Environment and Natural Resources Trust Fund
2012-2013 Request for Proposals (RFP)

Project Title: **ENRTF ID:** **084-E1**

County Geologic Atlas (Part B) for Water Resource Sustainability

Topic Area: E1. NR Info Collection /Analysis - Statewide

Total Project Budget: $ 2,180,000

Proposed Project Time Period for the Funding Requested: 2 yrs, July 2013 - June 2015

Other Non-State Funds: $ 0

Summary:

Produce County Geologic Atlases, Part B, for groundwater protection, wise use, and long-term resource sustainability; map springsheds and prepare karst feature maps; improve digital access to atlas groundwater data.

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Sponsoring Organization: MN DNR

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Location

Region: NW, Central, Metro, SE

County Name: Anoka, Blue Earth, Clay, Houston, Morrison, Nicollet, Renville, Sherburne, Sibley, Winona, Wright

City / Township:

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

PROJECT TITLE: County Geologic Atlas for Sustainable Water Management (Part B, continuation)

I. PROJECT STATEMENT

A geologic atlas provides information that is essential to sustainable management of Minnesota's groundwater resources by identifying key areas to protect our drinking water and ensure sustainable use. Atlases define aquifer boundaries and identify the interconnection of aquifers to other aquifers, to the land surface, and to surface water resources. Delineation and mapping of aquifers, recharge areas, and springsheds is an essential first step to inform management decisions that will protect water supplies, public health, and the resource. This project will complete up to seven Part B projects initiated or planned under previous funding, including Anoka, Blue Earth, Clay, Nicollet, Renville, Sibley, and Wright counties. Work may be initiated on Morrison and Sherburne counties.

This project will also assemble previously published county atlas groundwater maps into geospatial data layers for use in decision-support systems, such as DNR's new electronic permitting process and DNR's on-line web-based applications such as Watershed Assessment Tool. These assembled data layers and electronic tools make the information more accessible for local, regional, and state decision makers.

Many of Minnesota's surface water resources, such as the trout streams in Southeastern Minnesota, are dependent on groundwater discharge. Trout streams rely on cold water from springs and are under increasing pressure from changing land use patterns and groundwater withdrawals. Delineation of the recharge areas (springsheds) for springs is crucial for the protection of the southeastern Minnesota trout fisheries and the restoration of degraded fisheries. These springsheds are formed in the karsted bedrock units of southeast Minnesota. This project will also prepare draft karst plates for each of the Winona and Houston county geologic atlases, Part B, for publication with the completed reports.

II. DESCRIPTION OF PROJECT ACTIVITIES

Activity 1: County Geologic Atlas, Part B: Budget: $ 1,587,000
Building on Part A atlas data, compile field chemistry, analyze groundwater samples for natural chemistry and age-dating isotopes, and assemble aquifer characteristics data. Prepare groundwater maps, cross sections, and interpretations of pollution sensitivity for publication in completed Part B atlas reports. Continue or begin new Part B projects.

Outcome	Completion Date
1. Publish completed Part B reports (up to five): Publish reports underway at the start of the project period, including Blue Earth, Nicollet, Sibley, Anoka, Wright.	June 30, 2015
2. Continue Part B projects (up to two), including Renville and Clay, and complete if possible.	June 30, 2015
3. Start new Part B projects (up to two): Sherburne and Morrison.	June 30, 2015

Activity 2: Assemble published County Geologic Atlas, Part B geospatial data. Budget: $250,000
Construct necessary County Geologic Atlas, Part B geospatial data definitions and protocols needed to digitally assemble previously published groundwater maps and implement the data protocols for future projects. Assemble and publish groundwater geospatial data layers in multiple formats to allow flexible use and support improved data access for use in decision support systems such as the new electronic permitting process, web-based applications, and groundwater models.

Outcome	Completion Date
1. Construct groundwater geospatial data protocols; implement for future projects	June 30, 2014

2 Publish in multiple formats a minimum of six groundwater geospatial data layers from previously published atlases.	June 30, 2015

Activity 3: Springshed Mapping Continuation and Karst Plates for Two Atlases Budget: $343,000
Continued springshed mapping will focus on Winona and Houston counties, and on the Galena karst of Fillmore County. The mapping will be combined with karst feature mapping and landscape analysis to produce karst-landscape and hydrology maps for Part B of the Winona and Houston atlases, to be published as part of the completed Part B reports.

