

Environment and Natural Resources Trust Fund
2014 Request for Proposals (RFP)

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Project Title:

Drainage Records Modernization and Statewide GIS Database

Category: A. Foundational Natural Resource Data and Information

Total Project Budget: \$ 730,000

Proposed Project Time Period for the Funding Requested: 3 Years, July 2014 - June 2017

Other Non-State Funds: \$ 0

Summary:

This project will develop a web-based GIS database for Chapter 103E public drainage records modernization, update Drainage Records Modernization Guidelines, and provide grants to drainage authorities requiring minimum 1:1 match.

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Sponsoring Organization: BWSR

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Location

Region: Statewide

County Name: Statewide

City / Township:

MP: 0613-2-170-proposa

Budget: 0613-2-170-bud

Qual: 0613-2-170-qualifi

Map: 0613-2-170-map-2

Resolution:

List:

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



Environment and Natural Resources Trust Fund (ENRTF) 2014 Main Proposal

PROJECT TITLE: Drainage Records Modernization and Statewide GIS Database

I. PROJECT STATEMENT

This project will develop and utilize a web-based GIS database for M.S. Chapter 103E public drainage system records. It will draw on recent drainage records modernization experience of county and watershed district drainage authorities and their consultants. The database will be available statewide and its use required for competitive drainage records modernization cost-share, including a minimum 1:1 local match. These electronic drainage system records will improve GIS data statewide, including the National Hydrography Dataset, which is critical for multipurpose water management in Minnesota. The database will be developed by the Minnesota Geospatial Information Office (MnGeo), which is focused on *“Improving services statewide through the coordinated, affordable, reliable and effective use of GIS”*. This project also will update Drainage Records Modernization Guidelines, Sep. 2008 by the Board of Water and Soil Resources. (Funding Priority A. Foundational Natural Resource Data and Information)

Approximately 101 counties and watershed districts serve as public drainage authorities under Chapter 103E drainage law. This involves more than 21,000 miles of drainage ditches and many thousands of miles of subsurface tile. Historically, the records for these drainage systems have been maintained by drainage authorities primarily in hard copy from different production methods. Many of these records are more than 100 yrs. old and are becoming faded and fragile. Drainage records modernization involves creation and cataloguing of electronic copies of drainage system records. Advanced levels of modernization include creation of associated GIS data layers and incorporation with other GIS data.

Since 1997, BWSR has administered incentives for public drainage system inventories and records modernization to advance drainage management, through Local Water Planning Challenge Grants and Drainage Records Modernization Grants, when available. The stakeholder Drainage Work Group, which involves more than 20 associations, organizations, agencies and academic institutions facilitated by BWSR, has been a proponent of drainage records modernization and preservation guidelines and cost-share. Up to 55 drainage authorities have conducted some level of records modernization to date, with a much smaller number having developed some GIS compatibility. This project would enable some of the remaining 46 drainage authorities to update Chapter 103E drainage system records to a consistent, advanced level and some with prior records modernization to advance their records to a consistent, higher level. The GIS database would be available to the public through a web-based map viewer.

II. DESCRIPTION OF PROJECT ACTIVITIES

Activity 1: Establish team and define database and guidelines requirements. Budget: \$45,000

BWSR will execute an agreement with MnGeo to serve as the prime contractor for this project. Members of the stakeholder Drainage Work Group, the interagency Drainage Management Team, drainage authorities with drainage records modernization experience, and other practitioners with relevant expertise, will be recruited to serve on a project advisory committee. MnGeo will solicit input of stakeholders via survey and focus groups to define business requirements, priorities, cost controls and objectives for the GIS database and updated drainage records modernization guidelines, in coordination with BWSR and the project advisory committee.

Outcome	Completion Date
1. Project team and interagency agreement with MnGeo established	September 2014
2. Project advisory committee established and oriented	October 2014
3. Survey and focus groups with drainage authorities and practitioners	December 2014
4. Define specific objectives for drainage records database and updated guidelines	January 2015

Activity 2: Develop GIS database and update records modernization guidelines. Budget: \$185,000

MnGeo and its consultants will: 1) design and create a statewide GIS database for public drainage system records; 2) populate with existing data for one to three pilot counties or watershed districts; 3) construct a web-based mapping application for easy public access to the data; and 4) integrate GIS specifications into updated drainage records modernization guidelines.

Outcome	Completion Date
1. Draft drainage records database & updated records modernization guidelines	December 2015
2. Review and input by project advisory committee	January 2016
3. Completed database and updated drainage records modernization guidelines	June 2016

Activity 3: Use new DRM guidelines and database with cost-share grants. Budget: \$500,000

BWSR will conduct a Drainage Records Modernization Cost-Share RFP and selection process, with application ranking assistance by the interagency Drainage Management Team. Applicants will be required to use the updated Drainage Records Modernization Guidelines and web-based GIS database created and hosted by MnGeo. Minimum 1:1 local match will be required.

