legacy Funds to apply the Prioritize, Targeting and Measuring Application (PTMApp) http://www.rrbdin.org/prioritize-target-measure-application-ptmapp within the Roseau Lake watershed. The PTM App will be used to identify and evaluate the suitability and effectiveness of best management and conservation practices in the watershed, provide estimates of sediment nitrogen and phosphorous delivered (and subsequently treated) to the to the lake and prepare a targeted implementation plan that includes treatment train (BMP and CP) load reduction amounts. Final project outcomes will be a targeted water quality improvement plan that includes the 100 most effective projects to improve water quality in the watershed based on cost and total load reduction to the lake.

II. PROJECT ACTIVITIES AND OUTCOMES

Activity 1: Digital Elevation Model (DEM) Hydro-Conditioning. Use standardized methods to review and modify the existing LiDAR-derived conditioned DEM to meet standards required for PTM Application (develop and incorporate conveyance features to accurately reflect surface water hydrology). **Budget: $75,713**

Outcome	Completion Date
Digital elevation model modified to accurately reflect surface water hydrology	January, 2017
Metadata report	January, 2017

Activity 2: Assemble and create base data library and run PTMApp. In addition to the conditioned DEM, the PTM App. requires a suite of geospatial inputs (e.g. soils, slope, travel time, flow accumulation). These data will be assembled and configured for Roseau Lake Watershed for use in the PTMApp. **Budget: $ 4,454**

Outcome	Completion Date
PTMApp base data library	February, 2017

Activity 3: Run the PTMApp to calculate total sediment, phosphorus and nitrogen delivered to the Roseau Lake pour point (without treatment), BMP suitability index/catchment practice potential, treatment train/effectiveness, and treatment cost/effectiveness/load reduction grids. **Budget: $8,907**

Outcome	Completion Date
Spatial data outputs from PTMApp	February, 2017
Identify the best 100 WQ projects to reduce loading to Roseau Lake	February, 2017

Activity 4: Develop drained wetland basin inventory data using recently developed terrain analysis methods which quantify key attributes (e.g. volume, depth, drainage area) for use by conservation professionals. **Budget: $4,454**

Outcome	Completion Date
Drained wetland basin dataset with attributes related to water quality improvement and flood damage reduction potential for use by local decision-makers.	February, 2017

Activity 5: Conduct three workshops with watershed district, soil and water conservation district and other professionals (e.g. NRCS) responsible for delivering conservation to landowners so that they can understand and use PTMApp outputs and provide input into the targeted water quality improvement strategy which includes effective public outreach. **Budget: $32,815**

Outcome	Completion Date
Targeted water quality implementation plan that include treatment train (field scale BMP and CP) project locations, estimated load reductions, and a strategic public outreach plan.	February, 2017

Activity 6: Prepare final report. Incorporate workshop outcomes into a final report in collaboration with local implementers. Local partners will implement the marketing plan. **Budget: $8,907**

Outcome	Completion Date
Final report - Water Quality Improvement Plan Roseau Lake Watershed	August, 2017

III. PROJECT STRATEGY

A. Project Team/Partners

The project will be cooperatively managed by the MN Department of Natural Resources and the International Water Institute. Cooperators will include the Red River Watershed Management Board, the Red River Flood Damage Reduction Work Group, Houston Engineering Inc., the Roseau River Watershed District and Roseau County Soil and Water County Conservation District.

B. Project Impact and Long-Term Strategy

The Roseau Lake Water Quality Improvement Plan will develop a prioritized, targeted and measurable implementation plan to improve water quality in the Roseau Lake watershed. The plan will include specific BMP and CP projects at targeted locations in the watershed to provide the greatest load reduction at Roseau Lake.

C. Timeline Requirements

July 1, 2016 - January, 2017: 6 months to conduct a systematic review of the existing Roseau Lake watershed digital elevation model and perform necessary hydro-conditioning to incorporate water conveyance features required for PTMApp.
February, 2017: 3 weeks to acquire and review base data inputs required for PTMApp, process data using PTMApp (generate spatial products), develop drained wetland basins inventory, and prepare geodatabase for user workshops.
February, 2017 – July 2017: 4 months to prepare for and conduct three workshops with local partners to explain/review PTMApp products and develop suite of targeted implementation and marketing strategies.
August, 2017 – September 2017: 2 months to prepare draft plan, provide for two rounds of editorial review by local partners and finalize implementation and outreach strategy.

2016 Detailed Project Budget

Project Title: *[Insert "Project Title" here]*

INSTRUCTIONS AND TEMPLATE (1 PAGE LIMIT)

Attach budget, in MS-EXCEL format, to your "2016 LCCMR Proposal Submission Form".

(1-page limit, single-sided, 10 pt. font minimum. Retain bold text and DELETE all instructions typed in italics. ADD OR DELETE ROWS AS NECESSARY. If budget item row is not applicable put "N/A" or delete it. All of "Other Funds" section must be filled out.)