Outcome	Completion Date
1. 1:100,000 or smaller scale maps of all delineated springsheds	June 30, 2015
2. Maps and reports of completed dye traces	June 30, 2015
3. Draft karst plate for Winona and Houston county geologic atlases, Part B	June 30, 2015

TOTAL BUDGET $2,180,000

III. PROJECT STRATEGY

See also MGS County Geologic Atlas, Part A, Main Proposal to be submitted separately to LCCMR.

A. Project Team/Partners
The Minnesota Geological Survey completes Part A of county geologic atlases (see MGS Main proposal for county atlas continuation). To determine priority, the MGS requires that the counties participate either with funding or with in-kind services and also considers groundwater sensitivity, resource demand, and the size of the population served. At the completion of the Part A work, DNR completes Part B, the groundwater portion, of the atlases. DNR requests local government sponsorship for training workshops intended for local staff and the public held at the completion of a Part B atlas. Project partners for the springshed mapping work will include the MGS, Dr. Calvin Alexander (University of Minnesota Dept. Earth Science) and the Root River partnership.

B. Timeline Requirements
This proposal builds on past LCCMR proposals and the 25-year CGA program history. This proposal provides funding to publish five atlases during this project period that were initiated during a previous project and will continue or initiate several additional atlases for future publication. The MGS has initiated work on additional Part A atlases which are necessary to begin the Part B of each atlas. This proposal also builds on past ENRTF springshed mapping support and continues mapping in areas not yet mapped. The accumulated data will be compiled on draft karst plates for the Winona and Houston county geologic atlases, Part B, that will be published when completed.

C. Long-Term Strategy and Future Funding Needs
The County Geologic Atlas program is the primary vehicle to provide comprehensive geologic mapping and associated databases at appropriate scales statewide. The MGS receives funding from DNR and also leverages federal dollars from the National Cooperative Geologic Mapping Program of the USGS. The MGS competes annually for these federal cost-share dollars. MGS Part A atlas development is also supported by ENRTF and Clean Water Fund though direct appropriation. DNR is a cooperator and funding partner with the MGS. The Part B atlases are currently supported by a combination of state general fund, ENRTF, and Clean Water Fund appropriations to DNR. Springshed mapping and research to investigate and understand groundwater flow in complex geologic systems and has been ongoing in southeast Minnesota for many years; some of this work has been supported by ENRTF. While there has been significant progress in certain areas, such as Fillmore County, unmapped areas remain and future support will be needed to extend the mapped areas.