Outcome	Completion Date
1. RFP to drainage authorities for Records Modernization Cost-Share	July 2016
2. Review and ranking of applications and grant recommendations to BWSR	September 2016
3. Drainage Records Modernization Cost-Share Grants awarded by BWSR	November 2016
4. Projects completed and key records on drainage records database at MnGeo	December 2018

III. PROJECT STRATEGY

A. Project Team/Partners

Roles to be funded by sources other than ENRTF:

- *Al Kean, P.E., Chief Engineer, BWSR:* Project management, oversight and coordination.
- *Tim Gillette, Conservation Drainage Engineer, BWSR:* Project technical assistance and program management for Drainage Records Modernization Cost-Share.
- *Advisory committee members:* Provide perspective, advice, and review of draft products.

Roles to be funded by requested ENRTF grant:

- *Supervisor, GIS Project Services, MnGeo:* Lead contract and production manager.
- *Other MnGeo Staff:* Technical development and review assistance.
- *Private consultant(s):* Assist with the development of a web-based GIS database for public drainage system records and updated Drainage Records Modernization Guidelines.

B. Timeline Requirements

Development of the web-based GIS database and update of the Drainage Records Modernization Guidelines will be completed within 2 years of project funding. Cost-share grants for drainage records modernization by public drainage authorities will be allocated by BWSR in the 3rd year, with completion up to approximately 2 years later.

C. Long-Term Strategy and Future Funding Needs

This project is part of coordinated efforts to modernize and preserve public drainage system records and to promote multipurpose drainage management statewide. The estimated need for drainage records modernization cost-share remaining after this project is \$1.5 million. This does not include costs associated with the long-term maintenance of the database and map viewer.

2014 Detailed Project Budget

Project Title: Drainage Records Modernization and Statewide GIS Database

IV. TOTAL ENRTF REQUEST BUDGET 3 years

<u>BUDGET ITEM</u>	<u>AMOUNT</u>
Contracts: Minnesota Geospatial Information Office (MnGeo) to serve as the prime contractor to scope, develop and make available a GIS database and web application for Minnesota Chapter 103E public drainage system records and to update the Drainage Records Modernization Guidelines.	\$ 227,000
Travel: Focus group meetings in the primary agricultural drainage system areas of Minnesota (estimate 2-4) with Chapter 103E drainage records users and consultants (drainage authorities, engineers, auditors, drainage inspectors, viewers, drainage records modernization consultants).	\$ 3,000
Additional Budget Items: BWSR will provide competitive drainage records modernization cost-share grants to Chapter 103E county and watershed district drainage authorities using updated Drainage Records Modernization Guidelines and new drainage records GIS database with web-based application.	\$ 500,000
TOTAL ENVIRONMENT AND NATURAL RESOURCES TRUST FUND \$ REQUEST =	\$ 730,000

