

LEGISLATIVE COMMISSION ON MINNESOTA RESOURCES

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John Velin, Director

January 15, 2003

Governor *Tim Pawlenty*

Secretary of the Senate, *Patrick E. Flahaven*

Chief Clerk of the House, *Edward A. Burdick*

Chair Senate Finance Committee, *Senator Richard Cohen*

Chair Senate Environment and Natural Resources, *Senator John Marty*

Chair Environment, Agriculture & Economic Development Budget Division, *Senator Dallas Sams*

Chair House Ways and Means, *Representative Jim Knobloch*

Chair House Environment and Natural Resources Policy, *Representative Tom Hackbarth*

Chair Environment and Natural Resources Finance, *Representative Dennis Ozment*

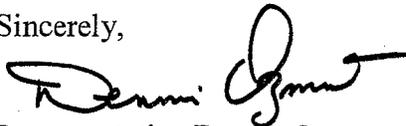
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Dear Colleagues:

Transmitted herewith is the biennial report of the Legislative Commission on Minnesota Resources (LCMR) as required in MS 116P, Subd. 7. On December 17, 2002, the members specifically adopted the new 2003 appropriation recommendations as stated in "V. Recommendations." In adopting the appropriate recommendations it was affirmed that all of the recommended projects carry the same priority status regardless of the fund assignment. Differences in funding sources do not convey a higher or lower priority.

We look forward to presenting this information and certainly encourage questions and discussion. Thank you for the opportunity to serve the Legislature in this capacity.

Sincerely,

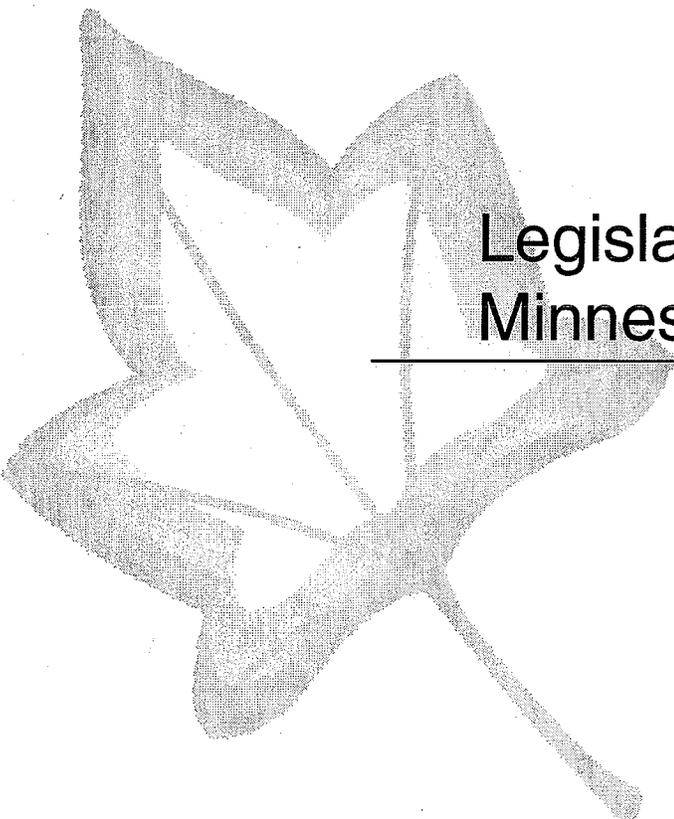


Representative Dennis Ozment

Chair, LCMR

Senators: Ellen Anderson, Charles A. Berg, Dennis Frederickson, Linda Higgins,
David J. Tomassoni, Jane Krentz, James Metzen, Leonard Price, Martha Robertson, Jim Vickerman.

Representatives: Dennis Ozment, Chair; Irv Anderson, Ron Erhardt, Doug Fuller, Mark Holsten,
Mark Olson, Tom Osthoff, Leslie Schumacher, Howard Swenson, Kathy Tingelstad.



Legislative Commission on Minnesota Resources

*Biennial Report
January 15, 2003*

Pursuant to: M.S. 116P.09, Subd. 7

Please return this document to the LCMR office: Room 65 State Office Building

Commission Members



*SENATORS

Ellen Anderson, Charles Berg, Dennis Frederickson,
Linda Higgins, Jane Krentz, James Metzen, Leonard Price,
Martha Robertson, David Tomassoni, Jim Vickerman.

*REPRESENTATIVES

Dennis Ozment, Chair; Irv Anderson, Ron Erhardt,
Doug Fuller, Mark Holsten, Mark Olson, Tom Osthoff,
Leslie Schumacher, Howard Swenson, Kathy Tingelstad.

*Membership as of December, 2002.

LCMR Staff

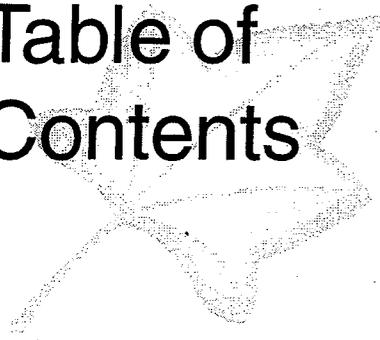


John Velin, Director
Susan Thornton, Susan Von Mosch, Sandy Smith

Legislative Commission on Minnesota Resources
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Web Address: www.lcmr.leg.mn.

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The LCMR Newsletter

I. Strategic Plan

“ a copy of the current strategic plan...”

Following the Strategic Plan/Request for Proposal 2003:

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- M.S. 116P The Minnesota Environment and Natural Resources Trust Fund (Trust Fund)
- M.S. 116P.13 The Minnesota Future Resources Fund
- M.S. 116 Q.02 Great Lakes Protection Account
- Section 4.071, subdivision 2 Oil Overcharge

II. and III. Project Description:

See Laws 2001 and Laws 1999

“ a description of each project receiving money from the trust fund and Minnesota future resources fund during the preceding biennium; a summary of any research project completed in the preceding biennium...”

Laws 2001, 1st Special Session, Chapter 2, Section 14
Laws 1999, Chapter 231, Section 16

IV. Implementation

“recommendations to implement successful projects and programs into a state agency’s standard operations...”

V. Recommendations

“to the extent known by the commission, descriptions of the projects anticipated to be supported by the trust fund and Minnesota future resources account during the next biennium...”

VI. Revenues and Distributions

“the source and amount of all revenues collected and distributed by the commission, including all administrative and other expenses...”

VII. Assets and Liabilities

“ a description of the assets and liabilities of the trust fund and the Minnesota future resources fund...”

VIII. Findings

“any findings or recommendations that are deemed proper to assist the legislature in formulating legislation...”

IX. Gifts and Donations

“a list of all gifts and donations with a value over \$1,000...”

X. Environmental Spending Comparisons

“ a comparison of the amounts spent by the state for environment and natural resources activities through the most recent fiscal year...”

XI. Compliance Audit

“a copy of the most recent compliance audit.”

LCMR Commission Members*

Senators

- Ellen Anderson
- Charles Berg
- Dennis Frederickson
- Linda Higgins
- Jane Krentz
- James Metzen
- Len Price
- Martha Robertson
- David Tomassoni
- Jim Vickerman

Representatives

- Dennis Ozment, Chair
- Irv Anderson
- Ron Erhardt
- Doug Fuller
- Mark Holsten
- Mark Olson
- Tom Osthoff
- Leslie Schumacher
- Howard Swenson
- Kathy Tingelstad

*LCMR membership as of December 2002.

2003 LCMR PROCESS

What is being recommended for funding?

The LCMR wrapped up two years of review and discussions of Minnesota's natural resource needs during the Summer of 2002 and is recommending to the 2003 Legislature a package of 46 natural resource and environmental projects totaling \$48.5 million. A full list of projects being recommended to begin July 2003 are on pages 4 and 5 and on the LCMR Web site at www.lcmr.leg.mn

How are the issues determined?

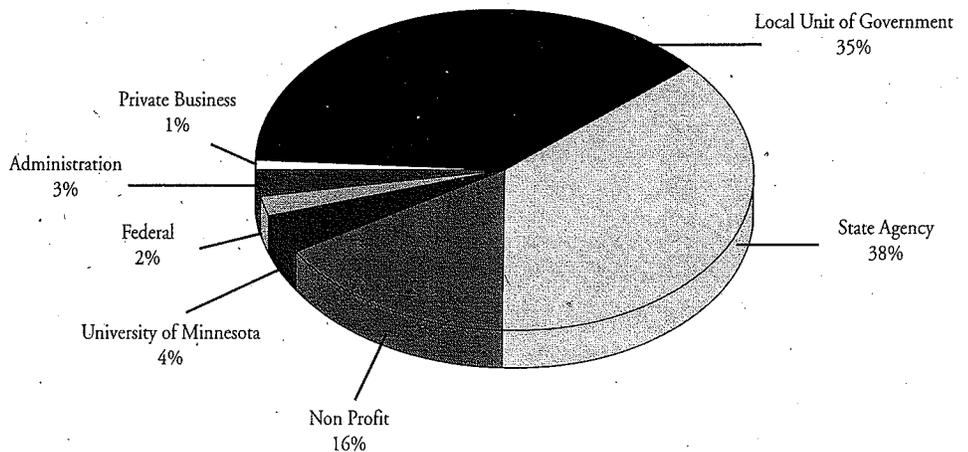
How are projects selected for funding?

The Commission uses a variety of methods and activities to assess what are the most important natural resource needs in the State and what should be considered for future funding. LCMR members make site visits and have discussions with natural resource experts, local officials and citizens, and hold public meetings around the state seeking citizen participation during the issue and funding identification process. A new activity this past funding cycle was a web-based survey of priority natural resource funding needs. In addition, the eleven-member Citizen Advisory Committee also recommends priorities for the Strategic Plan, Request for Proposal (RFP), and funding.

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2003 LCMR Recommendations by Recipient



Based on \$48.5 million in recommendations.

continued on page 2

2003 Recommendations at a Glance

Fish and Wildlife Habitat
\$19,328,000 — 40%

Recreation
\$19,134,000 — 39%

Water Resources
\$3,336,000 — 7%

Land Use and
Natural Resource Information
\$1,910,000 — 4%

Energy
\$1,081,000 — 2%

Agriculture and Natural Resources
Based Industries
\$982,000 — 2%

Children's Environmental Health
\$790,000 — 2%

Environmental Education
\$686,000 — 1%

Administration
\$1,298,000 — 3%

NEW—E-mail Notification on Web Site

The LCMR has a new automated e-mail notification of meetings, announcements, and publications (such as the "Request for Proposals" and this newsletter) to those interested in receiving the most up-to-date information in the fastest way possible. To receive e-mail notifications, you need to subscribe to the listserv on the LCMR web page.

You can find the link on the main page of the LCMR web site (<http://www.lcmr.leg.mn/>). It is also posted on the "Meeting Schedule" and "Contact us" pages. You can subscribe to or unsubscribe from the list at any time. Please help others know that this service is available.

2003 LCMR PROCESS.....continued from page 1

Site Visits

Site visits during the summer and early fall of 2001 included review of the following:

- Gitchi-Gami State Trail—see article on page 8.
- Public Water Access
- Fish and Wildlife Habitat Restoration Activities
- Local Water Plan Implementation
- State Parks and Greenways
- Metro Regional Parks and Open Space—development and acquisition
- Lake Superior Research
- Development Pressure on the North Shore
- Safe Harbors
- Alternative Wastewater Treatment Systems
- Groundwater and Surfacewater Interaction
- Karst Geology
- State Forest Acquisition
- Environmental Education Activities

Public Meetings

Citizen forums were conducted in Anoka, Winona, Grand Rapids, and Little Falls on November 28, 2001. LCMR members were seeking ideas and comments on strategies for the future spending priorities from organizations and the public. LCMR members and staff, Citizen Advisory Committee members and over 120 citizen participants met to explore the question of what natural resource efforts should be supported by the Environment and Natural Resources Trust Fund. All sites were linked by Interactive TV, giving citizens a chance to hear concerns from across the state.

Web Survey

As always individuals unable to attend the citizen forums were encouraged to send e-mails, letters or faxes expressing their opinions. New this year was a citizen survey posted for three months on the LCMR web page. This survey generated 700 responses with many thoughtful comments and ideas on funding priorities. The LCMR members used the advice from the citizen meetings, correspondence, and web page survey results in their planning process.

For a summary of public comments see the LCMR web site at: <http://www.lcmr.leg.mn>. There are two links from the home page for the web survey and also the forums.

Strategic Plan and Request for Proposal

The Citizen Advisory Committee advised the LCMR on a draft Strategic Plan for expenditures from the Trust Fund. LCMR members used this advisory plan as the foundation of the LCMR adopted Strategic Plan and Request for Proposal (RFP) for all funding sources.

The four priority funding areas identified in the RFP were:

- (1) Conserve and enhance fish, wildlife, and native plant habitat and corridors;
- (2) Improve recreation and natural systems;
- (3) Conserve and promote healthy waters; and
- (4) Address environmental health concerns in children.

The RFP was mailed to over 3,500 individuals and organizations in February 2002. An on-line version was also available at the LCMR web address. By the deadline of March 28, 2002 the LCMR had received 261 proposals, requesting over \$296 million.

Proposal Review and LCMR Funding Recommendations

In the Spring of 2002, the CAC recommended to the LCMR 30 projects totaling \$65 million to be called in for a hearing for funding from the Environment and Natural Resources Trust Fund. The CAC is advisory to the LCMR and does not eliminate any proposal.

On May 21, 2002, after the initial review of all proposals, the LCMR selected 99 proposals totaling over \$182 million that best fit the priority funding strategies and criteria in the RFP. Project managers of the proposals were asked to present proposals before the Commission and respond to Members questions at a series of public meetings during eight days in June.

Once the LCMR hearing process was complete, the CAC met again and recommended 13 proposals totaling \$30 million to the LCMR for consideration for funding from the Environment and Natural Resources Trust Fund. This was a new step in the process this cycle as part of seeking to better incorporate the CAC advice into the Trust Fund Recommendation process.

The LCMR, using the advice of the CAC and the information gathered during the hearing process, selected 46 projects totaling \$49.3 million from all funding sources as its final recommendation to be sent to the 2003 Legislature for consideration.

In December 2002, the LCMR met and reviewed the forecast for the Future Resources Fund. The Dept. of Finance estimated a shortfall of \$754,000. To balance the package of recommendations members requested that projects be reduced by approximately 2% to accommodate the revenue shortfall.

The project recommendations are listed on pages 4 and 5.

Citizen Advisory Committee for the Trust Fund*

An eleven-member Citizen Advisory Committee, appointed by the Governor, advises the LCMR on a strategic plan and proposals to receive funding from the Environment and Natural Resources Trust Fund. The Governor appoints at least one member from each congressional district for terms of four years.

CAC members are:

Nancy Gibson, Chair; Kristin Eggerling, Lars Erdahl, Greta Hesse Gauthier, Ann Glumac, John Koasnicka, Nalani McCutcheon, Janet McMillan, James Nelson, William Oemichen, Marvin Tinklenberg

**Membership as of December 2002.*

If you are interested in serving on the CAC to the Trust Fund, contact the Secretary of State's Office, Open Appointments, at 651-296-5845 or sos.state.mn.us/

DNA Fingerprinting Used to Identify Sources of Fecal Pollution

Dr. Michael Sadowsky, University of Minnesota, is manager for a research project exploring how to determine whether fecal pollution in Minnesota waterways comes from humans or animals and from what animals. This knowledge will help focus pollution control efforts in the future.

Dr. Sadowsky is investigating the use of specific DNA fingerprint techniques to differentiate human from animal sources of fecal pollution. The research project began by generating 2,466 DNA fingerprints from *Escherichia coli* strains from known human and animal sources. This information constituted a known-source DNA fingerprint library.

DNA fingerprints were generated from 300 to 400 *E. coli* isolated from each of four Minnesota watershed areas (Mississippi River, Prairie Creek, Rush River, and Grindstone River) and compared with those in the known-source fingerprint library. In their initial analysis, it appears that the *E. coli* bacteria originating from livestock species dominated rural sites, while a mixture of *E. coli* bacteria from domestic animals and livestock impacted urban sites. This research is ongoing. Research results indicate that the DNA fingerprinting technique used (re-PCR using the BOX AIR primer) may be a useful and effective tool to rapidly determine the sources of fecal pollution.