2012-2013 Detailed Project Budget

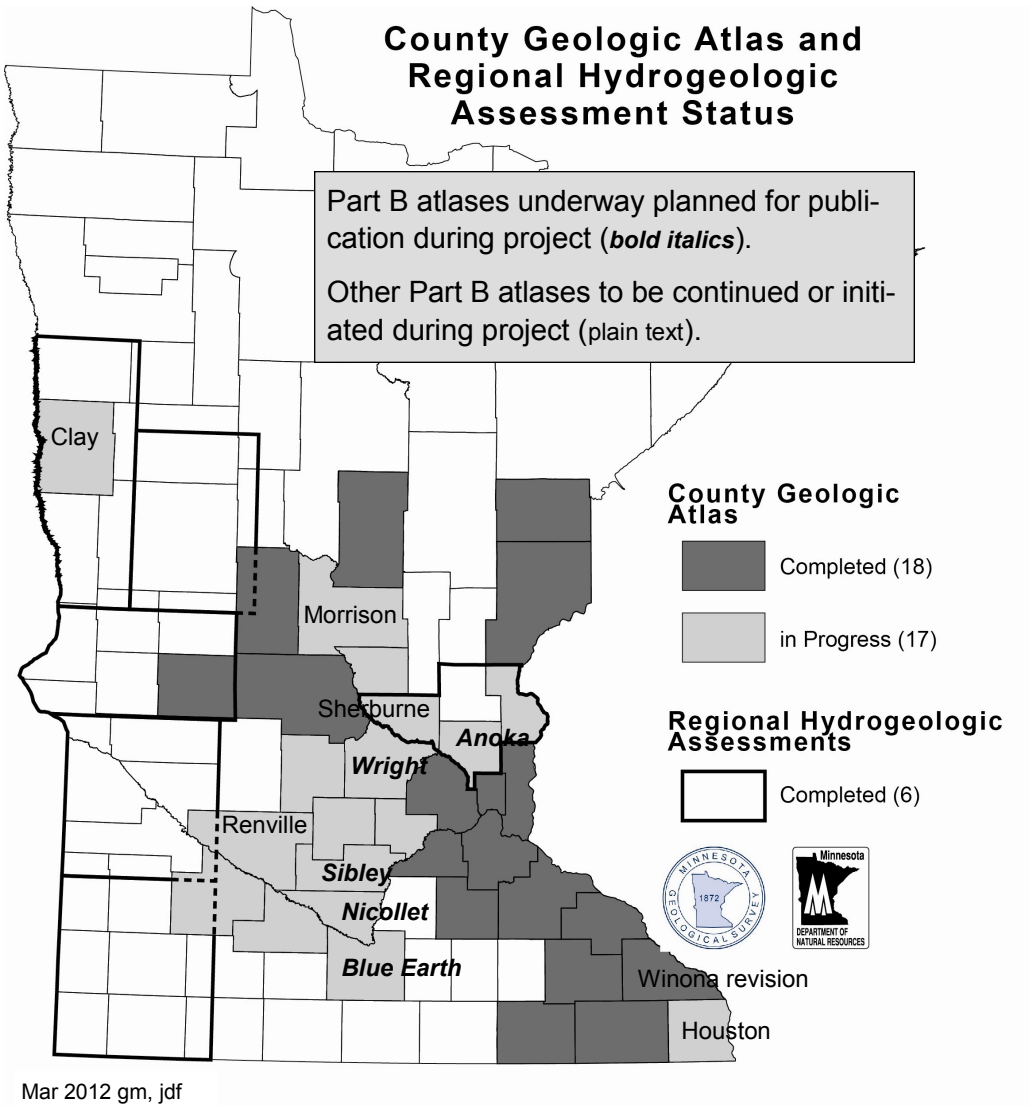
PROJECT TITLE: County Geologic Atlases for Sustainable Water Management (DNR, continuation)

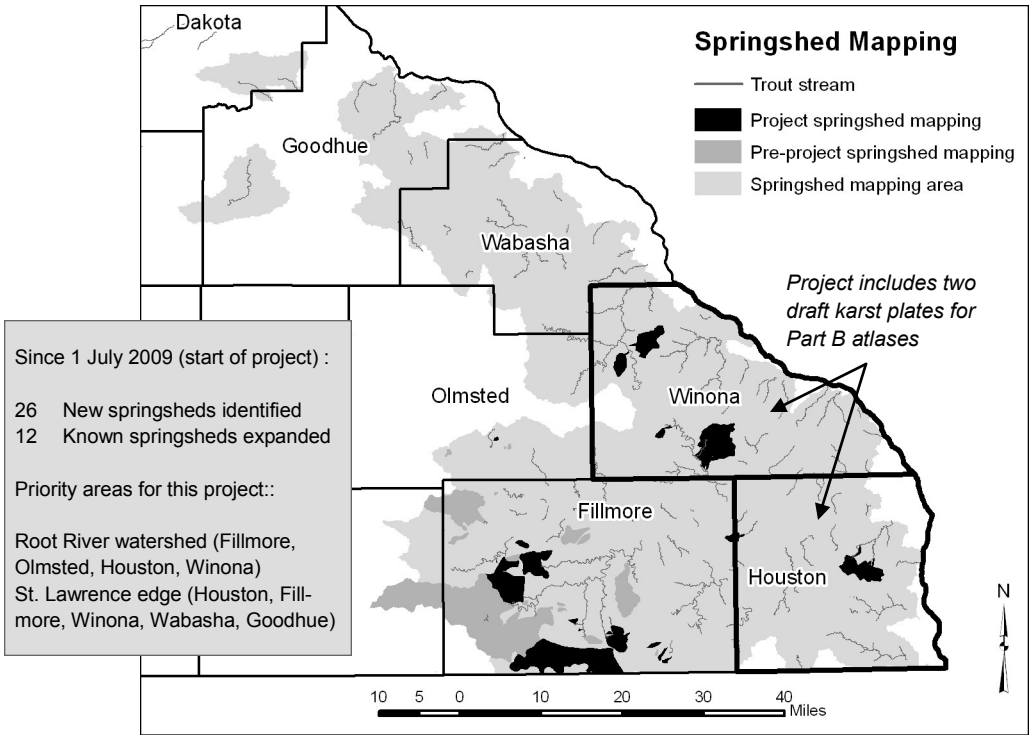
IV. TOTAL ENRTF REQUEST BUDGET -- 2 years