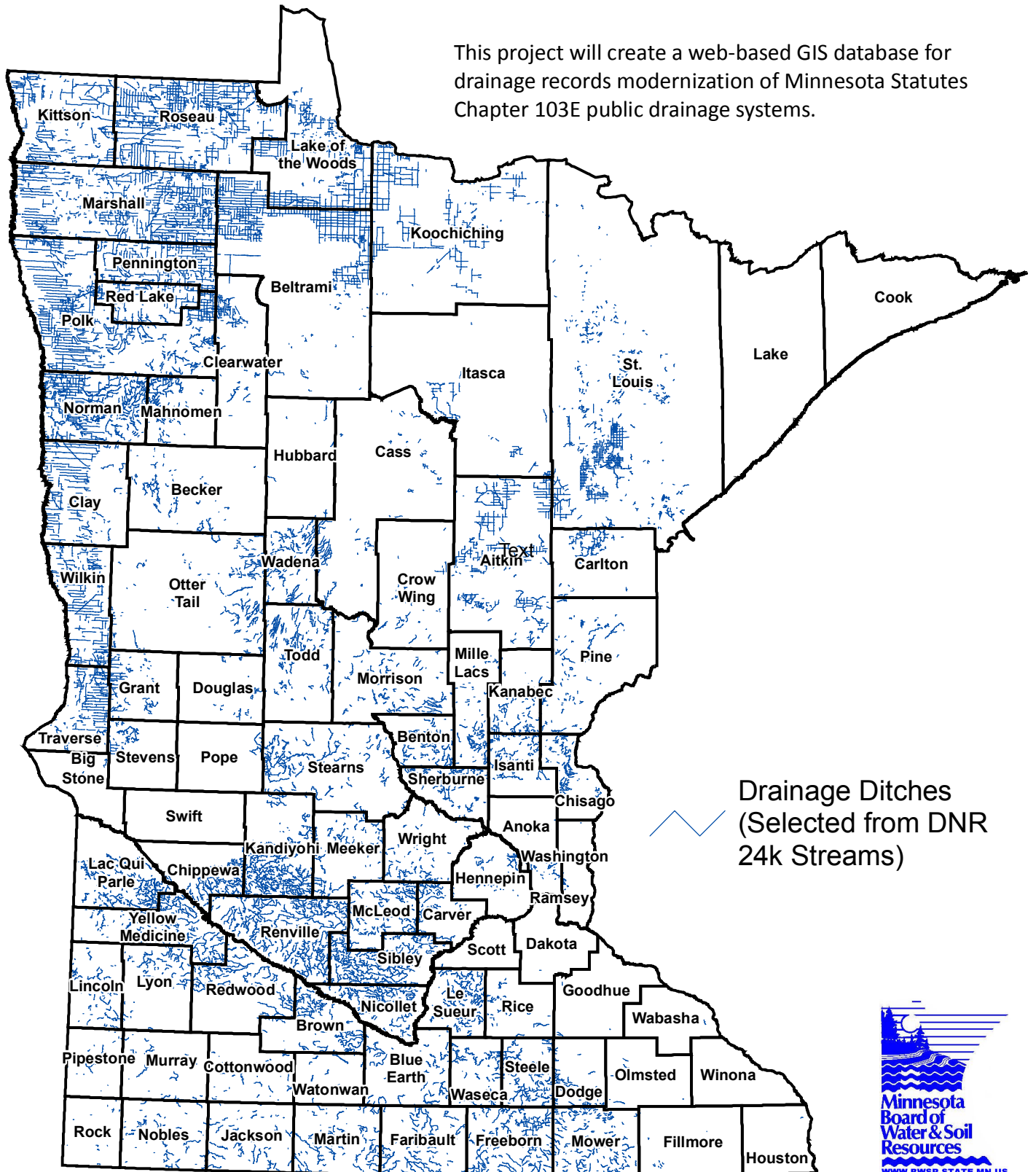
V. OTHER FUNDS

<u>SOURCE OF FUNDS</u>	<u>AMOUNT</u>	<u>Status</u>
Other Non-State \$ Being Applied to Project During Project Period: Minimum 1:1 local match required for competitive drainage records modernization cost-share grants. (Note: \$500,000 of drainage records modernization cost-share grants allocated by BWSR in FY09 was matched by approximately \$1,000,000 of local cash and in-kind services.)	\$ 500,000	Pending
In-kind Services During Project Period: BWSR Staff Time: (4% Al Kean, 4% Tim Gillette) (salary, benefits, other OH, 3 yrs.)	\$ 30,000	Pending

Drainage Records Modernization and Statewide GIS Database

Circa 1980 Locations of Drainage Ditches from USGS Maps

This project will create a web-based GIS database for drainage records modernization of Minnesota Statutes Chapter 103E public drainage systems.



Drainage Ditches
(Selected from DNR
24k Streams)



2014 LCCMR - Project Manager Qualifications and Organizational Description

PROJECT TITLE: Drainage Records Modernization and Statewide GIS Database

Project Manager Qualifications

Allan Kean, P.E., serves as Chief Engineer and manager of the Technical Services Section of the Board of Water and Soil Resources. This role involves supervision, financial management and leadership. Mr. Kean has served as a section manager for BWSR since 1992.

Mr. Kean served as project manager and editor for preparation of the *“Public Drainage Ditch Buffer Study, February 2006”* and the *“Drainage Records Modernization Guidelines, September 2008”*, which involved contracts with the University of Minnesota, Water Resources Center and the Minnesota State University, Mankato, Water Resources Center.

Since 2006, Mr. Kean has served as a facilitator of the stakeholder Drainage Work Group, which involves more than 20 associations, organizations, agencies and academic institutions having a focus on science-based mutual understanding and consensus recommendations regarding drainage policy and drainage management. He has facilitated associated consensus recommendations for updates of Minnesota drainage law and testified at legislative committee hearings on behalf of the Drainage Work Group regarding these recommendations.

As project manager, Mr. Kean will also serve as coordinator with the stakeholder Drainage Work Group and help coordinate with other stakeholders for this project. He will be responsible for oversight of a contract with the Minnesota Geospatial Information Office, including completion within budget and on schedule.

Organizational Description

The Minnesota Board of Water and Soil Resources consists of 20 members, including local government representatives that deliver BWSR programs, state agencies, and citizens. The board sets a policy agenda designed to enhance service delivery through the use of local government. Board members, including the board chair, are appointed by the governor to four-year terms.

The board is the state's administrative agency for 90 soil and water conservation districts, 46 watershed districts, 23 metropolitan watershed management organizations, and 80 county water managers.

The BWSR mission is to improve and protect Minnesota's water and soil resources by working in partnership with local organizations and private landowners. Core functions include implementing the state's soil and water conservation policy, comprehensive local water management, and the Wetland Conservation Act as it relates to private land in Minnesota.

BWSR facilitates the stakeholder Drainage Work Group, as well as the interagency Drainage Management Team. BWSR has administered state cost-share for public drainage records modernization since 1997, as funding has been available. Therefore, BWSR is well positioned to lead this project.