This project received \$300,000 from the Environment and Natural Resources Trust Fund in 1999 and \$275,000 from the Minnesota Future Resources Fund in 2001. As part of the 2001 project, the DNA fingerprint library is being used to determine potential sources of fecal pollution in the three watersheds (Minneopa Creek in Blue Earth County, High Island Creek in Sibley County, and Vermillion River in Dakota County). It will also evaluate the efficacy of implemented and proposed abatement procedures. The second phase of this project is scheduled for completion in June 2004.

2003 LCMR Recommended Projects

A total of \$48,545,000 is recommended by LCMR to the 2003 Legislature.

Administration ...\$1,298,000

LCMR Administrative Budget	
LCMR.....	\$1,100,000
Contract Administration	
DNR.....	\$150,000
Citizen Advisory Committee to the Trust Fund Budget	
LCMR.....	\$48,000

Fish and Wildlife

Habitat\$19,328,000

Restoring Minnesota's Fish and Wildlife Habitat Corridors—Phase II	
MN Waterfowl Association.....	\$6,882,000
Metropolitan Area Wildlife Corridors	
DNR / Trust for Public Land....	\$8,111,000
Restoring RIM Match	
DNR.....	\$738,000
Acquisition and Development of Scientific and Natural Areas	
DNR.....	\$738,000
Forest and Prairie Stewardship of Public and Private Lands	
DNR.....	\$492,000
Local Initiative Grants (Conservation Partners and Environmental Partnerships)	
DNR.....	\$788,000
Minnesota ReLeaf Community Forest Development and Protection	
DNR / Tree Trust.....	\$788,000
Minnesota Ports Greening Initiative	
St. Paul Port Authority.....	\$295,000
Developing Pheromones for Use in Carp Control	
U of M.....	\$100,000
Biological Control of European Buckthorn and Spotted Knapweed	
DNR.....	\$198,000
Resources for Redevelopment of Brownfields to Greenspaces	
MN Environmental Initiative.....	\$198,000

Recreation\$19,134,000

State Park and Recreation Area Land Acquisition	
DNR.....	\$1,966,000
LAWCON Federal Reimbursements	
DNR.....	\$2,500,000
Local Initiative Grants (Parks and Natural Areas)	
DNR.....	\$3,440,000
Metropolitan Regional Parks Acquisition, Rehabilitation and Development	
Metropolitan Council.....	\$5,280,000
Local and Regional Trail Grant Initiative Program	
DNR.....	\$492,000
Gitchi-Gami State Trail	
DNR.....	\$1,426,000
Water Recreation: Boat Access, Fishing Piers and Shorefishing	
DNR.....	\$1,770,000
Mesabi Trail	
St. Louis and Lake Counties Regional Rail Authority.....	\$688,000
Linking Communities Design, Technology and DNR Trail Resources	
U of M.....	\$246,000
Fort Ridgely Historic Site Interpretive Trail	
MN Historical Society.....	\$246,000
Development and Rehabilitation of Minnesota Shooting Ranges	
DNR.....	\$392,000
Land Acquisition, Minnesota Landscape Arboretum	
U of M—Landscape Arboretum....	\$688,000

Water Resources...\$3,336,000

Local Water Planning Matching Challenge Grants	
BWSR.....	\$846,000
Accelerating and Enhancing Surface Water Monitoring for Lakes and Streams	
MN Pollution Control Agency / MN Lakes Association / Rivers Council / MN Initiative Foundation.....	\$982,000
Intercommunity Groundwater Protection Washington County.....	\$246,000
TAPwaters: Technical Assistance Program for Watersheds	
Science Museum of MN.....	\$198,000
Wastewater Phosphorus Control and Reduction Initiative	
MN Environmental Science and Economic Review Board.....	\$295,000
Laser Assessment of Streambank Erosion: Minnesota River Basin	
U of M.....	\$198,000
Rainy River Basin Water Quality Cooperative Pilot Project	
Koochiching County.....	\$392,000
Maintaining Zooplankton (Daphnia) for Water Quality: Square Lake	
Marine-on-St. Croix Water Management Organization.....	\$32,000
Wirth Lake Improvement Bassett Creek Water Management Commission.....	\$147,000
Agriculture and Natural Resource Industries\$982,000	
Native Plants and Alternative Crops for Water Quality	
Blue Earth River Basin Initiative / U of M.....	\$982,000

**Land Use and
Natural Resource
Information\$1,910,000**

Minnesota County Biological Survey
DNR.....\$984,000

Updating Outmoded Soil Survey
BWSR.....\$236,000

Mesabi Iron Range Geologic and
Hydrologic Maps and Data Bases
DNR / U of M- MGS\$246,000

The Laurentian Vision: Rebuilding the
Mesabi Iron Range
U of M.....\$246,000

Northern Counties Land Use Management
Pilot Project
*Northern Counties Land Use Coordinating
Board*\$198,000

Energy\$1,081,000

Community Energy Development Program
MN Dept of Commerce\$786,000

Advancing Utilization of Manure Methane
Digester Electrical Generation
MN Dept of Agriculture\$295,000

**Environmental
Education\$686,000**

Dodge Nature Center—Restoration Plan
Dodge Nature Center.....\$147,000

Bucks and Buckthorn: Engaging
Young Hunters in Restoration
Great River Greening.....\$392,000

Putting Green Environmental Adventure
Park Sustainability Education
Putting Green Inc.\$147,000

**Children's Environmental
Health\$790,000**

Healthy Schools: Indoor Air Quality
and Asthma Management
MN Dept of Health.....\$198,000

Economic-based Analysis of Children's
Environmental Health Risks
MN Dept of Health.....\$100,000

Continuous Indoor Air Quality Monitoring
in Minnesota Schools
Schulte Associated, LLC\$492,000



**2003
FUNDING
SOURCES**

Environment and
Natural Resources
Trust Fund.....\$30,100,000

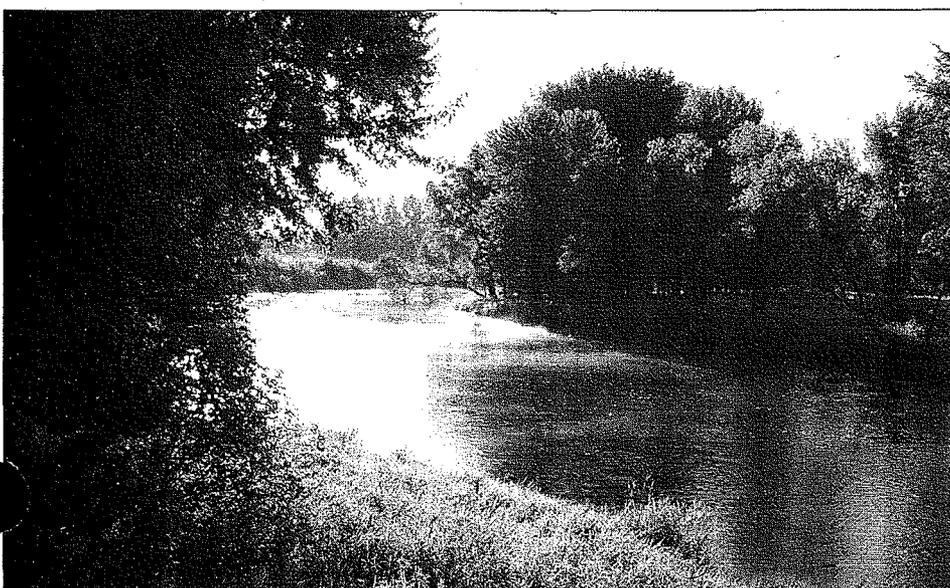
Minnesota Future
Resources Fund\$15,370,000

Land and Water
Conservation\$2,500,000

Oil Overcharge
Money\$519,000

Great Lake Protection
Account.....\$56,000

Total\$48,545,000



Recently Completed LCMR Projects

In the spring of 1999, 110 natural resource and environmental projects received \$42.25 million in funding from the Legislative Commission on Minnesota Resources—\$26 million from the Environment and Natural Resources Trust Fund (TF) and \$16 million from the Minnesota Future Resources Fund (FRF).

69 of the projects that began in July 1999 were completed in June 2001 and 41 projects had deadlines of June 30, 2002. Highlights from seven recently completed LCMR projects are summarized here. Project managers are continuing to submit final reports. Look for more highlights of completed projects and overall outcomes in the next LCMR newsletter (Summer 2003).

For more information on these or other LCMR projects, see the 1999 Project Abstracts on the LCMR web site <http://www.lcmr.leg.mn>

RECREATION

State Park and Recreation Area Acquisition, Development, Betterment, and Rehabilitation
Department of Natural Resources **\$1,000,000 TF**

This project supported acquisition, development, and rehabilitation activities in six state parks. DNR acquired land from willing sellers within the boundaries of Minneopa State Park (401 acres), Interstate State Park (1 acre), Savannah Portage State Park (45 acres). This funding also helped replace the Nicollet Court motel rooms in Itasca State Park, rehabilitated the Banning S.P. sewer system, and supported the visitor center design work at Forestville State Park.

WATER QUALITY

Accelerated State-Wide Local Water Plan Implementation

Board of Water and Soil Resources **\$1,000,000 FRF/Match**

Awarded 17 matching grants to counties, soil and water conservation districts, watershed districts, and joint powers boards across the state to assist with implementation of high priority activities in comprehensive water management plans. Examples of projects completed include: inventory and evaluate existing sewage treatment systems in St. Louis County; reduce phosphorus and sediment loading to Little Rock Creek; and identify and prioritize Como Lake (St. Paul) management issues.

AGRICULTURE AND NATURAL RESOURCE BASED INDUSTRIES

Integrated Prairie Management

U of M, Northwest Research and Outreach Center **\$350,000 TF**

- Clay County developed a site-specific stewardship plan for about 2,000 acres of public land within the Felton Prairie Complex, developed an aggregate inventory, reclaimed an abandoned gravel pit to a wetland and prairie reconstruction providing a place for public interpretation, and prepared a landowner's guide to prairie management.
- The University of Minnesota researched management effects of fire and grazing on prairie vegetation and grassland birds and the use of prairie vegetation by livestock at selected sites in 10 counties in west-central Minnesota.

URBANIZATION IMPACTS

Resources for Redevelopment: A Community Property Investigation Program

MN Environmental Initiative **\$100,000 FRF**

Promoted property redevelopment by conducting environmental site assessments at 25 "brownfield" properties not eligible for traditional brownfield cleanup. 23 nonprofit community organizations participated including a school and day care facility, low-income housing, and two churches. Properties were in the Twin Cities metropolitan area, Duluth, Warren, and Buffalo.



ENVIRONMENTAL EDUCATION

Accessible Outdoor Recreation

Wilderness Inquiry \$400,000 TF

To increase the inclusion of people with disabilities in outdoor recreation, Wilderness Inquiry:

- Assessed the inclusion of people with disabilities in Minnesota's outdoor recreation services.
- Trained 764 community organizers and offered inclusive activities at 64 community events in which 16,300 people participated.
- Surveyed 58 state parks and forests for accessibility and use of Universal Design Principles; evaluated campsites, fishing piers, picnic areas, restrooms, and other facilities.
- Developed a web-based clearinghouse (www.accessoutdoors.org) of inclusive outdoor recreation opportunities.

CRITICAL LANDS AND HABITATS

Sustainable Woodlands and Prairies on Private Lands

Department of Natural Resources \$450,000 TF

The Department of Natural Resources, Minnesota Forestry Association, and The Nature Conservancy worked together to:

- Develop stewardship plans for 170 private landowners covering 17,000 acres of forests and brushlands;
- Develop prairie stewardship plans for 9 landowners involving 1,250 acres;
- Implement projects on a cost-share basis with private landowners who had forest stewardship plans, including tree seeding on 152 acres, planting over 2 million trees on 3,490 acres, grass seeding and prescribed burns on 206 acres, and numerous other restoration projects.

EXOTIC SPECIES

Biological Control of Eurasian Watermilfoil and Purple Loosestrife

Department of Natural Resources \$150,000 TF

Research showed that insects can severely damage Eurasian watermilfoil, but may not reliably control the exotic plant in Minnesota lakes. This may be due in part to feeding by sunfish on the milfoil weevil. Insects introduced to control purple loosestrife have successfully shown that they can reduce the vigor and abundance of this exotic plant. Effective control is now being realized in many sites statewide.

Local Initiative Grants: Outdoor Recreation Grants

The Local Initiative Grants Program provides matching grants to help local governments and private organizations acquire and develop local parks, acquire natural and scenic areas, improve fish and wildlife habitat, and implement a variety of conservation and environmental projects. In 1999, the Local Initiative Grants received a \$3,633,000 appropriation from the Environment and Natural Resources Trust Fund and the Future Resources Fund.

Program results included:

- Outdoor Recreation Grants resulted in significant improvement of local park facilities in 30 communities throughout the state. The cities of Marshall, Miesville, and St. Cloud acquired 69 acres of parkland, while cities, such as Albert Lea, Brooklyn Park, Glencoe, Thief River Falls and St. Paul, and Olmsted and Steele counties, developed and/or improved park facilities.
- Acquisition of 6 Natural and Scenic Areas will protect 237.5 acres of lake and river shore lands and high quality woodlands, including a scenic harbor site in Grand Marais and 39 acres of savanna, wetlands, and lakeshore on the upper Vermillion River in Lakeville.
- 92 Conservation Partners grants included prairie, forest, wetland and lake restoration and habitat improvement projects and several related research projects.
- 43 Environmental Partnerships grants included a number of environmental education, environmental monitoring, and other conservation projects
- Grant recipients must provide at least a 50/50 match, resulting in a total investment of nearly \$7.3 million.

For more information:

Local Initiative Grants Program
Contact Wayne Sames at the
Department of Natural Resources
651-296-1567

or check the DNR web site:
www.dnr.state.mn.us

Segments of Gitchi-Gami State Trail Complete

Three segments of the Gitchi-Gami State Trail are completed and two more are in the planning phase. The completed segments of trail are the Split Rock River to Beaver Bay segment (6.5 miles), the Gooseberry Falls State Park Phase 1 segment (1.2 miles), and the 2.5 mile segment from Tofte to the Onion River. LCMR staff biked the trail in early October. The trail follows the natural contours of the land and provides spectacular views of Lake Superior and the shoreline.



This project is a good example of cooperative efforts between the DNR divisions of Trails and Waterways and Parks and Recreation, MnDOT, and the private, non-profit Gitchi-Gami Trail Association. Funding sources include the Environment and Natural Resources Trust Fund, the State Trunk Highway Account, state bonding, Minnesota's Lake Superior Coastal Program, and federal TEA-21 funds.

The Gitchi-Gami trail received \$550,000 from the Environment and Natural Resources Trust Fund in 1999 and \$1,000,000 in 2001. LCMR is recommending \$1,426,000 in 2003 to develop 4.5 miles of trail from Beaver Bay to Silver Bay.

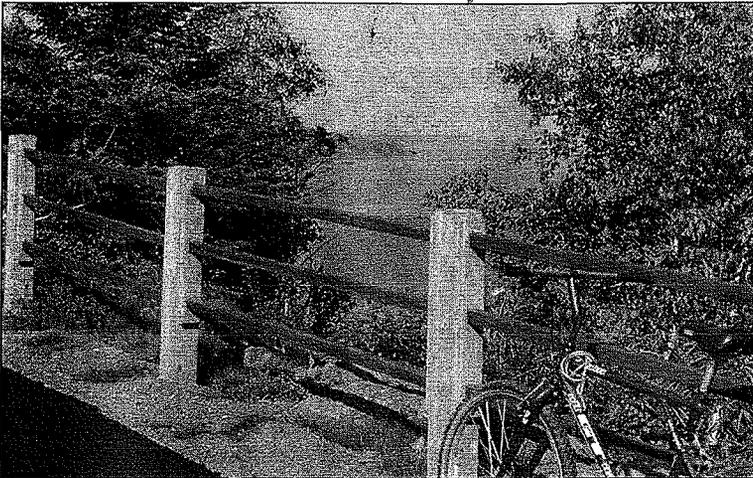


Photo courtesy of Paul Sundberg, Mn DNR.