BUDGET ITEM	PROPOSAL AMOUNT	
Personnel: (Activity 1 and 3) Continuation of six existing ENRTF-funded staff; three additional staff to expand production capacity; (Activity 2) one addditional to assemble previously published atlas data. All are two-year positions. Existing-- Hydrologist Supervisor (classified), Project Manager/Technical Supervisor: $105,000 (79% salary, 21% benefits); 50% FTE || (two) Hydrologist 2 (unclassified): $76,000(75% salary,25% benefits);100% FTE || Information Officer 2 (technical editor) (unclassified): $74,000 (68% salary, 32% benefits); 100% FTE || Research Analyst - GIS (unclassified): $50,000 (63% salary, 37% benefits); 100% FTE || Hydrologist 3 (classified): $103,000 (75% salary, 25% benefits); 100%FTE New -- Hydrologist 3 (unclassified) data assembly: $93,000 (75% salary, 25% benefits); 100% FTE || Hydrologist 3 or Res Sci 3 (unclassified) report production lead: $105,000 (75% salary, 25% benefits); 100% FTE || Hydrologist 2 (unclassified) project hydrogeologist: $76,000 (75% salary, 25% benefits); 100% FTE || Hydrologist 1 (unclassified) field hydrogeologist: $60,000 (75% salary, 25% benefits); 100% FTE	$ 1,531,000	
Contracts: Laboratory analysis of water samples (Activity 1), $275,000. State contract and U of M. Springshed mapping technical, laboratory, and database (Activity 3), ($94,000), MGS and U of M.	$ 369,000	
Equipment/Tools/Supplies:		
Water sampling and measurement tools and field analytical meters and equipment	$ 19,790	
Supplies, including expendable water sampling supplies	$ 17,508	
Acquisition (Fee Title or Permanent Easements): *NA*	$ -	
Travel: In-state vehicle mileage ($29,000) and travel ($19,000) expenses, primarily for water sample and field data collection.	$ 48,200	
Additional Budget Items:		
Printing four (4) reports	$ 48,000	
Report production software licenses and continued upgrades to assure efficient report preparation and publication	$ 5,600	
One (1) GIS workstation for new project hydrogeologist hire; One (1) ruggedized field computer for new field hydrogeologist hire	$ 5,000	
GIS training for new hydrogeologist hires	$ 850	
Shipping costs for water samples to laboratory	$ 2,000	
Direct Support Services (shared services): DNR used a rate of 6.5% to calculate costs for direct support services, which are DNR's direct and necessary business services required to support this proposal.	$ 133,052	
TOTAL ENVIRONMENT AND NATURAL RESOURCES TRUST FUND $ REQUEST =	$ 2,180,000	

