

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

Project Title:

ENRTF ID: 025-B

Create Construction Aggregate Resource Maps for Five Counties

Topic Area: B. Forestry/Agriculture/Minerals

Total Project Budget: \$ 900,000

Proposed Project Time Period for the Funding Requested: 3 yrs, July 2013 - June 2016

Other Non-State Funds: \$ 0

Summary:

Project creates detailed aggregate resource maps for selected counties; maps provide important data needed to make informed decisions about conservation, land acquisition, and the environmentally sound development of aggregate deposits.

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Sponsoring Organization: MN DNR

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Location

Region: NW, NE, Central

County Name: Becker, Beltrami, Douglas, St. Louis

City / Township:

<input type="checkbox"/> Funding Priorities	<input type="checkbox"/> Multiple Benefits	<input type="checkbox"/> Outcomes	<input type="checkbox"/> Knowledge Base
<input type="checkbox"/> Extent of Impact	<input type="checkbox"/> Innovation	<input type="checkbox"/> Scientific/Tech Basis	<input type="checkbox"/> Urgency
<input type="checkbox"/> Capacity Readiness	<input type="checkbox"/> Leverage	<input type="checkbox"/> Employment	<input type="checkbox"/> TOTAL <input type="checkbox"/> %



Environment and Natural Resources Trust Fund (ENRTF) 2012-2013 Main Proposal

PROJECT TITLE: Create Construction Aggregate Resource Maps for Five Counties

I. PROJECT STATEMENT

Construction aggregate resources (sand, gravel and crushed stone) are the foundation of our public infrastructure; much of which is older than its intended design life and needs to be replaced. Aggregates are the single, largest component required to build and maintain infrastructure. Many gravel pits are depleted and there is an on-going need to permit new gravel pits. Directed by statute (MN Stat 84.94), the DNR provides information about aggregate resources to local governments to help to promote the orderly and environmentally sound development of these resources. Conservation organizations that buy interests in land, such as easements, need to know where potential mineral resources lie to understand the risks to their investments. Benefits of having aggregate resource maps are twofold. First, aggregate-bearing landforms support some of the last remaining native plant communities within the state. These maps will help to better target conservation projects and protection strategies in the same way other base level vegetation or hydrologic map products currently assist conservation professionals. Second, *local sources* of aggregate -within the county- are still needed by local communities. Local sources are much less expensive for the tax payer and environmentally friendlier (lower fuel costs and lower air pollution from trucking). This cost is often borne by taxpayers since the majority of aggregates used are for roads, schools, trails, and other public projects funded with tax dollars. For example, the single major expense for Minnesota’s townships is the Road and Bridge Fund, totaling statewide more than \$100 million per year. Aggregate resource maps provide the information needed to evaluate choices to protect certain high biodiversity sites and still have alternative sources of aggregate. By identifying the aggregate resource deposits, conservation managers can be assured that their public funds are targeted wisely to maximize the benefits and better manage the balance of local government’s needs with conservation objectives.

The primary goal of this project is to provide local units of government, conservation groups, the public, and Mn/DOT with information about the distribution and quality of construction aggregate resources in five selected counties. Where mapping has been completed by the DNR, demonstrated outcomes by counties include comprehensive natural resource plans that preserve wildlife habitat as well as access to aggregate resources (Blue Earth County- Green Print for the Future); conflict mitigation between competing resources (Clay County and Felton Prairie, SNA), information about aggregate mining and planning (Olmsted County). Where detailed aggregate resource maps are available, they are used by local governments to make important and informed land-use decisions. This type of map does not exist for most of the state.

Five counties will be inventoried using modern geospatial technologies along with traditional geologic approaches. The DNR uses an efficient and dynamic mapping technique designed to specifically identify aggregate deposits and capture the information in a user-friendly format that the public can easily access via the Web. All observable gravel pits within a county will be surveyed noting information such as sand and gravel thickness, depth to water table and if a mine is active, inactive, or reclaimed. Field observations will be collected. To identify high quality deposits, some aggregate resource deposits will be sampled with an auger drill (1 to 3 test holes) and the quality will be measured. All this information will be compiled into an aggregate resource map that identifies significant deposits within a county. The information is presented to county planners, highway engineers, County Commissioners, and the public. Each county is completed independently as a stand-alone product.