Legislative Commission on Minnesota Resources (LCMR)

Contact Information:

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Susan Thornton
Susan Von Mosch
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Suggestions or questions can be
addressed to:

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Fax: 651-296-1321
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1-800-657-3550

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Web address:

www.lcmr.leg.mn

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alternate formats upon request.*

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Legislative Commission on Minnesota Resources

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I. Strategic Plan

*“ a copy of the current
strategic plan...”*

Following the Strategic Plan:

- Environment and Natural Resources Trust Fund
Constitutional Language amended
November 3, 1998
 - M.S. 116P The Minnesota Environment and Natural Resources Trust Fund (Trust Fund)
 - M.S. 116P.13 The Minnesota Future Resources Fund
 - M.S. 116Q.02 Great Lakes Protection Account
 - Section 4.071, subdivision 2 Oil Overcharge
-

Legislative Commission on Minnesota Resources

**Request for Proposals
Open to Everyone
Deadline March 28, 2002**

February 2002

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The LCMR will be accepting proposals for projects in the issue areas of:

- Fish, Wildlife and Native Plant Habitat
- Recreational and Natural Systems
- Water
- Children's Environmental Health

**FUNDING
BEGINNING**

JULY 1, 2003.

Applications must be received at the LCMR office or postmarked by March, 28, 2002.

LEGISLATIVE COMMISSION ON MINNESOTA RESOURCES

REQUEST FOR PROPOSALS FUNDING BEGINNING JULY 2003

PROPOSAL ASSISTANCE

LCMR staff are available to assist proposers and answer questions or review draft proposals. The format is designed to be simple and does NOT require professional grantsmaking assistance or lobbying efforts.

If you would like proposal development assistance, staff can assist you by phone, e-mail, fax or by appointment.

Phone: (651) 296-2406

Fax: (651) 296-1321

e-mail:

lcmr@commissions.leg.state.mn.us

**FINAL PROPOSALS MUST BE
SUBMITTED IN HARD COPY.**

DEADLINE FOR SUBMISSION:

Hard copies must be received or postmarked no later than March 28, 2002. Final proposals sent by e-mail or fax cannot be accepted.

SUBMIT PROPOSALS TO:

Legislative Commission
on Minnesota Resources
Room 65, State Office Building
100 Constitution Avenue
St. Paul, MN 55155

ELIGIBILITY:

Application is open to everyone, as long as there is a demonstrated public benefit. The LCMR is an ADA/equal opportunity employer.

Noneligible costs include: Indirect costs, Directors or Officers Salary, Office Rental fees. For a complete list of eligible and noneligible costs see page 15.

PROJECT IMPLEMENTATION:

Projects are intended for a two-year duration (July 2003 to June 2005), however, LCMR will consider requests for multiple biennium funding.

**LCMR
COMMISSION
MEMBERS**

Representatives:

Dennis Ozment, Chair

Irv Anderson

Ron Erhardt

Doug Fuller

Mark Holsten

Mark Olson

Tom Osthoff

Leslie Schumacher

Howard Swenson

Kathy Tingelstad

Senators:

Ellen Anderson

Charles A. Berg

Dennis Frederickson

Linda Higgins

Jane Krentz

James Metzen

Leonard Price

Martha Robertson

David J. Tomassoni

Jim Vickerman

The spirit and intent of the LCMR is to provide access to EVERYONE who has ideas for innovation and acceleration in environment and natural resource issues, as directed by the Commission's adopted Funding Priorities and having a distinct public benefit.

No grant-making or lobbying assistance is necessary for success. The LCMR staff will assist in proposal development.

**CITIZEN ADVISORY COMMITTEE
FOR THE TRUST FUND (CAC)**

Appointed by the Governor

District 5, Nancy Gibson, Chair

District 1, John Kvasnicka

District 2, Marvin Tinklenberg

District 3, Janet McMillan

District 4, Greta Hesse Gauthier

District 4, William Oemichen

District 6, Guy Glover

District 7, Kristin Eggerling

District 8, Ann Glumac

Two Vacancies

If interested in serving on the CAC contact
Laura Van Tassel, Office of the Governor,
(651) 296-0094

FUNDING BACKGROUND

- Funding Priorities are reviewed and adopted every two years.
- The priorities are for projects to begin July 2003.
- The order of the Funding Priorities does not reflect any prioritization.
- Although other proposals may be considered, adopted priorities will be given first consideration.
- The priorities apply to all funding sources.
- Proposers are requested to respond to a funding priority not a funding source.
- Reinvest in Minnesota: RIM related activities are eligible and may be recommended for funding by the LCMR. (M.S. 84.95)

- If land acquisition is part of the priority it includes both conservation easements and purchase of development rights.

FUNDING SOURCES:

**\$35 Million*:
Minnesota Environment
and Natural Resources
Trust Fund**

**\$15 Million*:
Minnesota Future
Resources Fund
and
Great Lakes
Protection Account**

* dollar amounts are estimates.

ISSUES

The LCMR has identified the following issues and as a result is seeking proposals in the 11 funding priorities listed on pages 6-7.

Fish, Wildlife and Native Plant Habitat

Issue: The health, diversity, and survivability of our fish, wildlife and native plant species are threatened by landscape fragmentation, indifferent land use policies, pollution, and exotic species.

Recreational and Natural Systems

Issue: Increased demand on our parks and trails is jeopardizing the integrity of natural systems and recreational facilities.

Water

Issue: The quality and quantity of ground and surface waters are threatened by pollution, poor land use practices, and inadequate understanding of watersheds.

Children's Environmental Health

Issue: Children, because of their small body size, are impacted more by air and water pollution than adults.

FUNDING PRIORITIES

The proposal should address one or more of the 11 funding priorities within the Issue Areas of Fish, Wildlife and Native Plant Habitat, Recreational and Natural Systems, Water, and Children's Environmental Health.

The funding priority number, e.g. A-2, does not reflect a priority rank – all priorities are equal.

Issue Area: Fish, Wildlife and Native Plant Habitat

Funding Priorities: Conserve and enhance fish, wildlife and native plant habitat and corridors by:

- (A-1) Identifying, acquiring, restoring, or protecting habitat and corridors of sufficient quantity and quality to enhance survival of fish, wildlife and native plants.
- (A-2) Providing assistance to public and private landowners to accelerate farming, forestry, tourism, and mining practices that protect the environment, human health, and area economic vitality, and that enhance fish, and wildlife, and native plant habitat.
- (A-3) Educating local land use decision-makers on protection and improvement of fish, wildlife, and native plant habitat.
- (A-4) Research or implementation of research of toxic substances adversely affecting fish, wildlife or native plants.

Issue Area: Recreational and Natural Systems

Funding Priority: Improve Recreation and natural systems by:

- (B-1) Restoring, developing or acquiring State, regional, metro, or local parks, recreation areas and trails with an emphasis on connecting recreational systems.

Issue Area: Water

Funding Priorities: Conserve and promote healthy waters by:

- (C-1) Accelerating the implementation of best management practices through delivery of technical information/resources at the local level.
- (C-2) Collecting, evaluating and disseminating natural resource data on a watershed basis to increase awareness of watersheds and how land use affects water quality and quantity.
- (C-3) Encouraging control of erosion and reduction of pollutants on riparian areas and blufflands.
- (C-4) Identifying and reducing pollution impacts on humans, fish, wildlife and native plants through research on known and emerging contaminant sources.
- (C-5) Accelerating farming, forestry, tourism, energy and mining practices that protect the environment, human health, and area economic vitality, and that enhance fish, wildlife, and native plant habitat.

Issue Area: Children's Environmental Health

Funding Priority: Address health concerns in children by:

- (D-1) Increasing the implementation of research relating to air and water, in order to address children's health concerns such as asthma, allergies, endocrine disrupters, lead and susceptibility to pesticides.

FUNDING PRIORITIES NOTES

The LCMR intends to recommend money to support the matching grant programs listed on pages 8-9 during the biennium beginning July 2003. Read below before submitting a proposal to the LCMR.

For those projects responding to the Issue Area: Fish, Wildlife, and Native Plant Habitat

- Conservation Partners and Environmental Partners Programs: Projects qualifying for the small grants for conservation and environmental projects **MUST APPLY** to those programs.

The programs are for matching grants through the Local Initiative Grants Program at the Department of Natural Resources. See page 8 for details and contact information.

For those projects responding to the Issue Area: Recreational and Natural Systems

- Local Initiative Grants Program: Projects qualifying for the Local Initiative Grants Program and the Local and Regional Trails Grant Program **MUST APPLY** to those programs.

The programs are matching grant programs through the Department of Natural Resources. See pages 8 and 9 for details and contact information.

- State and Metropolitan Parks and Trails: Projects qualifying for the State and Metropolitan Parks, Recreation Areas and Trails **MUST APPLY** to those programs. See page 9 for details and contact information.
-

For those responding to the Issue Area: Water

- Local Water Planning Matching Challenge Grant: Projects qualifying for the Local Water Planning Matching Challenge Grant program **MUST APPLY** to that program.

The program is a matching grant program through the Board of Water and Soil Resources. See page 8 for details and contact information.

For those responding to the Issue Area: Water

- Conservation Partners and Environmental Partners Programs: Projects qualifying for the small grants for conservation and environmental projects **MUST APPLY** to those programs.

The programs are for matching grants through the Local Initiative Grants Program at the Department of Natural Resources. See page 8 for details and contact information.

GRANT PROGRAMS

Local Water Planning

Matching Challenge Grant:

The LCMR intends to recommend money to support the implementation of priority activities identified in state approved local water plans via the Board of Water and Soil Resources Local Water Planning Challenge Grant Program during the biennium beginning July 2003.

Eligible applicants are counties, watershed management organizations, watershed districts and soil and water conservation districts partnered with counties

Potentially fundable implementation categories and some example activities include:

- **Land and Water Treatment** includes activities applied to the land or a water resource such as erosion control structures, shoreline protection measures, in-lake restoration projects.
- **Planning and Environmental Controls** includes the development of lake management plans, official controls relating to water, linking comprehensive plans to land use plans.
- **Monitoring and Modeling** includes activities such as citizen monitoring networks, modeling ground water flow or surface water runoff.
- **Inventory and Mapping** includes conducting detailed inventories of drainage systems, wetlands, or feedlots.
- **Education and Information** includes workshops and seminars.

For further information about the Local Water Planning Challenge grant Program and submitting a proposal contact : Marybeth Block, (651) 297-7965, or e-mail: marybeth.block@bwsr.state.mn.us

Do not submit proposals to the LCMR, submit directly to the Local Water Planning Challenge Grant Program.

Local Initiative Grants Program:

The LCMR intends to recommend money to support the matching grants program in the Department of Natural Resources (DNR) for Local Initiative Grants for the following types of projects:

- **Outdoor Recreation Matching Grant Program** (for counties, cities and townships). For acquisition, development and/or redevelopment costs of local parks and recreation areas.
- **Regional Park Matching Grant Program:** provides grants to public regional park organizations located outside the seven county metropolitan area for acquisition, development and/or redevelopment costs of regional parks.
- **Natural and Scenic Area Matching Grant Program** (for cities, counties, townships and school districts) for acquisition of natural and scenic areas (up to \$500,000).
- **Conservation Partners Matching Grant Program** (for private/nonprofit organizations and local governments, including cooperative projects involving local governments) provides assistance (up to \$20,000) for projects that enhance fish, wildlife and native plant habitat or for research or survey projects related to habitat enhancement.
- **Environmental Partnerships Matching Grant Program** (for private/nonprofit organizations) to help carry out a variety of projects to help protect and enhance our natural environment (up to \$20,000).

For further information about the Local Initiative Grants Program and submitting a proposal contact: Wayne Sames, (651) 296-1567, or e-mail: wayne.sames@dnr.state.mn.us

Do not submit proposals to the LCMR, submit directly to the Local Initiative Grants Program.

Local and Regional Trails:

The LCMR intends to recommend money to support the Local and Regional Trails program during the biennium beginning July 2003.

- **Local Trail Connections Matching Grant Program** (for cities, counties, and townships) to develop trail connections between communities and existing park and trail facilities (up to \$100,000).

- **Regional Trail Matching Grant Program** (for cities, counties, and townships) to develop new long distance trails of regional significance (up to \$250,000).

For further information about the Local and Regional Trails Grants and submitting a proposal contact: Tim Mitchell, (651) 297-1718, or e-mail: tim.mitchell@dnr.state.mn.us

Do not submit proposals to the LCMR, submit directly to the Local and Regional Trails program.

State and Metropolitan Parks, Recreation Areas and Trails:

The LCMR intends to recommend money to support State and Metropolitan Parks, Recreation Areas and Trails programs during the biennium beginning July 2003.

Projects would include: State and Metropolitan regional parks, recreation area and trail needs for acceleration of acquisition, development, rehabilitation and enhancement as described in MS 116P.02, Subd. 5 (includes in the definition of natural resources, the state recreation system and the metro regional recreation system).

Projects eligible for funding through the Metropolitan Parks and Open Space program will only be considered as part of the Metropolitan Council and Parks Open Space Commission Capital Improvement (CIP) Program.

Do not submit proposals to the LCMR, submit directly to the Metropolitan Council and Parks Open Space Commission Capital Improvement (CIP) Program.

EVALUATION CRITERIA FOR PROPOSALS

- LCMR members will review all of the proposals for consideration.
- No proposals will be eliminated by the LCMR staff or the CAC.
- LCMR staff will sort all proposals by Funding Priorities and rank them according to the criteria for use by the LCMR members during their initial selection process.
- Trust Fund expenditures must conform to the Trust Fund law (MS 116P.08).

In addition to the weighted criteria, consideration will be given to:

Proposals demonstrating the leveraging of nonstate money toward project implementation and an ability to meet more than one funding priority.

LEVERAGING

Leveraging is encouraged and will be reviewed as part of the Past and Concurrent Spending section of the proposals.

MULTIPLE PRIORITIES

Meeting multiple priorities is encouraged and will be considered in evaluating proposals.

Project Managers and partners must be accountable and able to complete project objectives.

The following criteria will be applied as one part of the proposal evaluation and recommendation process.

The total potential score for each criterion is written in parentheses. All points will be awarded on a sliding scale. (50 points total)

Criteria will be applied as one of the screening tools by LCMR members in selecting projects for a hearing.

- **Addresses Funding Priority (up to 10)**
- **Focus of Sustainability (up to 10):**

The LCMR is interested in projects that promote a sustainable approach.

To be sustainable, a project should protect the ecosystem and balance the benefits to the environment with the community and economy.

- **Results (up to 10):**

Provide for a critical assessment of the project and clear, demonstrated results.

- **Partnerships (up to 10):**

Demonstrates a cooperative and coordinated approach including the sharing of costs and/or workload.

- **Information Base and Dissemination (up to 5):**

Provides data, reports, materials, etc. to the public and other potential users in a readily useable form.

Provides a significant, demonstrated addition to the public environmental and natural resource information base.

- **Project Readiness (up to 5):**

Demonstrated ability to begin and complete the project in the funding time period.

PROPOSAL SUBMISSION REQUIREMENTS

Please Submit :

3 Items - 3 Copies of Each

- 1.) Proposal- 3 page limit.
- 2.) Map- showing project site(s) - 1 page limit.
- 3.) Project Manager Qualifications and Organization Description - 1 page limit.

Proposal

- Send 3 copies of proposal (maximum of three 8 1/2 x 11 sheets - single sided).
- Leave a blank one inch page margin at the bottom.
- The proposal must be in the format explained on pages 12-13 and is limited to three single sided pages.
- Minimum font-type size is 12. This page is typeset on 12 points.
- Project title should be clearly marked on the top of each page.
- Plastic covers, plastic bindings, and staples will NOT be accepted.
- The proposal format is designed to provide concise information. It begins with a brief project summary of intended results, followed by a description of specific project results and budgets associated with completion of the activities of the project.

Map

Send 3 copies of a map (maximum of one 8 1/2 x 11 sheet - single sided). Should be easy to duplicate, NO COLOR MAPS.

Be site specific to the project. Maps should be clearly legible, with enough orientation to bring a reader to a quick understanding of the location of the project within the region and state.

Project Manager Qualifications and Organization Description

Send 3 copies of Project Manager Qualifications and Organization Description (maximum of one 8 1/2 x 11 sheet - single sided).

In this document include the project manager description of qualifications and responsibilities pertaining to this specific project proposal, does not need to be a complete resume.

The organization description should be a simple, brief explanation of the organization. One to two sentences. e.g. Local Government Unit, 501 (c)(3) etc.

Proposal Template

A template of the proposal format is available on the LCMR web page at:

<http://www.lcmr.leg.state.mn>

Only proposals received by the deadline March 28, 2002 in the proper format specified in this RFP will qualify for consideration.

