

2003 Project Abstract

For the Period Ending June 30, 2006

FINAL REPORT

TITLE: Updating Outmoded Soil Surveys

PROJECT MANAGER: Greg Larson

ORGANIZATION: Board of Water and Soil Resources

ADDRESS: 520 Lafayette Road North St. Paul, MN 55155

AUG 22 2006

FUND: Trust Fund

LEGAL CITATION: ML 2003, Ch. 128, Art.1, Sec. 9, Subd. 8 (b)

APPROPRIATION AMOUNT: \$ 236,000

Overall Project Outcome and Results

Outmoded soil surveys dating from the 1960's for Dodge, Fillmore, Goodhue and Wabasha Counties were updated and digitized to a modern GIS-compatible format. Further, the digital soil survey for Dodge County has been posted on the USDA Web site as a "Web Soil Survey". Fillmore, Goodhue and Wabasha Counties will also be posted to the Web. During the conduct of this multi-year project 1.65 million acres were addressed. Many innovative techniques were utilized during this project including the use of private contractors to collect field data and digital transfer of existing soil maps to newer aerial photography. This latter technique was developed at the University of Minnesota Department of Soil, Water and Climate with funding by the Environment and Natural Resources Trust Fund. Updating outmoded soil surveys were part of a comprehensive effort by the USDA Natural Resources Conservation Service to update and digitize soil surveys in Minnesota. Environment and Natural Resources Trust Fund funding directly contributed to the completion of the aforementioned counties and supported efforts in seven other counties.

Project Results Use and Dissemination

A survey of GIS users by the University of Minnesota concerning the most requested data layer suggests that soils data remains much sought. This project, and ongoing efforts elsewhere in the state, to increase the availability and utility of soils data will provide data essential to a host of natural resource management and land use planning decisions. The shift from static reports and data files of the past to Web delivery will increase the availability and utility of these data.

Project Completion Date: June 30, 2006

FINAL REPORT**LCMR Final Work Program Report****I. PROJECT TITLE:** Updating Outmoded Soil Surveys

Project Manager: Greg Larson
Affiliation: Board of Water and Soil Resources
Mailing Address: 520 Lafayette Road North
 St. Paul MN 55155
Phone: (651) 297-7029
Fax: (651) 297-5615
E-mail: greg.larson@bwsr.state.mn.us

Total Biennial Project Budget:

\$LCMR:	\$236,000	\$Cost share:	\$219,990
Spent:	<u>\$234,662</u>	Spent:	<u>\$219,990</u>
= \$LCMR Balance	\$ 1,338	= \$Cost share Balance:	\$ 0

Legal Citation: ML 2003, Chap.128, Art.1, Sec. 9, Subd. 8 (b)

Appropriation Language: \$118,000 the first year and \$118,000 the second year are from the trust fund to the board of water and soil to continue updating and digitizing outmoded soil surveys in Fillmore, Goodhue, Dodge and Wabasha counties in southeast Minnesota. Participating counties must provide a cost-share as reflected in the work program. This appropriation is available until June 30, 2006, at which time the project must be completed and final projects delivered, unless an earlier date is specified in the work program.

II. and III. FINAL PROJECT SUMMARY:

Outmoded soil surveys dating from the 1960's for Dodge, Fillmore, Goodhue and Wabasha Counties were updated and digitized to a modern GIS-compatible format. Further, the digital soil survey for Dodge County has been posted on the USDA Web site as a "Web Soil Survey". Fillmore, Goodhue and Wabasha Counties will also be posted to the Web. During the conduct of this multi-year project 1.65 million acres were addressed. Many innovative techniques were utilized during this project including the use of private contractors to collect field data and digital transfer of existing soil maps to newer aerial photography. This latter technique was developed at the University of Minnesota Department of Soil, Water and Climate with funding by the LCMR. Updating outmoded soil surveys were part of a comprehensive effort by the USDA Natural Resources Conservation Service to update and digitize soil surveys in Minnesota. LCMR funding directly contributed to the completion of the aforementioned counties and supported efforts in seven other counties.

IV. OUTLINE OF PROJECT RESULTS:

Result 1: Complete the update of and digitize soil surveys in Dodge, Fillmore, Goodhue and Wabasha Counties

Final Status: Data from the “old” soil surveys, investigations, data from neighboring counties and states and work done by contract soil scientists were synthesized and digitized into updated soil maps and revised interpretations. The digital format is compatible with ARC-based GIS systems. NRCS soil scientists, contract soil scientists, and GIS professionals and student interns employed by the University of Minnesota under contract with the Board of Water and Soil Resources performed the result. Dodge County is finished and posted on the USDA Web Soil Survey @ <http://soils.usda.gov/survey>

According to the USDA Natural Resources Conservation Service, technical project managers for this effort, Goodhue County will be posted on the Web by March 2007. Web soil surveys for Fillmore and Wabasha Counties will be available a year later. Although Web-delivered products for these three counties are behind schedule, digital products have been available for some time. Hence, users will continue to have a useable product in the interim. This interim product is vastly superior to the aged paper product that was available at the start of the project. An explanation is offered with respect to the delay in Web-based products. *The implementation model for this project initiated over six years ago assumed that technology (digital scanning techniques and GIS tools) and a multi-county approach to soil survey updates would result in fewer personnel addressing more acres in less time (emphasis added).* The multi-county approach has indeed saved time, but technology benefits have only accrued during the last two years. Poor quality source maps (the “old” soil surveys were difficult to digitally convert) caused additional delays. Delays were also caused by the retirement and illness of NRCS personnel. The NRCS will continue to fund completion of the project. LCMR and county-funded tasks were completed by July 2005.