II. DESCRIPTION OF PROJECT ACTIVITIES

Activity 1: *Compile Data and Hire Staff*

Budget: \$150,000

Program supervisor will work with interested counties to pass county board resolutions requesting aggregate mapping; hire two additional project geologists, one project specialist and a mining aide, train new staff; and coordinate outreach with County staff and Commissioners. Geologists will compile all available and relevant gravel pit data, historic geologic maps, and reports. GIS personnel will compile available digital data. Two DNR project geologists will start mapping and field work.

Activity 2: *Conduct Fieldwork and Sampling for Five Counties*

Budget: \$350,000

Four geologists will conduct geologic fieldwork to collect samples and observations on aggregate deposits and landforms. This project will consist of 2-3 field seasons (depending on size of the county) and a field review. Supervisor will coordinate staff and equipment for field seasons. Geologist will survey gravel pits, collect geologic field observations, identify aggregate bearing landforms. Aggregate deposits will be explored and confirmed with 80 to 150 drill holes per county and sampling where aggregate is encountered. Assistants will help with fieldwork and process samples in DNR’s Hibbing laboratory.

Activity 3: Creating Map and Digital Products

Budget: \$325,000

During off seasons for field work, geologists will analyze the new data and the historic data. Geologists with the assistance of GIS staff will delineate and catalogue aggregate resource potential, identify aggregate resource trends, and produce draft aggregate maps. Draft maps will undergo a peer review process as well as be open for public comment. Supervisor will provide technical assistance to geologist; oversee project standardizations between counties; and relay project status updates to Counties.

Activity 4: Finalize and Release Final Datasets

Budget: \$75,000

Geologists and GIS staff will edit, proof, and finalize data associated with each of the five aggregate resource maps. The final data release will be coordinated by supervisor through outreach and meetings with the Board of County Commissioners; meetings with the county staff, which includes people from planning and zoning, highway department, information technology staff, and other interested organizations; and public meetings where geologists will be available to answer questions from the public.

Outcome	Completion Date	Budget
1. Historical digital data is compiled for 5 counties; hire & train staff	05/01/2014	\$150,000
2. Fieldwork done and samples collected for 5 counties	11/30/2015	\$350,000
3. Create Map and Digital Products	03/30/2016	\$325,000
4. Finalize and Release Final Datasets; hold public meetings	06/30/2016	\$75,000

Note: 95% of budget will be for salaries and related benefits.

Budget Total = \$900,000

III. PROJECT STRATEGY

A. Project Team/Partners

The DNR Lands and Minerals Division shall administer the money from the ENRTF and lead the project. DNR geologists and GIS staff have experience completing these projects and shall perform the primary tasks and create the maps. Mn/DOT has been asked to contribute in-kind support in the form of an auger drill rig, transport truck, and operator, as well as lab work to test the samples collected by this auger rig under the supervision of DNR geologists. Participating counties shall be asked to pass a county board resolution to verify that they want to use the information. Four counties within the priority area have already passed a county board resolution requesting this work and one more participating county shall be sought. Each county has been or will be asked to contribute a minimum of \$5,000 to pay for travel and mileage expenses DNR incurs.

B. Timeline Requirements

A county that is average size (650 to 750 total square miles) takes one year to complete the maps. Large-size counties require proportionally more time. There will be additional time at the front end to hire and train the employees, and at the back end to finalize and proof the large amount of digital data and maps created, and present the information at public meetings. Fieldwork and digging is done during seasons when the ground is not frozen.

C. Long-Term Strategy and Future Funding Needs

This RFP does not complete all counties that need the work. An intermediate goal of the Aggregate Resource Mapping Program is to complete half the counties in the state by 2020. There is a priority area in Central Minnesota of 11 counties, where there are likely aggregate resource deposits not yet mined and a prediction of land use competition from population growth and conservation efforts. This RFP directs this work to complete 5 more counties within the 11-county priority area. Future financial resources will be needed to complete at least the 6 remaining counties in the priority area. We already have county board resolutions from five additional counties outside the priority area. Staff will be trained and experienced in completing maps, which will accelerate the production rate.