LCMR staff are available to assist proposers, answer questions and review draft proposals.

The format is designed to be simple and does NOT require professional grantsmaking assistance or lobbying efforts.

PROPOSAL FORMAT

Maximum length: Three 8 1/2 x 11 sheets single sided.

The proposal is composed of the following sections: (Italics are instructions and not to be repeated in the proposal. The bold text should be included in your proposal.)

LCMR Proposal 2003 (repeat this phrase in the upper left hand corner)

Title: *(limit 8 words) -repeat on the top of each page submitted, including submissions of map and of project manager qualifications and organization description.*

Total Biennial Project Budget: *(requested from LCMR) \$*

Funding Priority: *(state the title of the funding priority responding to, e.g. Water (C-1)*

Project Manager: *(One name only. Note: list team members under IV. C. Project Partners)*

Affiliation:

Mailing Address:

Telephone Number: *(be sure to provide a reliable phone number in case of questions)*

E-Mail: *(if available)*

Fax: *(if available)*

Web Address: *(if available)*

Location: *(Where will the work impact? Be as specific as possible e.g. county, city, township, stream or lake name, and map coordinates.)*

I. PROJECT SUMMARY AND RESULTS: *The summary is LIMITED TO 30 WORDS and must be a free standing summation of the project. Be specific. Provide a clear, concise summary of the proposed project and its results. It is important that the summary be able to stand on its own as a description of the proposal because it will be used with the project title as the project description during the proposal review.*

II. DESCRIPTION OF PROJECT RESULTS: *Begin this section with a brief explanation as to WHY this project needs to be done and the specific outcomes of the project.*

Break the project into specific results. Indicate the budget for each result. FOR EXAMPLE:

Result 1 “ Title of Activity” Budget: \$ *Assign a lump sum cost (budget) to each discrete result.*

Give a detailed description of the activity you are proposing to do and the outcomes. Be specific. For example, indicate miles of trail acquired and developed, acres impacted, number of people reached.

Further break down the Result budget dollar amount into these categories. ONLY LIST THE CATEGORIES THAT APPLY TO THE RESULT LISTED:

Personnel: \$

Equipment: \$

Development : \$

Acquisition : \$

Other (Specify): \$

Result 2 " Title of Activity" Budget: \$ Assign a lump sum cost (budget) to each discrete result.

Give a detailed description of the activity you are proposing to do and the outcomes. Be specific. For example, indicate miles of trail acquired and developed, acres impacted, number of people reached.

Further break down the Result budget dollar amount into these categories. ONLY LIST THE CATEGORIES THAT APPLY TO THE RESULT LISTED:

Personnel : \$

Equipment : \$

Development : \$

Acquisition : \$

Other: (Specify) \$

ADD ADDITIONAL RESULTS AS NEEDED: SAME FORMAT AS ABOVE

III. TOTAL PROJECT REQUEST BUDGET: (In this section describe the details of your budget)

All Results: Personnel (who is getting paid to do what, their % of full time employment for the project period): \$

All Results: Equipment: (what equipment, to be rented or purchased – a general description and cost)\$

All Results: Development: (improvement to land or building)\$

All Results: Acquisition: (how many acres, also who will hold the title to the land)\$

All Results: Other: (Describe the specific activity and cost, e.g. Communications):\$

TOTAL BUDGET: \$ (requested from LCMR)

IV. PAST AND CONCURRENT SPENDING :

What other money (and its source) will be spent on the proposed project?

A. Past Spending:

List the money spent or to be spent on this specific project, cash or inkind and the time frame prior to July 1, 2003.

B. Concurrent Spending for the Project Period:

What additional money will be spent on the project during the funding period, cash or inkind?

C. Project Partners: If the project has cooperators (project team), list names and agency/entity affiliate.

Specifically state the percent time of each cooperator to be spent on the project and the money which will be contributed, cash or inkind from the project partners during the project. What additional money is anticipated to be spent after the project completion, cash or inkind?

D. Time: If the proposed project will exceed two years: Explain completely the additional time and funding requirements.

EVALUATION & RECOMMENDATION PROCESS

2001

AUGUST - OCTOBER

- Resource Evaluation and state-wide site visits.

NOVEMBER

- Citizen Natural Resource Forums held in: Anoka, Winona, Little Falls and Grand Rapids.

DECEMBER

- Citizen Advisory Committee for the Trust Fund (CAC) meets to develop a draft strategic plan for the Trust Fund to propose to the LCMR.
- LCMR holds an Issues Seminar to gather more information.

2002

JANUARY

- The CAC presents recommended strategic plan for the Trust Fund to the LCMR.

FEBRUARY

- LCMR adopts strategic plan for the Trust Fund and MN Future Resources Fund.
- The Request for Proposals (RFP) is issued.

MARCH

- **March 28th Proposals are due.**

APRIL

- Proposal scoring and review.

MAY

- Scored proposals are delivered to the LCMR and CAC members.
- The CAC meets to determine preliminary recommendations to the LCMR for projects to receive a hearing for the Trust Fund.
- LCMR selects proposals for hearing.
- A limited number of proposals will be chosen for hearings. All proposers will be notified (first cut).

JUNE

- Hearings on Proposals.

JULY

- Hearings Continued.
- CAC meets to determine its recommended priorities and analysis to the LCMR for Trust Fund funding.
- LCMR meets to determine final recommendations and allocations to the 2003 Legislature for all funds.

AUGUST

SEPTEMBER

- Work programs are due to the LCMR on recommended projects.

OCTOBER-NOVEMBER

- Research Projects are reviewed by an outside scientific panel.

DECEMBER

2003

JANUARY

- LCMR recommendations presented to the Legislature

FEBRUARY - APRIL

- Legislative Review and appropriation.

MAY

- Final Legislative actions on proposals, signed by governor

JUNE

- LCMR meets to adopt work programs

JULY

- July 2003 - June 2005: Project Implementation.

ADDITIONAL PROPOSAL REQUIREMENTS

ELIGIBLE COSTS

Eligible costs may include the following and are eligible only if specified in the approved Work Program:

a) Expenditures incurred only after the effective date in the approved Work Program. No expenditures will be allowed after June 30, 2005 unless approved by specific law;

b) Advertising costs solely for (1) Recruitment of personnel; (2) Solicitation of bids; (3) Disposal of scrap materials; (4) Other purposes specifically provided for in the approved Work Program;

c) Capital expenditures for facilities, equipment and other capital assets as expressly approved in the Work Program. For expenditures greater than \$3,500, the Recipient must include in the Work Program an explanation as to how all the equipment purchased with the appropriation will continue to be used for the same program through its useful life, or, if the use changes, a commitment to pay back to the Fund an amount equal to either the cash value received or a residual value approved by the director of the LCMR if it is not sold;

d) Communication costs incurred for telephone calls, postage, and similar services;

e) Materials and supplies and incoming freight charges for them;

f) Publication and printing costs (including the processes of composition, plate-making, press work, & binding, and the end products produced) necessary for contract administration; work products production; and biennial reports relating to Work Program accomplishments;

g) Transportation and travel expenses such as lodging, meals, and mileage of personnel involved in the Project in the same manner and in no greater amount than provided for in the current "Commissioner's Plan" promulgated by the Commissioner of Employee Relations; found at: <http://www.doer.state.mn.us/lr-cmrpl/lr-cmrpl/lr-cmrpl.htm> or for U of M projects the University of Minnesota plan found at: <http://www.fpd.finop.umn.edu/groups/ppd/documents/policy/travel.cfm>

Allowable meal and lodging expenses are for employees only, purchasing meals for others is not an allowable expense. All out of state travel must be explicitly approved in the Work Program;

h) Wages and expenses of salaried Recipient employees if specified in the Work Program;

i) Fringe benefit costs limited to salary, FICA/Medicare, retirement, and health insurance of Recipient's employees if specified in the Work Program; For State Agencies: use of unclassified staff only OR request approval for the use of classified staff accompanied by an explanation of

how the agency will backfill that part of the classified staff salary proposed to be paid for with these appropriation. This is subject to specific discussion and approval by the LCMR.

j) Professional services specified in the approved Work Program that are rendered by individuals or organizations not a part of the Recipient;

k) Expenditures incurred after the effective date of the approved Work Program and before the effective date of the Agreement.

NONELIGIBLE COSTS

a) Any costs incurred before the project is authorized, July 1, 2003, or Work Program approval, whichever is the later

b) Fund raising

c) Taxes, except sales tax on goods and services

d) Insurance, except title insurance

e) Attorney fees; except for acquisition and clearing title to land

f) Loans, grants, or subsidies to persons or entities for development

g) Bad debts or contingency funds

h) Interest

i) Lobbyists

j) Political contributions;

k) Investment Management Fees

l) Memberships

m) Indirect costs

n) Directors or Officers salary unless expressly approved in the Work Program together with a plan of activities and actual work products.

o) Office Rental fees

Additional Proposal Requirements

In addition, all projects are subject to the requirements located at:

<http://www.lcmr.leg.mn>

- Accessibility
- Data Availability
- Energy Conservation
- Land Acquisition
- Purchase of Recycled and Recyclable Material Requirements

**For a more complete
review of the LCMR activities
go to the new web address:
<http://www.lcmr.leg.mn>**

- Past Publications.
- Funding Source Information.
- Trust Fund Constitutional Amendment.
- Trust Fund Law MS 116P.
- List of 1991-2001 Funded Projects and Abstracts.
- 2002-2003 Meeting Schedule.
- Additional Proposal Information.

LCMR
100 Constitution Avenue
Room 65, State Office Building
St. Paul, MN 55155



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CONTACT INFO

LCMR STAFF:

John Velin, Director

Susan Thornton

Susan Von Mosch

Yvonne Forsythe

Sandy Smith

Information from this RFP may be copied and distributed to others. This publication can be made available in alternate formats, such as large print or cassette tape, upon request.

Any suggestions or questions can be addressed to:

LCMR

100 Constitution Avenue,
Room 65, State Office Building
St. Paul, MN 55155

Phone: (651)296-2406

TDD: (651)296-9896 or

1-800-657-3550

Relay: (651)297-5353 or

1-800-627-3529

Fax: (651)296-1321

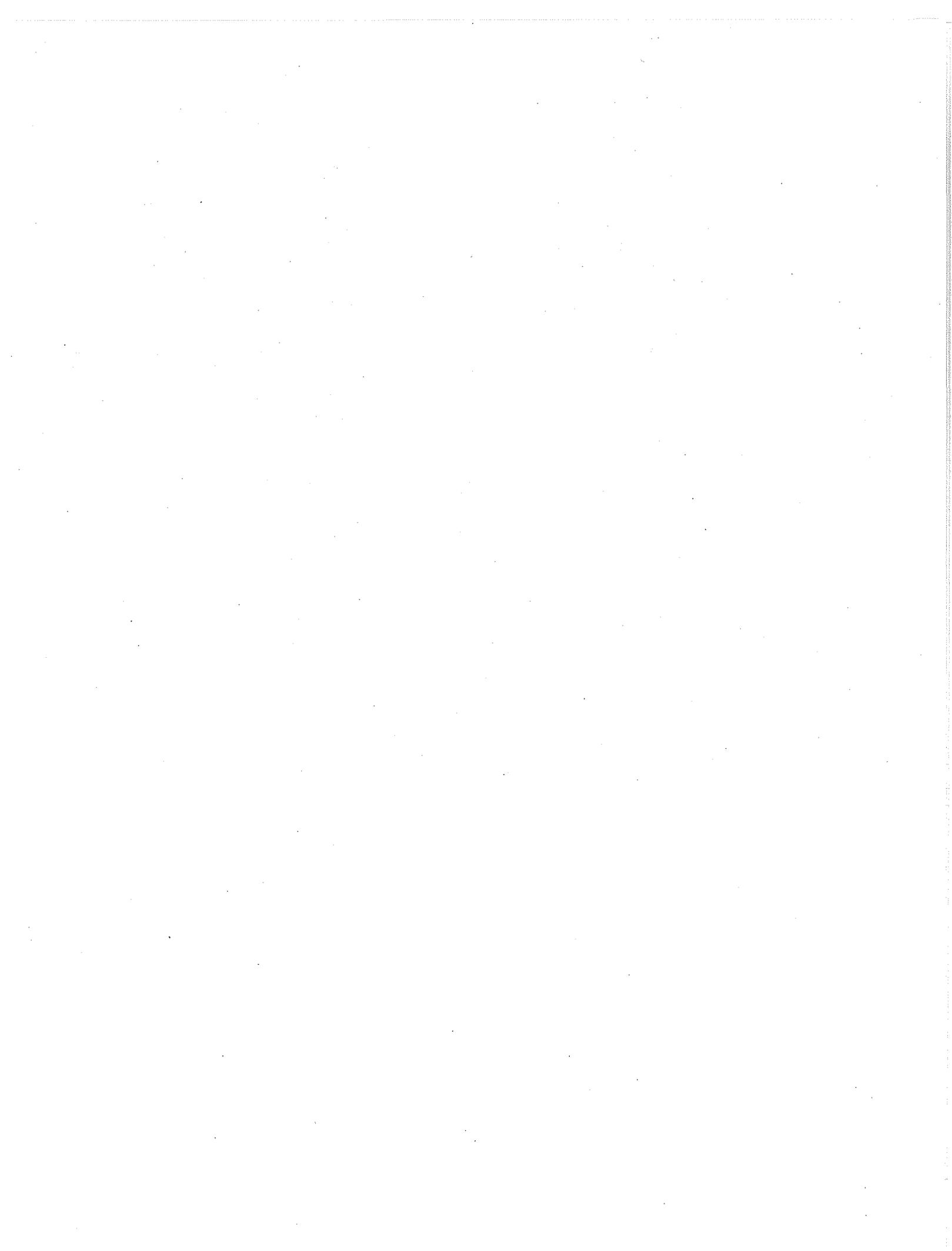
E-Mail:

lcmr@commissions.leg.state.mn.us

Web Address:

<http://www.lcmr.leg.mn>

Sec. 14. ENVIRONMENT AND NATURAL RESOURCES FUND. A permanent environment and natural resources trust fund is established in the state treasury. Loans may be made of up to five percent of the principal of the fund for water system improvements as provided by law. The assets of the fund shall be appropriated by law for the public purpose of protection, conservation, preservation, and enhancement of the state's air, water, land, fish, wildlife, and other natural resources. The amount appropriated each year of a biennium, commencing on July 1 in each odd-numbered year and ending on and including June 30 in the next odd-numbered year, may be up to 5-1/2 percent of the market value of the fund on June 30 one year before the start of the biennium. Not less than 40 percent of the net proceeds from any state-operated lottery must be credited to the fund until the year 2025. [Adopted, November 8, 1988; Amended, November 6, 1990; November 3, 1998]



Minnesota Statutes 2002, Chapter 116P.

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==116P.01

116P.01 Findings.

The legislature finds that all Minnesotans share the responsibility to ensure wise stewardship of the state's environment and natural resources for the benefit of current citizens and future generations. Proper management of the state's environment and natural resources includes and requires foresight, planning, and long-term activities that allow the state to preserve its high quality environment and provides for wise use of its natural resources. The legislature also finds that to undertake such activities properly, a long-term, consistent, and stable source of funding must be provided.

HIST: 1988 c 690 art 1 s 5

==116P.02

116P.02 Definitions.

Subdivision 1. Applicability. The definitions in this section apply to sections 116P.01 to 116P.13.

Subd. 2. Advisory committee. "Advisory committee" means the advisory committee created in section 116P.06.

Subd. 3. Board. "Board" means the state board of investment.

Subd. 4. Commission. "Commission" means the legislative commission on Minnesota resources.

Subd. 5. Natural resources. "Natural resources" includes the outdoor recreation system under section 86A.04 and regional recreation open space systems as defined under section 473.351, subdivision 1.

Subd. 6. Trust fund. "Trust fund" means the Minnesota environment and natural resources trust fund established under Minnesota Constitution, article XI, section 14.

HIST: 1988 c 690 art 1 s 6; 1989 c 335 art 1 s 269

==116P.03

116P.03 Trust fund not to supplant existing funding.

(a) The trust fund may not be used as a substitute for traditional sources of funding environmental and natural resources activities, but the trust fund shall supplement the traditional sources, including those sources used to support the criteria in section 116P.08, subdivision 1. The trust fund must be used primarily to support activities whose benefits become available only over an extended period of time.