Final Budget Information for Result 1:	LCMR Budget:	\$236,000
	Balance:	\$ 1,338
	County \$:	\$219,990
	Balance:	\$ 0

Note: The balance of LCMR funds was caused by final personnel costs being under budget.

V. TOTAL LCMR PROJECT BUDGET:

- All Results: Personnel: \$ 227,382**
- All Results: Equipment: \$ 4,880**
- All Results: Development: 0**
- All Results: Acquisition: 0**
- All Results: Other: 2,400**

TOTAL LCMR PROJECT BUDGET DETAIL: \$236,000 (See Attachment A)

VI. PAST, PRESENT AND FUTURE SPENDING:

A. Past Spending: This project complemented a sixteen-year and nearly 11 million-dollar effort of the LCMR to produce an initial soil survey for Minnesota. That effort ended in 1993. During that time, nearly 28 million acres were mapped in 62 counties as part of a state, federal and local

partnership. In addition to LCMR contributions, the federal government and county government contributed 18.5 and 8.1 million dollars, respectively. The LCMR contributed \$130,000 for 1997; \$500,000 for 1999 and \$500,000 for 2001. County government contributed \$130,000; \$196,799 and \$293,248 for 1997, 1999 and 2001, respectively. The USDA-NRCS contributed (in-kind) \$50,000; \$225,000 and \$240,000 for 1997, 1999 and 2001, respectively. The UM-Department of Soil, Water and Climate contributed (in-kind) \$10,000; \$15,000 and \$20,000 for 1997, 1999 and 2001, respectively.

B. Current Spending:

In addition to the \$236,000 of LCMR funding, county government provided \$219,990 cash and the USDA NRCS provided \$240,000 of in-kind contributions. In addition, the NRCS is providing over 2.5 million dollars to a statewide effort to maintain, update and digitize soils data.

C. Required Match:

Counties contributed \$219,990 by February 1, 2005.

D. Future Spending:

The NRCS will contribute yet unknown funding after project completion to maintain the soils and interpretative database.

VII. PROJECT PARTNERS:

A. Partners Receiving LCMR and Other Project Funds: Several NRCS soil scientists worked on the project and were funded with county contributions. Two GIS specialists worked full-time on the project and received LCMR project dollars through a contract. Two student interns were also employed (Refer to Attachment A for details.)

B. Project Cooperators: Joe McCloskey, NRCS State Soil Scientist, and Jay Bell, Professor-Soil, Water and Climate, were the primary cooperators.

VIII. DISSEMINATION: As products were developed and approved, they were distributed by NRCS and project cooperators. The final product IS WEB-based. A survey of GIS users by the University of Minnesota concerning the most requested data layer suggests that soils data remains much sought. This project, and ongoing efforts elsewhere in the state, to increase the availability and utility of soils data will provide data essential to a host of natural resource management and land use planning decisions. The shift from static reports and data files of the past to Web delivery will increase the availability and utility of these data.

IX. LOCATION: This project addressed Dodge, Fillmore, Goodhue and Wabasha Counties.

X. REPORTING REQUIRMENTS: Periodic work program progress reports were submitted January 2004; July 2004; February 2005; August 2005; and January 2006. This document, the final work program report and abstract, was submitted August 15, 2006.

XI. RESEARCH PROJECTS: Not applicable.

Project Manager Name: Greg Larson

CMR Requested Dollars: \$ 236,000.
 County contributions: \$219,990

2003 LCMR Proposal Budget	Result 1 Budget: LCMR	Amount Spent (08/15/06)	Balance (08/15/06)	Result 1 Budget: County	Amount Spent (08/15/06)	Balance (08/15/06)				
	<i>Update and digitize soil surveys</i>			<i>Update and digitize soil surveys</i>						
BUDGET ITEM										TOTAL FOR BUDGET ITEM
PERSONNEL: 2 FT GIS professionals and 2 or more PT student GIS interns: all doing map compilation and digitization-UM employees (40K)=184,060	78,624 and 65,436 plus students	182,382 (est.)	1,338							183,720
PERSONNEL: Staff benefits – UM civil service employees; fringe at 31% of salary	24,374 and 20,286 =44,660	45,000 (est.)								45,000
Contracts										
Professional/technical Contract with NRCS for several soil scientists				200,000	200,000	0				200,000
Other contracts (with whom?, for what?) list out: personnel, equipment, etc.										
Space rental: NOT ALLOWED	X			X			X			X
Other direct operating costs (for what? – be specific)										
Equipment / Tools Lease of pick-up for use in project area and maintenance of drill rig, wet soil monitoring devices and other purchased equipment.				17,292	17,292	0				17,292
Office equipment & computers (maintain, repair and upgrade existing hardware)	4,880	4,880	0							4,880
Other Capital equipment (list specific items)										
Land acquisition (how many acres)										
Land rights acquisition (less than fee)										
Printing	1,000	1,000	0							1,000
Advertising										
Communications, telephone, mail, etc.	1,000	1,000	0	1,698	1,698	0				2,698
Office Supplies (list specific categories)										
Other Supplies (list specific categories)										
Travel expenses in Minnesota	400	400	0	1,000	1,000	0				1,400
Travel outside Minnesota (where?)										
Construction (for what?)										
Other land improvement (for what?)										
Other (Describe the activity and cost)										
COLUMN TOTAL	236,000	234,662	1,338	219,990	219,990	0				455,990