2012-2013 Detailed Project Budget

BUDGET FOR "CREATE NEW CONSTRUCTION AGGREGATE RESOURCE MAPS FOR FIVE COUNTIES"

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

BUDGET ITEM (See list of Eligible and Non-Eligible Costs, p. 11)	AMOUNT
Personnel-Geologist 1: One person to fulfill 1.0 FTE as a project geologist. Responsibilities include assessing the aggregate resource potential of 1 large county in 2 years. This position's salary is \$127,200 with \$50,800 in benefits, equaling \$178,000 over the term of the project.	\$178,000
Personnel-Geologist 2: One person to fulfill 1.0 FTE as a project geologist. Responsibilities include assessing the aggregate resource potential of 2 small counties in 2.5 years. This position's salary is \$128,500 with \$59,600 in benefits, equaling \$188,100 over the term of the project.	\$188,100
Personnel-Geologist 3: One person to fulfill 1.0 FTE as a project geologist. Responsibilities include assessing the aggregate resource potential of 1 large county in 2.25 years. This position's salary is \$100,500 with \$51,700 in benefits, equaling \$152,200 over the term of the project.	\$152,200
Personnel-Supervisor: One person to fulfill 0.5 FTE as program supervisor. Responsibilities include supervising mapping projects, hiring and training new staff, and assessing the aggregate resource potential of 1 small county over the course of 3 years. This position's salary is \$82,000 with \$32,000 in benefits, equaling \$114,000 over the term of the project.	\$114,000
Personnel-Cartographer: One person to fulfill 0.5 FTE as GIS support/cartographer. Responsibilities include GIS support for 4 geologists and cartography of 5 counties over the course of 3 years. This position's salary is \$62,000 with \$29,500 in benefits, equaling \$91,500.	\$91,500
Personnel-GIS Technician/Field Assistant: One person to fulfill 1.0 FTE as project consultant. Responsibilities include assisting geologists in the field, data entering, and completing small GIS projects. This position's salary is \$48,900 with \$27,900 in benefits, totaling \$76,800 over 1.25 years.	\$76,800
Equipment/Tools/Supplies: This includes steel-toed boots (~\$150/person); hard hats, sample bags, field books and other personal protection equipment (~\$300), printing supplies for maps (~\$2,600). Quality testing of samples (~\$10,000).	\$13,500
Travel: Meals, mileage, and lodging for 5 staff over 2.5 years. Travel would cover expenses incurred during field work and drilling.	\$27,400
Additional Budget Items: 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.	\$58,500
TOTAL ENVIRONMENT AND NATURAL RESOURCES TRUST FUND \$ REQUEST =	\$900,000