(b) The commission must determine the amount of the state budget spent from traditional sources to fund environmental and natural resources activities before and after the trust fund is established and include a comparison of the amount in the report under section 116P.09, subdivision 7.

HIST: 1988 c 690 art 1 s 7

==116P.04

116P.04 Trust fund account.

Subdivision 1. Establishment of account and investment.

A Minnesota environment and natural resources trust fund, under article XI, section 14, of the Minnesota Constitution, is established as an account in the state treasury. The commissioner of finance shall credit to the trust fund the amounts authorized under this section and section 116P.10. The state board of investment shall ensure that trust fund money is invested under section 11A.24. All money earned by the trust fund must be credited to the trust fund. The principal of the trust fund and any unexpended earnings must be invested and reinvested by the state board of investment.

Subd. 2. Repealed, 1990 c 610 art 1 s 59

Subd. 3. Revenue. Nothing in sections 116P.01 to 116P.12 limits the source of contributions to the trust fund.

Subd. 4. Gifts and donations. Gifts and donations, including land or interests in land, may be made to the trust fund. Noncash gifts and donations must be disposed of for cash as soon as the board prudently can maximize the value of the gift or donation. Gifts and donations of marketable securities may be held or be disposed of for cash at the option of the board. The cash receipts of gifts and donations of cash or capital assets and marketable securities disposed of for cash must be credited immediately to the principal of the trust fund. The value of marketable securities at the time the gift or donation is made must be credited to the principal of the trust fund and any earnings from the marketable securities are earnings of the trust fund.

Subd. 5. Audits required. The legislative auditor shall audit trust fund expenditures to ensure that the money is spent for the purposes provided in the commission's budget plan.

HIST: 1988 c 690 art 1 s 8; 1990 c 610 art 1 s 44; 1991 c 343 s 1

==116P.05

116P.05 Legislative commission on Minnesota resources.

Subdivision 1. Membership. (a) A legislative commission on Minnesota resources of 20 members is created, consisting of the chairs of the house and senate committees on environment and natural resources or designees appointed for the terms of the chairs, the chairs of the house and senate committees on environment and natural resources finance or designees appointed for the terms of the chairs, the chairs of the house ways and means and senate finance committees or designees appointed for the terms of the chairs, seven members of the senate appointed by the subcommittee on committees of the committee on rules and administration, and seven members of the house appointed by the speaker.

At least three members from the senate and three members from the house must be from the minority caucus. Members are entitled to reimbursement for per diem expenses plus travel expenses incurred in the services of the commission.

(b) Members shall appoint a chair who shall preside and convene meetings as often as necessary to conduct duties prescribed by this chapter.

(c) Members shall serve on the commission until their successors are appointed.

(d) Vacancies occurring on the commission shall not affect the authority of the remaining members of the commission to carry out their duties, and vacancies shall be filled in the same manner under paragraph (a).

Subd. 2. Duties. (a) The commission shall recommend a budget plan for expenditures from the environment and natural resources trust fund and shall adopt a strategic plan as provided in section 116P.08.

(b) The commission shall recommend expenditures to the legislature from the Minnesota future resources fund under section 116P.13.

(c) It is a condition of acceptance of the appropriations made from the Minnesota future resources fund, Minnesota environment and natural resources trust fund, and oil overcharge money under section 4.071, subdivision 2, that the agency or entity receiving the appropriation must submit a work program and semiannual progress reports in the form determined by the legislative commission on Minnesota resources. None of the money provided may be spent unless the commission has approved the pertinent work program.

(d) The peer review panel created under section 116P.08 must also review, comment, and report to the commission on research proposals applying for an appropriation from the Minnesota resources fund and from oil overcharge money under section 4.071, subdivision 2.

(e) The commission may adopt operating procedures to fulfill its duties under sections 116P.01 to 116P.13.

HIST: 1988 c 690 art 1 s 9; 1989 c 335 art 1 s 269; 1990 c 594 art 1 s 56; 1991 c 254 art 2 s 39; 1991 c 343 s 2; 1993 c 4 s 15; 1994 c 580 s 1; 1997 c 202 art 2 s 36

==116P.06

116P.06 Advisory committee.

Subdivision 1. Membership. (a) An advisory committee of 11 citizen members shall be appointed by the governor to advise the legislative commission on Minnesota resources on project proposals to receive funding from the trust fund and the development of budget and strategic plans. The governor shall appoint at least one member from each congressional district. The members shall elect the chair.

(b) The governor's appointees must be confirmed with the advice and consent of the senate. The membership terms, compensation, removal, and filling of vacancies for citizen members of the advisory committee are governed by section 15.0575. Notwithstanding section 15.059, subdivision 5, or other law to the contrary, the advisory committee does not expire.

Subd. 2. Duties. (a) The advisory committee shall:

(1) prepare and submit to the commission a draft strategic plan to guide expenditures from the trust fund;

(2) review the reinvest in Minnesota program during

development of the draft strategic plan;

(3) gather public input during development of the draft strategic plan;

(4) advise the commission on project proposals to receive funding from the trust fund; and

(5) advise the commission on development of the budget plan.

(b) The advisory committee may review all project proposals for funding and may make recommendations to the commission on whether the projects:

(1) meet the standards and funding categories set forth in sections 116P.01 to 116P.12;

(2) duplicate existing federal, state, or local projects being conducted within the state; and

(3) are consistent with the most recent strategic plan adopted by the commission.

HIST: 1988 c 690 art 1 s 10; 1989 c 335 art 1 s 269; 1991 c 254 art 2 s 40; 1991 c 343 s 3; 2001 c 161 s 18; 2002 c 225 s 1

==116P.07

116P.07 Information gathering.

The commission may convene public forums to gather information for establishing priorities for funding.

HIST: 1988 c 690 art 1 s 11; 1991 c 254 art 2 s 41; 1991 c 343 s 4; 2002 c 225 s 2

==116P.08

116P.08 Trust fund expenditures; exceptions; plans.

Subdivision 1. Expenditures. Money in the trust fund may be spent only for:

(1) the reinvest in Minnesota program as provided in section 84.95, subdivision 2;

(2) research that contributes to increasing the effectiveness of protecting or managing the state's environment or natural resources;

(3) collection and analysis of information that assists in developing the state's environmental and natural resources policies;

(4) enhancement of public education, awareness, and understanding necessary for the protection, conservation, restoration, and enhancement of air, land, water, forests, fish, wildlife, and other natural resources;

(5) capital projects for the preservation and protection of unique natural resources;

(6) activities that preserve or enhance fish, wildlife, land, air, water, and other natural resources that otherwise may be substantially impaired or destroyed in any area of the state;

(7) administrative and investment expenses incurred by the state board of investment in investing deposits to the trust

fund; and

(8) administrative expenses subject to the limits in section 116P.09.

Subd. 2. Exceptions. Money from the trust fund may not be spent for:

(1) purposes of environmental compensation and liability under chapter 115B and response actions under chapter 115C;

(2) purposes of municipal water pollution control under the authority of chapters 115 and 116;

(3) costs associated with the decommissioning of nuclear power plants;

(4) hazardous waste disposal facilities;

(5) solid waste disposal facilities; or

(6) projects or purposes inconsistent with the strategic plan.

Subd. 3. Strategic plan required. (a) The commission shall adopt a strategic plan for making expenditures from the trust fund, including identifying the priority areas for funding for the next six years. The strategic plan must be updated every two years. The plan is advisory only. The commission shall submit the plan, as a recommendation, to the house of representatives appropriations and senate finance committees by January 1 of each odd-numbered year.

(b) The commission may accept or modify the draft of the strategic plan submitted to it by the advisory committee before voting on the plan's adoption.

Subd. 4. Budget plan. (a) Funding may be provided only for those projects that meet the categories established in subdivision 1.

(b) Projects submitted to the commission for funding may be referred to the advisory committee for recommendation.

(c) The commission must adopt a budget plan to make expenditures from the trust fund for the purposes provided in subdivision 1. The budget plan must be submitted to the governor for inclusion in the biennial budget and supplemental budget submitted to the legislature.

(d) Money in the trust fund may not be spent except under an appropriation by law.

Subd. 5. Public meetings. All advisory committee and commission meetings must be open to the public. The commission shall attempt to meet at least once in each of the state's congressional districts during each biennium.

Subd. 6. Peer review. (a) Research proposals must include a stated purpose, timeline, potential outcomes, and an explanation of the need for the research. All research proposals must be reviewed by a peer review panel before receiving an appropriation.

(b) In conducting research proposal reviews, the peer review panel shall:

(1) comment on the methodology proposed and whether it can be expected to yield appropriate and useful information and data;

(2) comment on the need for the research and about similar existing information available, if any; and

(3) report to the commission and advisory committee on clauses (1) and (2).

(c) The peer review panel also must review completed research proposals that have received an appropriation and comment and report upon whether the project reached the intended goals.

Subd. 7. Peer review panel membership. (a) The peer review panel must consist of at least five members who are knowledgeable in general research methods in the areas of environment and natural resources. Not more than two members of the panel may be employees of state agencies in Minnesota.

(b) The commission shall select a chair every two years who shall be responsible for convening meetings of the panel as often as is necessary to fulfill its duties as prescribed in this section. Compensation of panel members is governed by section 15.059, subdivision 3.

HIST: 1988 c 690 art 1 s 12; 1989 c 335 art 1 s 178; 1991 c 254 art 2 s 42,43; 1991 c 343 s 5,6; 1994 c 580 s 2,3; 2001 c 7 s 31

==116P.09

116P.09 Administration.

Subdivision 1. Administrative authority. The commission may appoint legal and other personnel and consultants necessary to carry out functions and duties of the commission. Permanent employees shall be in the unclassified service. In addition, the commission may request staff assistance and data from any other agency of state government as needed for the execution of the responsibilities of the commission and advisory committee and an agency must promptly furnish it.

Subd. 2. Liaison officers. The commission shall request each department or agency head of all state agencies with a direct interest and responsibility in any phase of environment and natural resources to appoint, and the latter shall appoint for the agency, a liaison officer who shall work closely with the commission and its staff.

Subd. 3. Appraisal and evaluation. The commission shall obtain and appraise information available through private organizations and groups, utilizing to the fullest extent possible studies, data, and reports previously prepared or currently in progress by public agencies, private organizations, groups, and others, concerning future trends in the protection, conservation, preservation, and enhancement of the state's air, water, land, forests, fish, wildlife, native vegetation, and other natural resources. Any data compiled by the commission shall be made available to any standing or interim committee of the legislature upon the request of the chair of the respective committee.

Subd. 4. Personnel. Persons who are employed by a state agency to work on a project and are paid by an

appropriation from the trust fund or Minnesota future resources fund are in the unclassified civil service, and their continued employment is contingent upon the availability of money from the appropriation. When the appropriation has been spent, their positions must be canceled and the approved complement of the agency reduced accordingly. Part-time employment of persons for a project is authorized. The use of classified employees is authorized when approved as part of the work program required by section 116P.05, subdivision 2, paragraph (c).

Subd. 5. Administrative expense. The administrative expenses of the commission shall be paid from the various funds administered by the commission as follows:

(1) Through June 30, 1993, the administrative expenses of the commission and the advisory committee shall be paid from the Minnesota future resources fund. After that time, the prorated expenses related to administration of the trust fund shall be paid from the earnings of the trust fund.

(2) After June 30, 1993, the prorated expenses related to administration of the trust fund may not exceed an amount equal to four percent of the projected earnings of the trust fund for the biennium.

Subd. 6. Conflict of interest. A commission member, advisory committee member, peer review panelist, or an employee of the commission may not participate in or vote on a decision of the commission, advisory committee, or peer review panel relating to an organization in which the member, panelist, or employee has either a direct or indirect personal financial interest. While serving on the legislative commission, advisory committee, or peer review panel, or being an employee of the commission, a person shall avoid any potential conflict of interest.

Subd. 7. Report required. The commission shall, by January 15 of each odd-numbered year, submit a report to the governor, the chairs of the house appropriations and senate finance committees, and the chairs of the house and senate committees on environment and natural resources. Copies of the report must be available to the public. The report must include:

(1) a copy of the current strategic plan;

(2) a description of each project receiving money from the trust fund and Minnesota future resources fund during the preceding biennium;

(3) a summary of any research project completed in the preceding biennium;

(4) recommendations to implement successful projects and programs into a state agency's standard operations;

(5) to the extent known by the commission, descriptions of the projects anticipated to be supported by the trust fund and Minnesota future resources account during the next biennium;

(6) the source and amount of all revenues collected and distributed by the commission, including all administrative and other expenses;

(7) a description of the assets and liabilities of the trust fund and the Minnesota future resources fund;

(8) any findings or recommendations that are deemed proper to assist the legislature in formulating legislation;

(9) a list of all gifts and donations with a value over \$1,000;

(10) a comparison of the amounts spent by the state for environment and natural resources activities through the most recent fiscal year; and

(11) a copy of the most recent compliance audit.

HIST: 1988 c 690 art 1 s 13; 1991 c 254 art 2 s 44-46; 1991 c 343 s 7-10; 1994 c 580 s 4

==116P.10

116P.10 Royalties, copyrights, patents.

This section applies to projects supported by the trust fund, the Minnesota future resources fund, and the oil overcharge money referred to in section 4.071, subdivision 2, each of which is referred to in this section as a "fund." The fund owns and shall take title to the percentage of a royalty, copyright, or patent resulting from a project supported by the fund equal to the percentage of the project's total funding provided by the fund. Cash receipts resulting from a royalty, copyright, or patent, or the sale of the fund's rights to a royalty, copyright, or patent, must be credited immediately to the principal of the fund. Before a project is included in the budget plan, the commission may vote to relinquish the ownership or rights to a royalty, copyright, or patent resulting from a project supported by the fund to the project's proposer when the amount of the original grant or loan, plus interest, has been repaid to the fund.

HIST: 1988 c 690 art 1 s 14; 1993 c 172 s 79

==116P.11

116P.11 Availability of funds for disbursement.

(a) The amount biennially available from the trust fund for the budget plan developed by the commission is as defined in the Minnesota Constitution, article XI, section 14.

(b) Any appropriated funds not encumbered in the biennium in which they are appropriated cancel and must be credited to the principal of the trust fund.

HIST: 1988 c 690 art 1 s 15; 1990 c 594 art 1 s 57; 1990 c 612 s 14; 1992 c 513 art 2 s 27; 1992 c 539 s 10; 1993 c 300 s 10; 1994 c 580 s 5; 1995 c 220 s 111; 2002 c 225 s 3

==116P.12

116P.12 Water system improvement loan program.

Subdivision 1. Loans authorized. (a) If the principal of the trust fund equals or exceeds \$200,000,000, the commission may vote to set aside up to five percent of the principal of the trust fund for water system improvement loans. The purpose of water system improvement loans is to offer below market rate interest loans to local units of government for the purposes of water system improvements.

(b) The interest on a loan shall be calculated on the declining balance at a rate four percentage points below the secondary market yield of one-year United States treasury bills

calculated according to section 549.09, subdivision 1, paragraph (c).

(c) An eligible project must prove that existing federal or state loans or grants have not been adequate.

(d) Payments on the principal and interest of loans under this section must be credited to the trust fund.

(e) Repayment of loans made under this section must be completed within 20 years.

(f) The Minnesota public facilities authority must report to the commission each year on the loan program under this section.

Subd. 2. Application and administration. (a) The commission must adopt a procedure for the issuance of the water system improvement loans by the public facilities authority.

(b) The commission also must ensure that the loans are administered according to its fiduciary standards and requirements.

HIST: 1988 c 690 art 1 s 16

==116P.13

116P.13 Minnesota future resources fund.

Subdivision 1. Revenue sources. The money in the Minnesota future resources fund consists of revenue credited under section 297F.10, subdivision 1, paragraph (b), clause (1).

Subd. 2. Interest. The interest attributable to the investment of the Minnesota future resources fund must be credited to the fund.

Subd. 3. Revenue purposes. Revenue in the Minnesota future resources fund may be spent for purposes of natural resources acceleration and outdoor recreation, including but not limited to the development, maintenance, and operation of the state outdoor recreation system under chapter 86A and regional recreation open space systems as defined under section 473.351, subdivision 1.

HIST: 1988 c 690 art 1 s 17; 1989 c 335 art 1 s 179; 1997 c 106 art 2 s 4

==116P.14

116P.14 Federal land and water conservation funds.