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

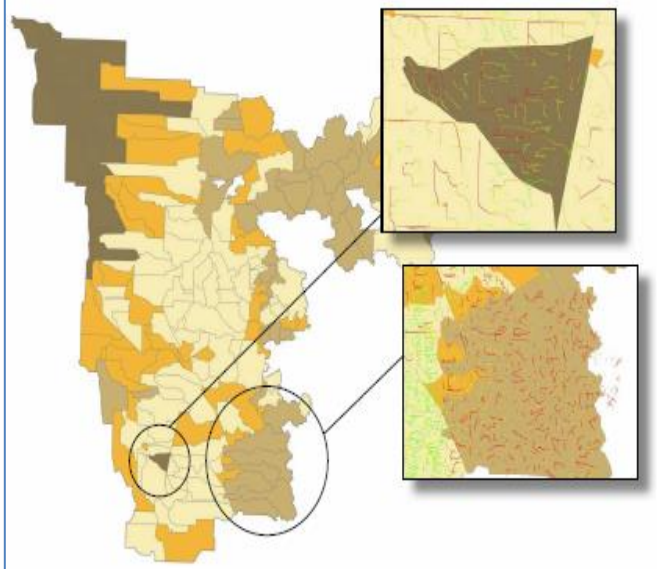
BUDGET ITEM *(See "Guidance on Allowable Expenses", p. 13)*	**AMOUNT**	
Personnel: See other funds **i**n-kind	$ -	
Professional/Technical/Service Contracts:	$ 132,250	
International Water Institute: Technical oversight and coordination, workshop facilitation, data mining, PTM App Processing, Intern management, GIS interns.		$ 117,250
Houston Engineering Inc. - Hydroconditioning quality assurance, PTMApp technical support, workshop guidance and support.		$ 15,000
Equipment/Tools/Supplies: print meeting materials, display quality maps	$ 1,000	
Acquisition (Fee Title or Permanent Easements): NA	$ -	
Travel: Attend project kick-off meeting and three local workshops in Roseau.	$ 2,000	
Additional Budget: NA	$ -	
TOTAL ENVIRONMENT AND NATURAL RESOURCES TRUST FUND $ REQUEST =	$ 135,250	

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:	NA	
Other State $ To Be Applied To Project During Project Period:	NA	
In-kind Services To Be Applied To Project During Project Period: DNR staff time for project management and oversight.	$ 6,000	*Secured*
Funding History:	$ -	
PMTApp Development BWSR Clean Water Fund (C14-8916)	$235,250	Secured
WQDSA - BWSR Clean Water Funds (C13-3724)	$194,490	Secured
WQDSA Enhancements - BWSR Clean Water Funds (C14-7617)	30,636	Secured
Remaining $ From Current ENRTF Appropriation:	NA	

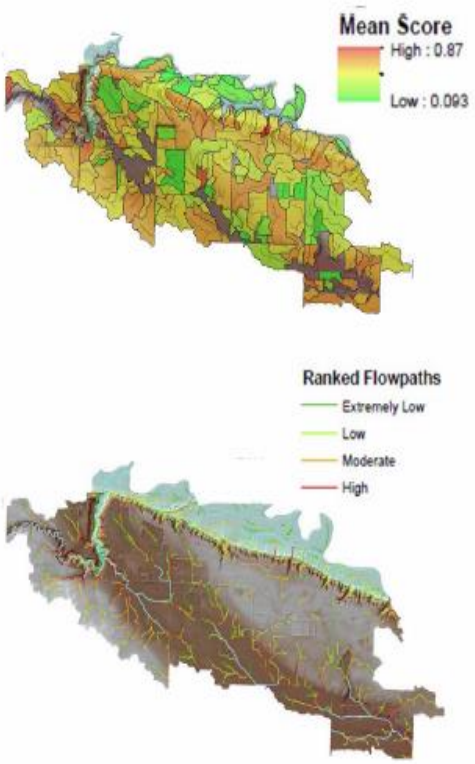
Prioritization, Targeting, and Measuring Water Quality Improvement Application (PTMA)

Prioritize



Subwatersheds for Implementation

Target



Project Locations Within Watershed at Fields Scale

Measure

Progress in Water Quality Improvement

Project Co- Manager: Henry Van Offelen
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Henry Van Offelen is the Red River Basin Coordinator for the Minnesota of Department of Natural Resources. Mr. Van Offelen is responsible for coordinating DNR engagement in watershed planning and conservation implementation efforts in the Red River Basin. He has extensive experience in working with project partners to successfully produce geospatial data products which local governments use to work with landowners to implement conservation practices. Most recently he worked with the International Water Institute to provide members of a prairie plan implementation team with an extensive geodatabase of Lidar-derived data to accelerate wetland and grassland restorations in a prairie plan core area. He has worked on water management issues statewide and in the Red River basin for over 20 years. He holds a M.S. in fisheries biology from Cornell University and a B.S. in fisheries from the University of Minnesota.