V. OTHER FUNDS

SOURCE OF FUNDS	AMOUNT	Status
Other Non-State $ Being Applied to Project During Project Period:	$ -	
Other State $ Being Applied to Project During Project Period: *General Fund, atlas staff and support, estimated $760,000 for 2-year project period to complete two and initiate two Part B atlases in base program. Clean Water Fund, M.L. 2009 Ch 172 Art 2 Sec 5(f) for July 1, 2009 thru December 31, 2014; estimated $250,000 of CWF appropriation will be used during project period.*	$ 1,010,000	*Secured, Pending*
In-kind Services During Project Period: County/local government assistance to arrange sampling access and sponsor local training workshop	$ 5,000	estimated
Remaining $ from Current ENRTF Appropriation: County Atlas: M.L. 2009 Ch 143 Sec 2 Subd 3 ENTRF to DNR $890,000 (county geologic atlas portion). (Result 6 $426,990 unspent as of Dec. 1, 2011). An additional $90,000 of the M.L. 2009 Result 6 unspent balance is encumbered for laboratory services. M.L. 2011, First Special Session,Chp. 2, Art. 3, Sec. 2, Subd. 03b2, ($579,552 unspent as of Jan. 15, 2012); Springshed: MN 2011, 1st Sp. Session, Ch. 2, Art. 3, Sect. 2, Subd. 5(b)- LCCMR-Springshed Phase III July 1, 2011 (as of 31 Dec. 2011)	$ 1,186,542	*Unspent*
Funding History: County Atlas: M.L. 1991 ENTRF to DNR $600,000; M.L. 1993 ENTRF to DNR $425,000; M.L. 2009 ENTRF Ch 143 Sec 2 Subd 3 to DNR $890,000 (county geologic atlas portion); M.L. 2011, First Special Session,Chp. 2, Art. 3, Sec. 2, Subd. 03b2, $600,000; Springshed: M.L. 2007, [Chap. 30], Sec [2], Subd. 5g ($125,000); M.L. 2009, Chapter 143 ($250,000)	$ 2,890,000	


County Geologic Atlas and Regional Hydrogeologic Assessment Status
Part B atlases underway planned for publication during project (bold italics).
Other Part B atlases to be continued or initiated during project (plain text).
Clay
Morrison
Sherburne
Anoka
Wright
Renville
Sibley
Nicollet
Blue Earth
Winona revision
Houston
County Geologic Atlas
Completed (18)
in Progress (17)
Regional Hydrogeologic Assessments
Completed (6)
Mar 2012 gm, jdf


Springshed Mapping
Trout stream
Project springshed mapping
Pre-project springshed mapping
Springshed mapping area
Dakota
Goodhue
Wabasha
Olmsted
Winona
Fillmore
Houston
Project includes two draft karst plates for Part B atlases
Since 1 July 2009 (start of project) :
26 New springsheds identified
12 Known springsheds expanded
Priority areas for this project::
Root River watershed (Fillmore, Olmsted, Houston, Winona)
St. Lawrence edge (Houston, Fillmore, Winona, Wabasha, Goodhue)
10 5 0 10 20 30 40 Miles
N

Project Manager Qualifications and Organization Description
Project Manager: Jan D. Falteisek

Degrees and Professional Certificates:

M.A. Geology, University of Missouri, Columbia, Missouri	1984
B.A. Mathematics, Southwest State University, Marshall, Minnesota	1974

Minnesota Professional Geologist, License #30114

Qualifications:

1992 to present DNR Waters Hydrogeologist Supervisor

Provided technical and program direction for the completion of 17 Part B county geologic atlases or regional hydrogeologic assessments. Authored or co-authored several individual plates in reports. Directed the development of project databases, directed the editing and publication of part B atlases and documents, assured web access of project data, supported staff development of improved mapping tools and techniques, and assisted others in use of and access to project results and data.

Previous employment:

1990 to 1991	DNR Waters Hydrogeologist , coordinating several LCMR projects and completed guidelines for pollution sensitivity.
1984 to 1989	MN Pollution Control Agency, Hydrogeologist, hazardous waste regulations and Superfund site investigations.
1980 to 1983	Missouri Dept. of Natural Resources, Hydrologist, coal mine permitting and regulations.

Project Responsibilities: The project manager will be responsible for: providing overall program management and technical direction for the project; directing project staff; contracting for professional services in support of the program; contracting laboratory and other services; coordinating with project partners; directing the development of atlas reports; and preparing and submitting project work plans, updates and final reports.

Organization Description: The Minnesota Department of Natural Resources (DNR)’s mission is to work with citizens to conserve and manage the state’s natural resources, to provide outdoor recreation opportunities, and to provide for commercial uses of natural resources in a way that creates a sustainable quality of life.