Subdivision 1. Designated agency. The department of natural resources is designated as the state agency to apply for, accept, receive, and disburse federal reimbursement funds and private funds, which are granted to the state of Minnesota from the federal Land and Water Conservation Fund Act.

Subd. 2. State land and water conservation account; creation. A state land and water conservation account is created in the Minnesota future resources fund. All of the money made available to the state from funds granted under subdivision 1 shall be deposited in the state land and water conservation account.

Subd. 3. Local share. Fifty percent of all money made available to the state from funds granted under subdivision

1 shall be distributed for projects to be acquired, developed, and maintained by local units of government, providing that any project approved is consistent with a statewide or a county or regional recreational plan and compatible with the statewide recreational plan. All money received by the commissioner for local units of government is appropriated annually to carry out the purposes for which the funds are received.

Subd. 4. State share. Fifty percent of the money made available to the state from funds granted under subdivision 1 shall be used for state land acquisition and development for the state outdoor recreation system under chapter 86A and the administrative expenses necessary to maintain eligibility for the federal Land and Water Conservation Fund.

HIST: 1Sp2001 c 2 s 140

==116P.15

116P.15 Land acquisition restrictions.

Subdivision 1. Scope. A recipient of an appropriation from the trust fund or the Minnesota future resources fund who acquires an interest in real property with the appropriation must comply with this section. If the recipient fails to comply with the terms of this section, ownership of the interest in real property transfers to the state. For the purposes of this section, "interest in real property" includes, but is not limited to, an easement or fee title to property.

Subd. 2. Restrictions; modification procedure. (a) An interest in real property acquired with an appropriation from the trust fund or the Minnesota future resources fund must be used in perpetuity or for the specific term of an easement interest for the purpose for which the appropriation was made.

(b) A recipient of funding who acquires an interest in real property subject to this section may not alter the intended use of the interest in real property or convey any interest in the real property acquired with the appropriation without the prior review and approval of the commission. The commission shall establish procedures to review requests from recipients to alter the use of or convey an interest in real property. These procedures shall allow for the replacement of the interest in real property with another interest in real property meeting the following criteria:

(1) the interest is at least equal in fair market value, as certified by the commissioner of natural resources, to the interest being replaced; and

(2) the interest is in a reasonably equivalent location, and has a reasonably equivalent usefulness compared to the interest being replaced.

(c) A recipient of funding who acquires an interest in real property under paragraph (a) must separately record a notice of funding restrictions in the appropriate local government office where the conveyance of the interest in real property is filed. The notice of funding agreement must contain:

(1) a legal description of the interest in real property covered by the funding agreement;

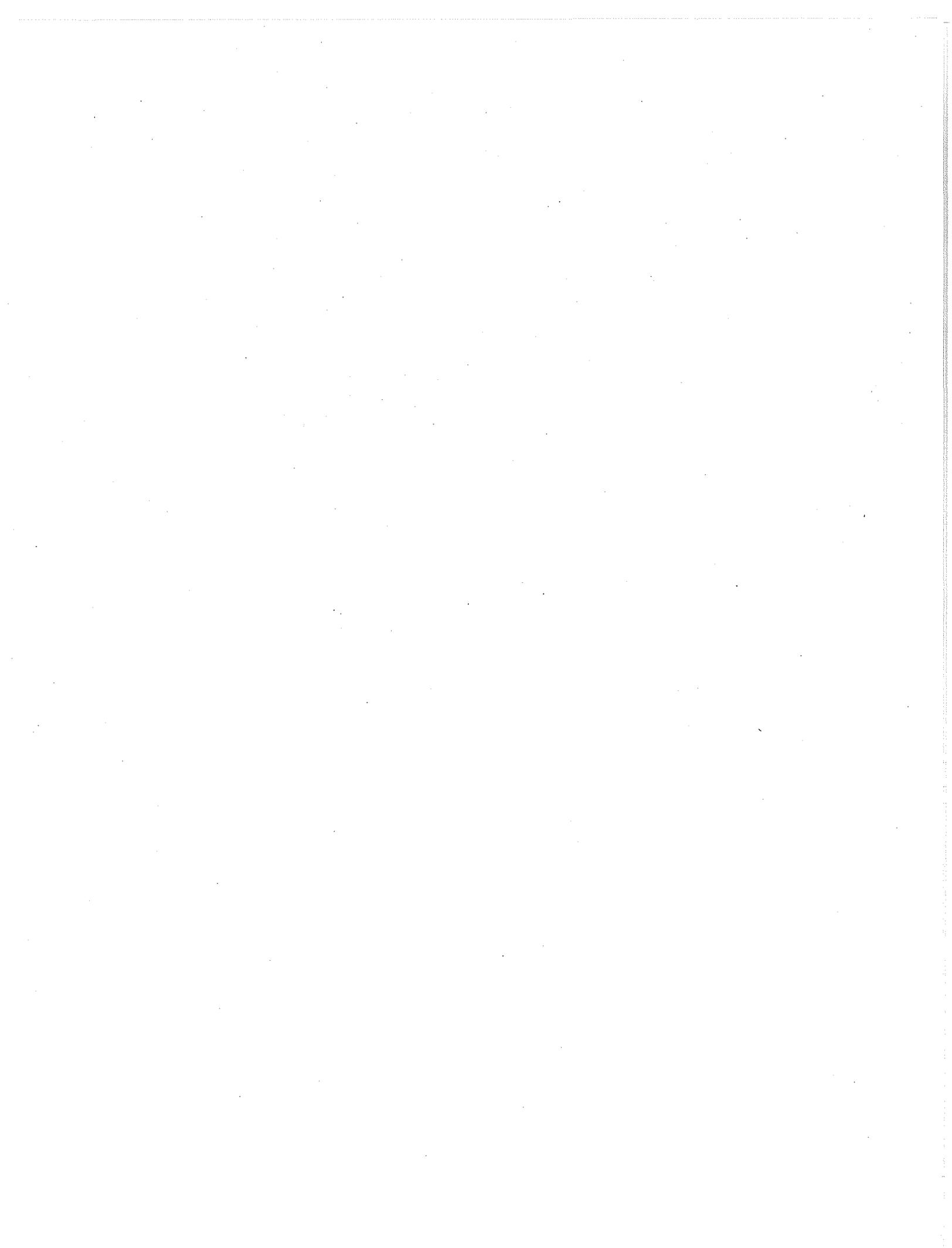
(2) a reference to the underlying funding agreement;

(3) a reference to this section; and

(4) the following statement:

"This interest in real property shall be administered in accordance with the terms, conditions, and purposes of the grant agreement or work program controlling the acquisition of the property. The interest in real property, or any portion of the interest in real property, shall not be sold, transferred, pledged, or otherwise disposed of or further encumbered without obtaining the prior written approval of the legislative commission on Minnesota resources or its successor. If the holder of the interest in real property fails to comply with the terms and conditions of the grant agreement or work program, ownership of the interest in real property shall transfer to this state."

HIST: 1Sp2001 c 2 s 141; 2002 c 225 s 4



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116P.13 Minnesota future resources fund.

Subdivision 1. **Revenue sources.** The money in the Minnesota future resources fund consists of revenue credited under section 297F.10, subdivision 1, paragraph (b), clause (1).

Subd. 2. **Interest.** The interest attributable to the investment of the Minnesota future resources fund must be credited to the fund.

Subd. 3. **Revenue purposes.** Revenue in the Minnesota future resources fund may be spent for purposes of natural resources acceleration and outdoor recreation, including but not limited to the development, maintenance, and operation of the state outdoor recreation system under chapter 86A and regional recreation open space systems as defined under section 473.351, subdivision 1.

HIST: 1988 c 690 art 1 s 17; 1989 c 335 art 1 s 179; 1997 c 106 art 2 s 4

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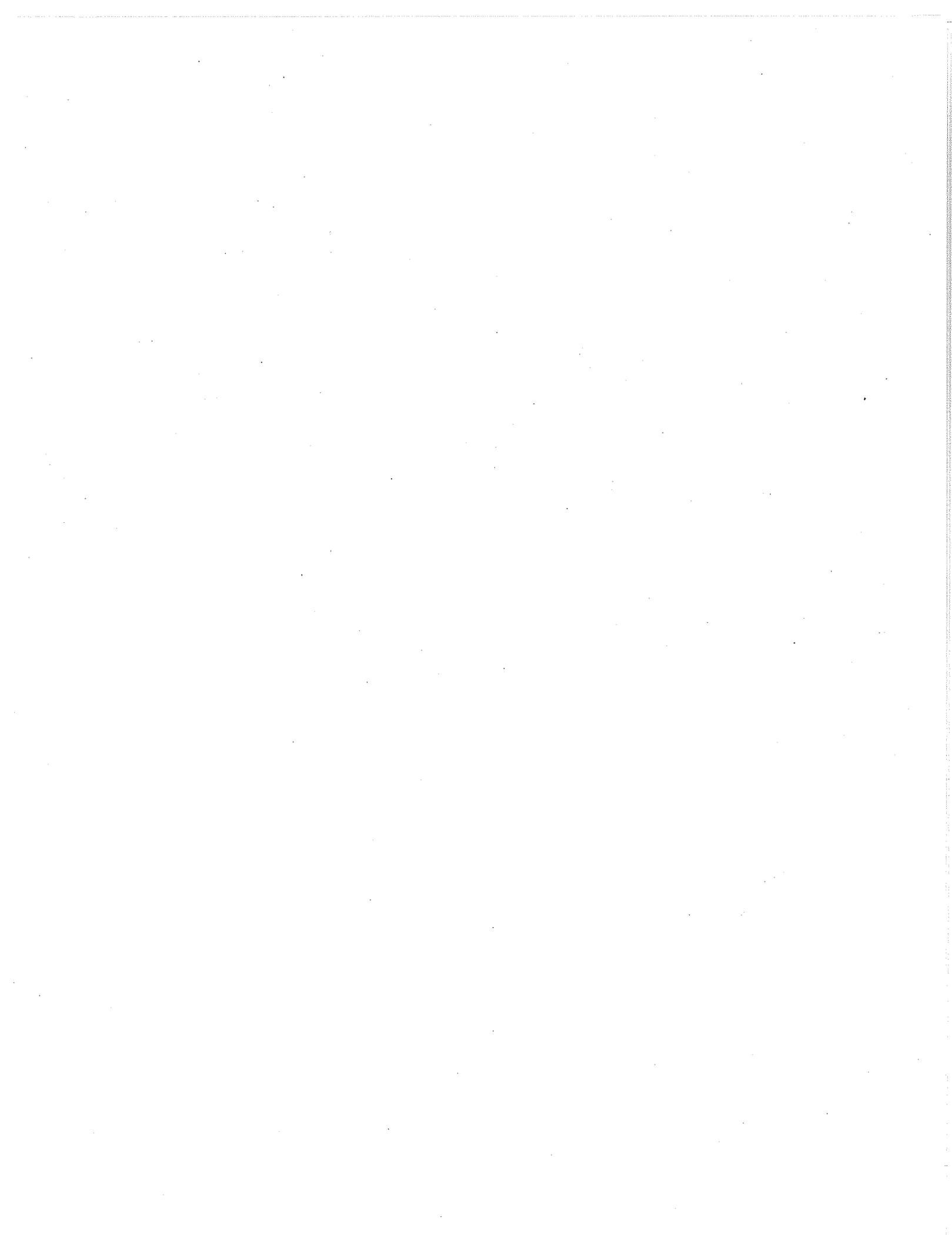
116Q.02 State receipts from the fund.

Subdivision 1. **Great Lakes protection account.** Any money received by the state from the Great Lakes protection fund, whether in the form of annual earnings or otherwise, must be deposited in the state treasury and credited to a special Great Lakes protection account. Money in the account must be spent only as specifically appropriated by law for protecting water quality in the Great Lakes. Approved purposes include, but are not limited to, supplementing in a stable and predictable manner state and federal commitments to Great Lakes water quality programs by providing grants to finance projects that advance the goals of the regional Great Lakes toxic substances control agreement and the binational Great Lakes water quality agreement.

Subd. 2. **LCMR review.** The legislature intends not to appropriate money from the Great Lakes protection account until projects have been reviewed and recommended by the legislative commission on Minnesota resources. A work plan must be prepared for each project for review by the commission. The commission must recommend specific projects to the legislature.

HIST: 1990 c 594 art 1 s 59

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4.071 Oil overcharge money.

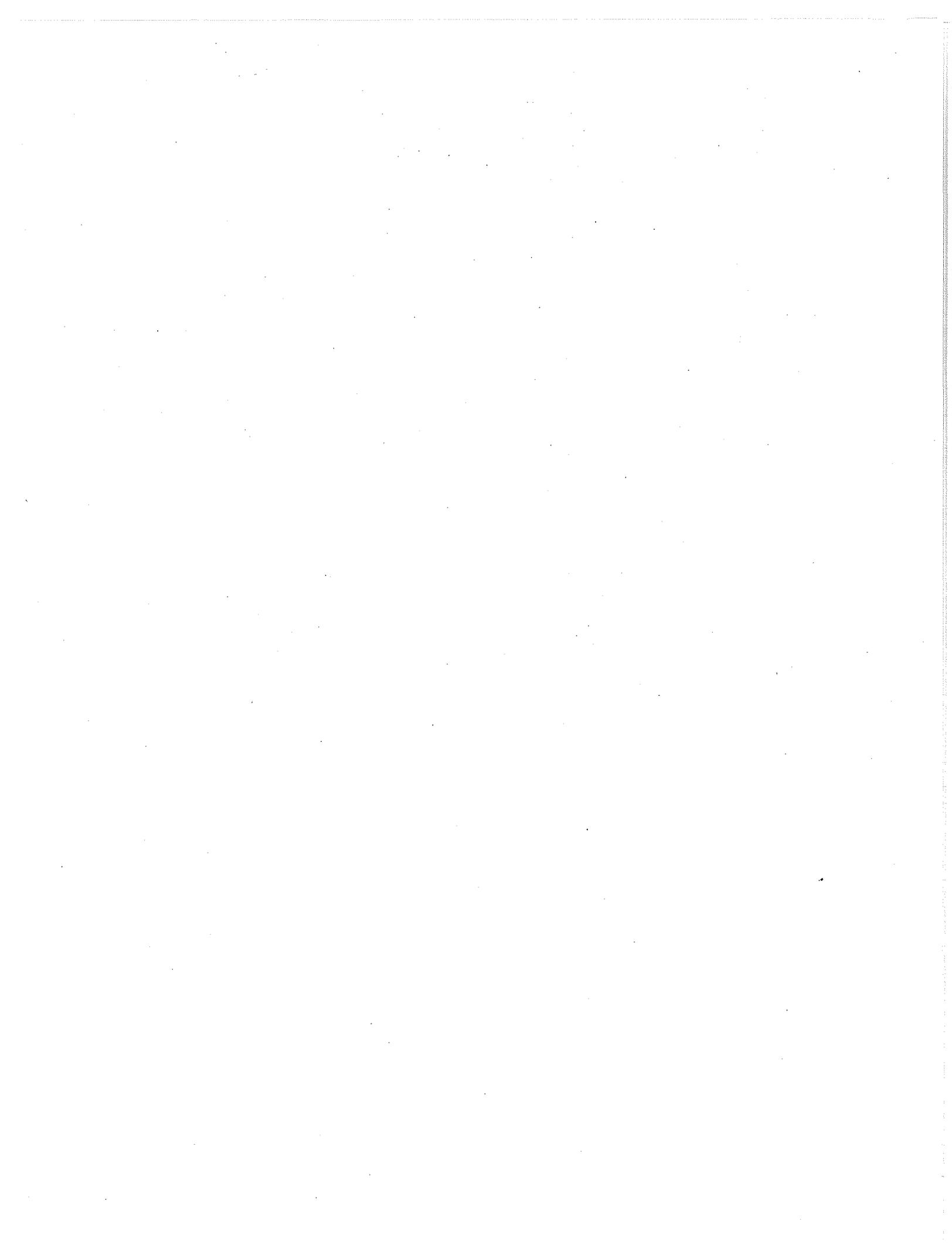
Subdivision 1. **Appropriation required.** "Oil overcharge money" means money received by the state as a result of litigation or settlements of alleged violations of federal petroleum pricing regulations. Oil overcharge money may not be spent until it is specifically appropriated by law.