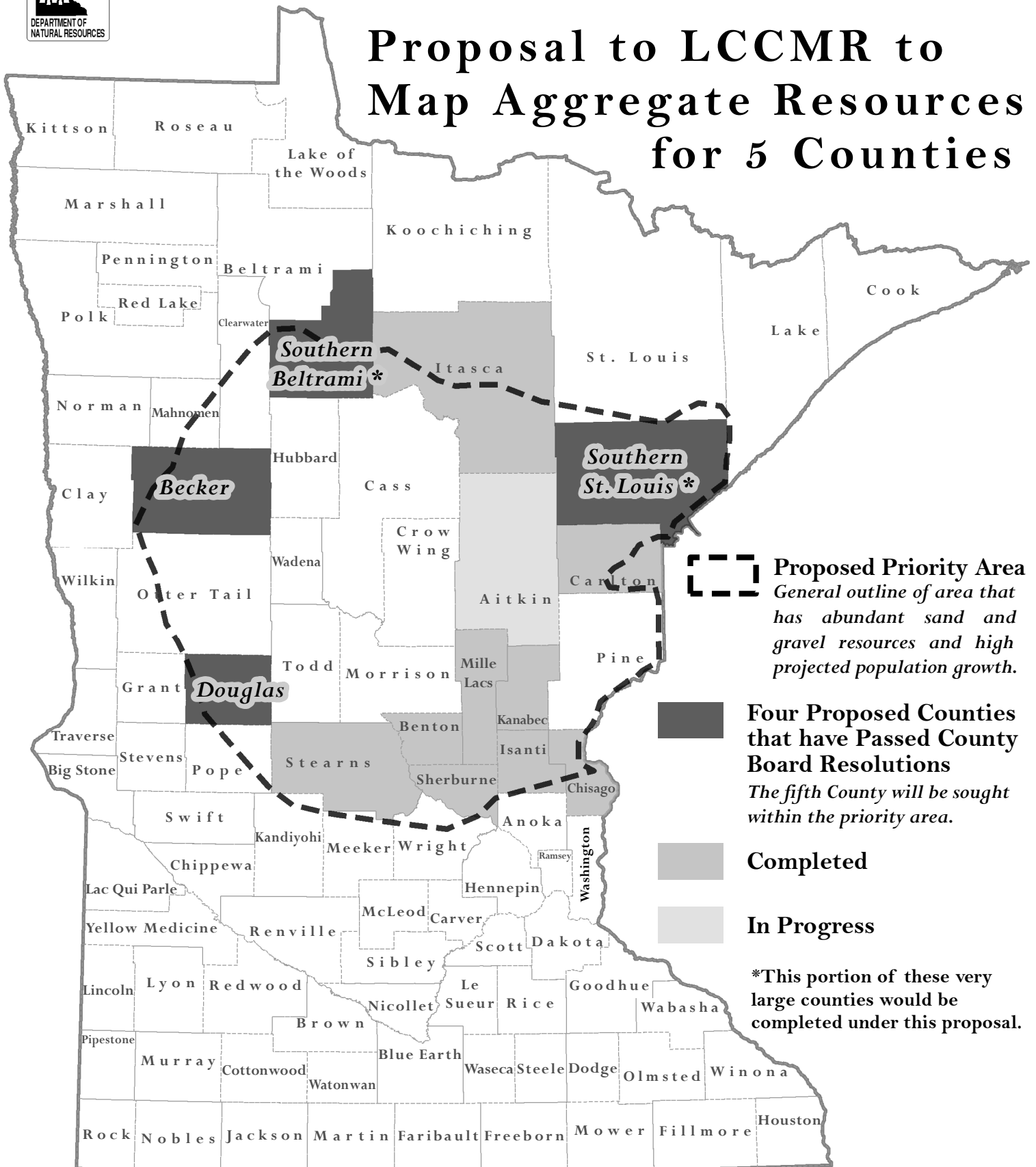
V. OTHER FUNDS

SOURCE OF FUNDS	AMOUNT	Status
Other Non-State \$ Being Applied to Project During Project Period: Five counties will be asked to contribute \$5,000 each to be applied towards fieldwork expenses.	\$25,000	<i>Pending</i>
Funding History: Funding sources for the past 4 completed projects include the following:		
KANABEC COUNTY AGGREGATE RESOURCE MAPPING- Mn/DOT funded \$125,000 for salary and benefits and \$125,000 for in-kind services, which included use of drilling equipment, access to drillers, and quality analysis testing. In-kind services were also applied to the aggregate resource assessment of Aitkin and Stearns Counties.	\$250,000	
AGGREGATE RESOURCE MAPPING OF PORTIONS OF ST. LOUIS AND LAKE COUNTIES- Minnesota Minerals Coordinating Committee (MCC) funded \$65,000 for salary and benefits, DNR funded remaining cost with General Fund monies (estimated ~\$70,000.)	\$65,000	
CARLTON COUNTY AGGREGATE RESOURCE MAPPING- Minnesota Minerals Coordinating Committee (MCC) funded \$95,000 for salary and benefits over two years. DNR funded remaining costs with General Fund monies (estimated ~\$30,000).	\$95,000	
OLMSTED COUNTY AGGREGATE RESOURCE MAPPING- General Fund paid for the completion of this project. Project cost is estimated ~\$130,000.	\$130,000	



Aggregate Resource Mapping Program

Proposal to LCCMR to Map Aggregate Resources for 5 Counties



Mr. Martin is a Section Manager in the Department of Natural Resources (DNR), Division of Lands and Minerals. He has been employed by the DNR for 29 years as a geologist working with mineral resources, following 3 years with the Hanna Mining Company Research Center at Nashwauk, Minnesota.

He has managed the DNR's Mineral Potential section for 11 years. In this role, he has managed the development of information and maps about all types of mineral resources- including construction aggregates- on state-administered lands, has provided information to the Director of Lands and Minerals Division regarding a wide range of mineral policy topics and strategic plans, and has provided technical assistance to local governments and many different groups.

In regard to this proposal, he has supervised or managed the program of county-scale mapping of construction aggregate resources for 17 years. He was instrumental in the development of the current system used to do the county-scale aggregate maps. He is committed to the delivery of more information about Minnesota's mineral deposits to local governments and the public.

Mr. Martin has a B.S. in earth science, and an M.S. in geology. He is a licensed professional geologist in Minnesota with 32 years of applied experience in Minnesota geology and mineral resource evaluation.

Organization Description: Minnesota Department of Natural Resources

The Minnesota Department of Natural Resources' overall 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.