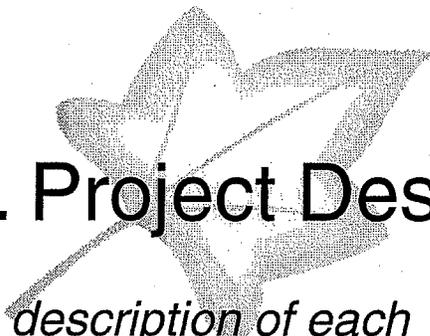
Subd. 2. **Minnesota resources projects.** The legislature intends to appropriate one-half of the oil overcharge money for projects that have been reviewed and recommended by the legislative commission on Minnesota resources. A work plan must be prepared for each proposed project for review by the commission. The commission must recommend specific projects to the legislature.

Subd. 3. Repealed, 1998 c 273 s 15

HIST: 1988 c 686 art 1 s 36; 1988 c 690 s 1; 1989 c 335 art 1 s 269; 1990 c 568 art 2 s 1; 1994 c 483 s 1

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II. Project Description

“ a description of each project receiving money from the trust fund and Minnesota future resources fund during the preceding biennium; a summary of any research project completed in the preceding biennium...”

The following documents are short abstracts for projects funded during the 2001 - 2003 biennium. The abstracts describe the general accomplishments of each project. Research projects have been marked as such in the description. Full workprograms are available at the LCMR office Room 65, State Office Building. The abstracts are current as of 12/30/02.

Administration

- 03a Legislative Commission on Minnesota Resources
- 03b Pass Through Administration
- ML 2002, Ch. 220, Sec 8, Subd. 2 CAC Administration
- 03c LAWCON administration

Fish and Wildlife Habitat

- 04a Forest and Prairie Stewardship of Private Lands
- 04b State Fish Hatchery Rehabilitation
- 04c Enhancing Canada Goose Hunting and Management
- 04d Biological Control of Eurasian Watermilfoil and Purple Loosestrife-Continuation
- 04e Restoring Minnesota's Fish and Wildlife Habitat Corridors
- 04f Engineering Support for Public Lands Waterfowl Projects
- 04g Metro Greenways
- 04h Acquisition of Lands as Scientific and Natural Areas
- 04i Big Rivers Partnership: Helping Communities to Restore Habitat
- 04j Acquisition and Restoration of Eagle Creek's Last Private Land
- 04k Neighborhood Wilds Program

Recreation

- 05a Metropolitan Regional Parks Acquisition, Rehabilitation and Development
- 05b Local Grants Initiative Program Outdoor Recreation Grants
- 05c Regional and Local Trail Grants (Part of Local Grants Initiative)
- 05d Outdoors for Everyone: Accessing Recreational Trails and Facilities
- 05e Water Recreation: Boat Access, Fishing Piers and Shorefishing
- 05f Grays Bay, Lake Minnetonka Public Water Access
- 05g McQuade Small Craft Harbor
- 05h Land Acquisition at the Minnesota Landscape Arboretum
- 05i Gateway Trail Bridge
- 05j State Trail Projects
- 05k Gitchi Gami State Trail
- 05l Forest History Center Interpretive Trail
- 05m Mesabi Trail Facility
- 05n Regional Trailhead Building
- 05o Development and Rehabilitation of Recreational Shooting Ranges

05p State Park & Recreation Area Land Acquisition

05q LAWCON

Water Resources

- 06a Accelerated Implementation of Local Water Plans
- 06c Denitrification Strategies for Minnesota's Contaminated Aquifers
- 06d Determination of Fecal Pollution Sources in Minnesota Watersheds
- 06e Mississippi Headwaters Board Environmental Economic Assessments

Land Use & Natural Resource Information

- 07a Hydraulic Impacts of Quarries and Gravel Pits
- 07b GIS Management in Koochiching County
- 07c Updating Outmoded Soil Surveys-Continuation
- 07d County Biological Survey-Continuation
- 07e Lake Superior Lakewide Management Plan (LaMP)

Agriculture & Natural Resource Industries

- 08a Evaluating Timber Harvesting and Forest Management Guidelines
- 08b Agricultural Land Preservation
- 08c Environmental Practices on Dairy Farms
- 08d Accelerated Technology Transfer for Starch-Based Plastics

Energy

- 09 Using Biodiesel in Generators

Environmental Education

- 10b WaterScapes: Outdoor Non-Point Source Pollution Education
- 10c Sustainable Inner-City Communities through Environmental Literacy
- 10d Integrated Pest Management in Schools
- 10e Burn, Plant and Learn: Restoring Upland Habitats
- 10f Connecting with Wildlife at the Minnesota Zoo
- 10g Project Green Start: Environmental Education
- 10h Raptor Propagation: Student Education
- 10i Hennepin Parks Farm Education
- 10j Residential Environmental Education for Youth

ML 2002, Ch. 220, Sec 8, Subd. 1 Uncommon Ground: An Educational Television Series

Administration

Legislative Commission on Minnesota Resources

3 (a) \$1,065,000 TF/MFRF

John Velin, Director

LCMR

Telephone:(651)296-2406

Fax: (651)296-1321

E-mail: lcmr@commissions.leg.state.mn.us

Web Address:

<http://www.commissions.leg.state.mn.us/lcmr/lcmr.htm>

The LCMR Administrative Budget.

Pass Through Administration

3 (b) \$150,000 TF/MFRF

Bill Becker

DNR, Office of Management and Budget Services

500 Lafayette Road

St. Paul, MN 55155

Telephone:(651) 296-2406

Fax: (651)296-1321

E-mail: bill.becker@dnr.state.mn.us

To the commissioner of natural resources for contract administration activities assigned to the commissioner in this section. This project due to be completed June 30, 2004.

CAC Administration

Legal Citation: ML 2002, Chapter 220, Section 8, Subd. 2 \$62,000 TF

For expenses and anticipated costs of the Citizens Advisory Committee. This project due to be completed June 30, 2003.

LAWCON Administration

3 (c) \$320,000 MFRF

Wayne Sames

DNR, Office of Management and Budget Services

500 Lafayette Road

St. Paul, MN 55155

Telephone:(651) 296-1567

Fax: (651)296-6047

E-mail: wayne.sames@dnr.state.mn.us

To the commissioner of natural resources for administrative expenses consistent with Minnesota Statutes, section 116P.14. This project due to be completed June 30, 2003.

Fish and Wildlife Habitat

Forest and Prairie Stewardship of Private Lands

4(a) \$545,000 TF

Doug Anderson

DNR

500 Lafayette Road

St. Paul, MN 55155-4044

Telephone:(651) 296-4467

Fax: (651) 296-5954

E-mail: doug.anderson@dnr.state.mn.us

Web Address: <http://www.foreststeward.org/>

In cooperation with the Minnesota Forestry Association and the Nature Conservancy, to develop stewardship plans for private prairie and forested lands and to implement natural resource projects by providing matching money to private landowners. This project due to be completed June 30, 2004.

State Fish Hatchery Rehabilitation

4(b) \$145,000 MFRF

Linda Erickson-Eastwood

DNR

500 Lafayette Road

St. Paul, MN 55155

Telephone:(651) 296-0791

Fax: (651) 297-4916

E-mail: linda.erickson-eastwood@dnr.state.mn.us

Web Address: <http://www.dnr.state.mn.us>

To accelerate hatchery rehabilitation. This project due to be completed June 30, 2003.

Enhancing Canada Goose Hunting and Management

4(c) \$340,000 MFRF

Butch Bakken

Minnesota Waterfowl Association

508 8th Avenue SW

Grand Rapids, MN 55744

Telephone:(218) 326-3564

Fax: (218) 326-3564

E-mail: bakken@uslink.net

An agreement with the Minnesota Waterfowl Association to acquire leases on private farmlands for foraging sites and public hunting opportunities and to provide technical assistance to local units of government in developing controlled hunts for nuisance geese. This project due to be completed June 30, 2003.

Biological Control of Eurasian Watermilfoil and Purple Loosestrife-Continuation

4(d) \$90,000 TF

Luke Skinner

DNR

500 Lafayette Road

St. Paul, MN 55155-4025

Telephone:(651) 297-3763

Fax: (651) 296-1811
E-mail: luke.skinner@dnr.state.mn.us

To develop and implement biological controls for Eurasian water milfoil and purple loosestrife. This project due to be completed June 30, 2004.

Restoring Minnesota's Fish and Wildlife Habitat Corridors

4(e) \$11,745,000 TF
Harvey K. Nelson
MN Waterfowl Association
5701 Normandale Road
Mankato, MN 55424
Telephone:(612) 922-2832
Fax: (612) 922-2983

For acceleration of agency programs and cooperative agreements with Minnesota Waterfowl Association and eleven other organizations, to restore and acquire fragmented landscape corridors that connect areas of quality habitat to sustain fish, wildlife, and plants. This project due to be completed June 30, 2004.

Engineering Support for Public Lands Waterfowl Projects

4(f) \$275,000 MFRF
Tom Landwehr
Ducks Unlimited, Inc.
230 Oakwood Drive
Shoreview, MN 55126
Telephone:(651) 283-3838
Fax: (651) 765-9929
E-mail: tlandwehr@ducks.org
Web Address: <http://www.ducks.org>

For an agreement with Ducks Unlimited to provide survey and engineering support to natural resources agencies for waterfowl projects on public lands. This project due to be completed June 30, 2003.

Metro Greenways

4(g) 2,730,000 TF
Alan Singer
DNR
1200 Warner Road
St. Paul, MN 55106
Telephone:(651) 772-7952
Fax: (651) 772-7977
E-mail: al.singer@dnr.state.mn.us
Web Address:
<http://www.dnr.state.mn.us/greenprint/metro-green.html>

For the metro greenways program to provide assistance for planning, improving, and protecting important natural areas in the metropolitan region through grants, conservation easements, and fee acquisition. This project due to be completed June 30, 2004.

Acquisition of Lands as Scientific and Natural Areas

4(h) 455,000 TF
Bob Djupstrom
DNR
500 Lafayette Road
St. Paul, MN 55155
Telephone:(651) 297-2357
Fax: (651) 296-1811
E-mail: bob.djupstrom@dnr.state.mn.us
Web Address:
http://www.dnr.state.mn.us/fish_and_wildlife/sna/

To acquire land with natural features of statewide significance in the scientific and natural area program long-range plan. This project due to be completed June 30, 2003.

Big Rivers Partnership: Helping Communities to Restore Habitat

4(i) \$910,000 TF
Robert Buffler
Great River Greening
35 West Water Street, Suite 201
St. Paul, MN 55107-2016
Telephone:(651) 665-9500
Fax: (651) 655-9404
E-mail: rbuffler@greatrivergreening.org
Web Address: <http://www.greatrivergreening.org/>

For an agreement with Great River Greening to implement private and public habitat projects on a cost-share basis in the Mississippi and Minnesota River valleys. This project due to be completed June 30, 2004.

Acquisition and Restoration of Eagle Creek's Last Private Land

4(j) \$910,000 MFRF
Ann Mahnke
City of Savage
13770 Dakota Avenue
Savage, MN 55378
Telephone:(612) 447-8333
E-mail: mahnkea@ci.savage.mn.us

An agreement with the city of Savage to acquire a buffer strip along Eagle Creek as an aquatic management area. This project due to be completed June 30, 2003.

Neighborhood Wilds Program

4(k) \$135,000 MFRF
Don Mueller
DNR
1200 Warner Road
St. Paul, MN 55106
Telephone:(651) 772-6148
Fax: (651) 772-7599
E-mail: don.mueller@dnr.state.mn.us

For the neighborhood wilds program to assist neighborhoods adjacent to public lands and natural areas in restoration and management of habitat through demonstration projects. This project due to be completed June 30, 2004.

Recreation

Metropolitan Regional Parks Acquisition, Rehabilitation and Development

5(a) \$5,645,000 TF

Arne Stefferud

Metropolitan Council

Mears Park Centre, 230 East 5th Street

St. Paul, MN 55101-1360

Telephone: (651) 602-1360

Fax: (651) 602-1442

E-mail: arne.stefferud@metc.state.mn.us

For an agreement with the metropolitan council for subgrants for acquisition, development, and rehabilitation in the metropolitan regional park system, consistent with the metropolitan council regional recreation open space capital improvement plan. This project due to be completed June 30, 2004.

Local Grants Initiative Program Outdoor Recreation Grants

5(b) \$5,080,000 TF/MFRF

Wayne Sames

DNR

500 Lafayette Road, Box 10

St. Paul, MN 55155-4010

Telephone: (651) 296-1567

Fax: (651) 296-6047

E-mail: wayne.sames@dnr.state.mn.us

- For Regional parks outside the metropolitan area under Minnesota Statutes, section 473.121,
- For recreation areas and natural and scenic areas under Minnesota Statutes, section 85.019;
- For local parks, outdoor recreation areas, and natural and scenic areas under Minnesota Statutes section 85.019;
- For statewide conservation partners grants of up to \$20,000 each to encourage private organizations and local governments to cost-share improvements of fish, wildlife, and native plant habitats and research and surveys of fish and wildlife; and
- For environmental partnerships program grants of up to \$20,000 each for environmental service projects and related education activities through public and private partnerships. This project due to be completed June 30, 2004.

Regional and Local Trail Grants

5(c) \$1,000,000 MFRF

Tim Mitchell

DNR

500 Lafayette Road, Box 10

St. Paul, MN 55155

Telephone: (651)297-1718

Fax: (65)297-5475

E-mail: tim.mitchell@dnr.state.mn.us

For matching trail grants to local units of government, under Minnesota Statutes, section 85.019, for trail linkages between communities, trails, and parks, and for locally funded trails of regional significance outside the metropolitan area, under Minnesota Statutes, section 473.12. This project due to be completed June 30, 2003.

Outdoors for Everyone: Accessing Recreational Trails and Facilities

5(d) \$230,000 TF

Mike Passo

Wilderness Inquiry

1313 5th Street SE, Box 84

Minneapolis, MN 55414

Telephone: (612) 379-3858

Fax: (612) 379-5972

E-mail: greglais@wildernessinquiry.org

Web Address: <http://www.wildernessinquiry.org>

An agreement with Wilderness Inquiry to provide technical assistance to local units of government for development of publicly funded trails and outdoor recreation facilities to ensure that new federal standards for accessibility for persons with disabilities are met. This project due to be completed June 30, 2003.

Water Recreation: Boat Access, Fishing Piers and Shorefishing

5(e) \$910,000 TF

Michael Markell

DNR - Trails and Waterways Division

500 Lafayette Road, Box 52

St. Paul, MN 55155

Telephone: (651) 296-6413

Fax: (651) 297-5475

E-mail: mike.markell@dnr.state.mn.us

To acquire and develop public water access sites statewide, to construct shorefishing and pier sites, and to restore shorelands at existing public accesses. This project due to be completed June 30, 2004.

Grays Bay, Lake Minnetonka Public Water Access

5(f) \$2,850,000 TF/MFRF

Michael Markell

DNR - Trails and Waterways Division

500 Lafayette Road, Box 52

St. Paul, MN 55155

Telephone: (651) 296-6413

Fax: (651) 297-5475
E-mail: mike.markell@dnr.state.mn.us

In cooperation with the city of Minnetonka to acquire approximately five acres for a multiuse water access site on Grays Bay, Lake Minnetonka. This project due to be completed June 30, 2003.

McQuade Public Access

5(g) \$500,000 MFRF
Michael Markell
DNR - Trails and Waterways Division
500 Lafayette Road, Box 52
St. Paul, MN 55155
Telephone:(651) 296-6413
Fax: (651) 297-5475
E-mail: mike.markell@dnr.state.mn.us

In cooperation with the McQuade Joint Powers Board, U.S. Army Corps of Engineers, and local units of government to develop a public access for Lake Superior. This project due to be completed June 30, 2003.

Land Acquisition at the Minnesota Landscape Arboretum

5(h) \$730,000 TF
Peter J. Olin
Minnesota Landscape Arboretum/ U of M
PO BOX 39
Chanhassen, MN 55317
Telephone:(612) 443-14712
Fax: (612) 443-2521
E-mail: peter@arboretum.umn.edu
Web address: <http://www.arboretum.umn.edu/>

To the University of Minnesota for an agreement with the University of Minnesota Landscape Arboretum Foundation for the fourth biennium to acquire in-holdings of the Minnesota Landscape Arboretum. This project due to be completed June 30, 2004.

Gateway Trail Bridge

5(i) \$530,000 MFRF
Tom Danger
DNR - Trails and Waterways Division
500 Lafayette Road, Box 52
St. Paul, MN 55155
Telephone:(651) 296-4782
Fax: (651) 297-5475
E-mail: tom.danger@dnr.state.mn.us

For a trail bridge over state highway 96 and expanded parking. This project due to be completed June 30, 2003.

State Trail Projects

5(j) 910,000 MFRF
Tom Danger
DNR - Trails and Waterways Division
500 Lafayette Road, Box 52
St. Paul, MN 55155
Telephone:(651) 296-4782
Fax: (651) 297-5475
E-mail: tom.danger@dnr.state.mn.us

To provide matching funds for state trail projects eligible to receive federal TEA-21 funds. This project due to be completed June 30, 2003.

Gitchi Gami State Trail

5(k) \$1,000,000 TF
Kevin Johnson
DNR
1568 Hwy #2
Two Harbors, MN 55616
Telephone:(218) 834-6240
Fax: (218) 834-6639
E-mail: kevin.johnson@dnr.state.mn.us

In cooperation with the Gitchi-Gami Trail Association, for the second biennium to acquire and develop approximately four miles of the Gitchi- Gami trail between Gooseberry Falls State Park and the Split Rock River. This project due to be completed June 30, 2004.

Forest History Center Interpretive Trail

5(l) \$90,000 MFRF
Robert "Skip" Drake
MHS
2609 County Rd. 76
Grand Rapids, MN 55744
Telephone:(218) 327-4482
Fax: (218) 327-4483
E-mail: skip.drake@mnhs.org
Web Address: <http://www.mnhs.org>

To design and upgrade trails at the Forest History Center in Grand Rapids. This project due to be completed June 30, 2003.

Mesabi Trail Facility

5(m) \$190,000 MFRF
Bob Manzoline
St. Louis & Lake Ctny Reg. Rail Auth.
US Bank Place, Suite 6B, First Street South
Virginia, MN 55792
Telephone:(218) 749-0697
Fax: (218) 749-0696
E-mail: manzoliner@co.st-louis.mn.us

An agreement with the St. Louis and Lake Counties Regional Rail Authority to acquire land and design a Mesabi trail center building. This project due to be completed June 30, 2003.

Regional Trailhead Building

5(n) \$135,000 MFRF
Roger Clark
Itasca County Land Department
123 NE 4th Street
Grand Rapids, MN 55744
Telephone:(218) 327-7347
Fax: (218) 327-2848
E-mail: Roger.Clark@co.itasca.mn.us

An agreement with the Itasca county land department to complete construction of a trailhead building at Itasca county fairgrounds to serve regional trail users. This project due to be completed June 30, 2003.

Development and Rehabilitation of Recreational Shooting Ranges

5(o) \$910,000 MFRF
Chuck Niska
DNR
Camp Ripley, Nelson Hall, State Highway 115
Little Falls, MN 56345-4173
Telephone:(320) 616-2513
Fax: (320) 616-2517
E-mail: chuck.niska@dnr.state.mn.us

To provide cost-share grants to local recreational shooting clubs for the purpose of developing or rehabilitating shooting sports facilities for public use. This project due to be completed June 30, 2003.

State Park & Recreation Area Land Acquisition

5(p) \$1,726,000 MFRF
Larry Peterson
DNR
500 Lafayette Road
St. Paul, MN 55155-4039
Telephone:(651) 296-0603
Fax: (651) 296-6532
E-mail: larry.peterson@dnr.state.mn.us

For acquisition and in holdings for state park and recreation areas. This project due to be completed June 30, 2003.

LAWCON

5(q) \$740,000 MFRF
Wayne Sames
DNR - OMBS, Box 10
500 Lafayette Road
St. Paul, MN 55155-4039
Telephone:651-296-1567
Fax: 651-296-6047
E-mail: wayne.sames@dnr.state.mn.us

For projects allowed under the federal Land and Water Conservation Fund Act.. This project due to be completed June 30, 2003.

Water Resources

Accelerated Implementation of Local Water Plans

6(a) \$1,365,000 MFRF
Marybeth Block
Board of Water and Soil Resources
One West Water Street
St. Paul, MN 55107
Telephone:(651) 297-7965
Fax: (651) 297-5615
E-mail: marybeth.block@bwsr.state.mn.us
Web Address: <http://www.bwsr.state.mn.us>

To accelerate the local water planning challenge grant program under Minnesota Statutes, section 103B.3361, through the implementation of high- priority activities in comprehensive water management plans on a cost-share basis and development of a program reporting system. This project due to be completed June 30, 2004.

Denitrification Strategies for Minnesota's Contaminated Aquifers

6(c) \$230,000 TF
Paige J. Novak
U of M
122 Civil Engineering, 500 Pillsbury Drive SE
Minneapolis, MN 55455
Telephone:(612) 626-9846
Fax: (612) 626-7750

To assess denitrification technology to remediate nitrate-contaminated groundwater. This project due to be completed June 30, 2004.

Determination of Fecal Pollution Sources in Minnesota Watersheds

6(d) \$275,000 MFRF
Michael Sadowsky
U of M
Dept of Soil, Water & Climate 1991 Upper Buford Circle
439 BorH
St. Paul, MN 55108
Telephone:(612) 624-2706
Fax: (612) 625-6725
E-mail: sadowsky@soils.umn.edu
Web Address: <http://www.soils.umn.edu>

To determine sources of fecal pollution in three impacted watersheds utilizing DNA fingerprinting techniques, and evaluate the efficacy of implemented and proposed abatement procedures to remediate fecal contamination. This project due to be completed June 30, 2003.

Mississippi Headwaters Board Environmental Economic Assessments

6(e) \$100,000 MFRF
Jane E. Van Hunnik
Mississippi Headwaters Board
PO Box 3000

Walker, MN 56484
Telephone:(218) 547-7263
Fax: (218) 547-7376
E-mail: cass.mhb@co.cass.mn.us
Web Address: <http://www.mhbriverwatch.dst.mn.us>

For an agreement with Mississippi Headwaters Board to accelerate the river watch watershed monitoring program and integrate economic and water data analysis into decision-making tools for landowners and local units of government. This project due to be completed June 30, 2003.

Land Use and Natural Resource Info

Hydraulic Impacts of Quarries and Gravel Pits

7(a) \$320,000 TF
Jeffrey A. Green
DNR
2300 Silver Creek Road NE
Rochester, MN 55906
Telephone:(507) 285-7429
Fax: (507) 285-7144
E-mail: jeff.green@dnr.state.mn.us

To research and evaluate the impact of aggregate extraction on groundwater quality and quantity. This project due to be completed June 30, 2004.

GIS Management in Koochiching County

7(b) \$70,000 MFRF
Jaci Nagle
Koochiching County
715 4th Street
International Falls, MN 56649
Telephone:(218) 283-1171
Fax: (218) 283-1104

An agreement with Koochiching county to develop parcel-based GIS capability for Koochiching county for land use, natural resource, and fiscal data. This project due to be completed June 30, 2003.

Updating Outmoded Soil Surveys-Continuation

7(c) \$500,000 TF
Greg Larson
Board of Water and Soil Resources
One West Water Street
St. Paul, MN 55107
Telephone:(651) 296-0882
Fax: (651) 297-5615
E-mail: greg.larson@bwsr.state.mn.us

For the second biennium of a three biennia project to accelerate a statewide program to update and digitize outmoded soil surveys in four southeast Minnesota counties. Participating counties must provide a cost share. This project due to be completed June 30, 2004.

County Biological Survey-Continuation

7(d) \$800,000 TF
Carmen Converse
DNR
500 Lafayette Road
St. Paul, MN 55155
Telephone:(651) 296-9782
Fax: (651) 296-1811
E-mail: carmen.converse@dnr.state.mn.us
Web Address: <http://www.dnr.state.mn.us>

For the eighth biennium of a twelve-biennia project to accelerate the survey that identifies significant natural areas and systematically collects data on the distribution and ecology of natural communities, rare plants and animals. This project due to be completed June 30, 2003.

Lake Superior Lakewide Management Plan (LaMP)

7(e) \$87,000 GLPA
Cari Lohse-Hanson
PCA
520 Lafayette Road North
St. Paul, MN 55155
Telephone:(651) 296-9134
E-mail: carri.lohse-hanson@pca.state.mn.us

For the implementation of the Lake Superior Lakewide Management Plan. This project due to be completed June 30, 2003.

Agriculture and Natural Resource Industries

Evaluating Timber Harvesting and Forest Management Guidelines

8(a) 200,000 MFRF
Charles R. Blinn
U of M
1530 Cleveland Avenue North
St. Paul, MN 55108
Telephone:(612) 624-3788
Fax: (612) 625-5212
E-mail: cblinn@forestry.umn.edu

In cooperation with the Minnesota forest resources council for the first biennium of a five biennia project, to initiate an evaluation of the effectiveness of forest management timber harvesting guidelines for riparian areas. This project due to be completed June 30, 2004.

Agricultural Land Preservation

8(b) \$205,000 TF
Robert Patton
Dept of AG/Dakota County
90 West Plato Blvd.
St. Paul, MN 55107
Telephone:(651) 296-5226
Fax: (651) 297-7678
E-mail: bob.patton@state.mn.us

Web Address: <http://www.mda.state.mn.us>

Cooperation with Dakota county for educational materials, training, and workshops on agricultural land use planning tools. This project due to be completed June 30, 2003.

Environmental Practices on Dairy Farms

8(c) \$245,000 MFRF

Bob Lefebvre

Minnesota Milk Producers Association

413 South 28th Avenue

Waite Park, MN 56387

Telephone:(320) 203-8336

Fax: (320) 203-8322

E-mail: mmpa@cloudnet.com

Web Address: <http://www.mnmilk.org>

An agreement with Minnesota Milk Producers Association to assist dairy producers in complying with environmental quality regulations. This project due to be completed June 30, 2003.

Accelerated Technology Transfer for Starch-Based Plastics

8(d) \$90,000 MFRF

Kim A. Stelson

U of M

111 Church Street SE

Minneapolis, MN 55455

Telephone:(612) 625-6528

Fax: (612) 625-9395

E-mail: kstelson@me.umn.edu

To produce and market biodegradable, starch-based plastic. This project due to be completed June 30, 2003.

Energy

Using Biodiesel in Generators

9 \$90,000 OOC

Kenneth L. Bickel

U of M

111 Church Street SE

Minneapolis, MN 55455-0150

Telephone:(612) 625-3864

Fax: (612) 624-1578

E-mail: bicke006@tc.umn.edu

To evaluate the use of biodiesel fuel in diesel powered generators and associated impacts of emissions on air quality. This project due to be completed June 30, 2003.

Environmental Education

WaterScapes: Outdoor Non-Point Source Pollution Education

10(b) \$265,000 TF

Patrick Hamilton

Science Museum of Minnesota

120 W. Kellogg Blvd.

St. Paul, MN 55102

Telephone:(651) 221-4761

Fax: (651) 221-4514

E-mail: hamilton@smm.org

Web Address: <http://www.smm.org>

To create outdoor exhibits that reveal processes that contaminate urban and rural runoff and demonstrate methods to improve water quality. This project due to be completed June 30, 2004.

Sustainable Inner-City Communities through Environmental Literacy

10(c) \$500,000 TF

Jim Cook

Sabathani Community Center

310 East 38th Street

Minneapolis, MN 55409

Telephone:(612) 821-2322

An agreement with Sabathani Community Center for collaborative community environmental education and youth outreach. This project due to be completed June 30, 2003.

Integrated Pest Management in Schools

10(d) 180,000 MFRF

Jeanne Ciborowski

Dept of AG

90 West Plato Blvd.

St. Paul, MN 55107-2094

Telephone:(651) 297-3217

Fax: (651) 297-7678

E-mail: jeanne.ciborowski@state.mn.us

Web Address: <http://www.state.mn.us>

To implement integrated pest management (IPM) practices in Minnesota K-12 schools. This project due to be completed June 30, 2003.

Burn, Plant and Learn: Restoring Upland Habitats

10(e) \$230,000 TF

Shawn Schottler

Science Museum of Minnesota

16910 152nd Street North

Marine on St. Croix, MN 55047

Telephone:(651) 433-5953

Fax: (651) 433-5924

E-mail: schottler@SMM.org

Acquisition of approximately eight acres of property adjacent to the St. Croix watershed research station and for training programs, technical assistance, and demonstrations of upland habitat restoration. This project due to be completed June 30, 2004.

Connecting with Wildlife at the Minnesota Zoo

10(f) \$230,000 MFRF
Martha Caron
Minnesota Zoo
13000 Zoo Blvd
Apple Valley, MN 55124
Telephone: (612) 431-9206
Fax: (612) 431-9452
E-mail: martha.caron@state.mn.us
Web Address: <http://www.mnzoo.com>

To design and develop interpretive environmental educational graphics for trail exhibit areas. This project due to be completed June 30, 2003.

Project Green Start: Environmental Education

10(g) \$340,000 MFRF
Marcie Oltman
Minnesota Children's Museum
10 West 7th Street
St. Paul, MN 55102
Telephone: (651) 225-6020
Fax: (651) 225-6006
E-mail: greenstart@mcm.org
Web Address: <http://www.mcm.org>

An agreement with the Minnesota Children's Museum to construct habitat exhibits for environmental education activities. This project due to be completed June 30, 2003.

Raptor Propagation: Student Education

10(h) \$35,000 MFRF
Andrew Weaver
Stillwater Area High School
5701 Stillwater Area High School, Stillwater Blvd. N
Stillwater, MN 55082
Telephone: (651) 351-8240
Fax: (651) 351-8049
E-mail: weavera@stillwater.K12.MN.US

An agreement with Stillwater Area High School to build a captive breeding facility for raptors and develop associated education activities. This project due to be completed June 30, 2003.

Hennepin Parks Farm Education

10(i) \$100,000 MFRF
Tom McDowell
Suburban Hennepin Regional Park District
12615 County Road 9
Plymouth, MN 55441-1299
Telephone: (612) 559-6705
Fax: (612) 559-3287
E-mail: Tmcdowell@hennepinparks.org
Web Address: <http://www.hennepinparks.org>

An agreement with suburban Hennepin regional park district to develop and implement a coordinated farm

education program at Gale's Woods Special Recreation Area and North Mississippi Regional Park. This project due to be completed June 30, 2003.

Residential Environmental Education for Youth

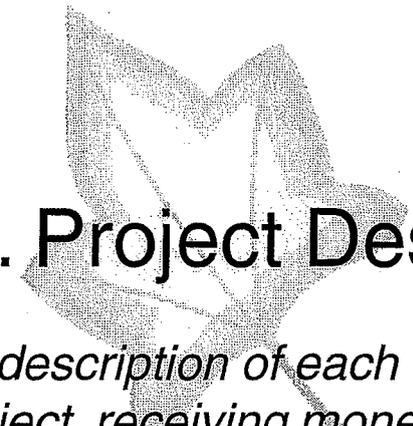
10(j) \$90,000 MFRF
Kurt Marple
Camp Courage
8046 83rd Street NW
Maple Lake, MN 55358
Telephone: (320) 963-3121
Fax: (320) 963-3698
E-mail: eeccourage@yahoo.com
Web Address: <http://www.courageelc.org/>

An agreement with Camp Courage for student scholarships and marketing for the residential environmental education program. This project due to be completed June 30, 2003.

UNCOMMON GROUND: AN EDUCATIONAL TELEVISION SERIES

Legal Citation: ML 2002, Chapter 220, Section 8, Subd. 1 \$254,000 TF
Match: \$200,000
Barbara Coffin
Institute for Sustainable Natural Resources
College of Natural Resources, University of Minnesota
250 NRAB, 2330 Upper Buford Circle
St. Paul, MN 55108
Phone: (612) 624-4986
Fax: (612) 624-8701
E-mail: bcoffin@forestry.umn.edu
Web Page Address: www.cnr.umn.edu/CCE

Uncommon Ground is a 4-part video series that chronicles the vast changes in Minnesota's landscape over the last 200 years. This project due to be completed June 30, 2004.



III. Project Description

“ a description of each project receiving money from the trust fund and Minnesota future resources fund during the preceding biennium; a summary of any research project completed in the preceding biennium...”

The following documents are short abstracts for projects funded during the 1999-2001 biennium. The abstracts describe the general accomplishments of each project as well as providing selected specific details, such as amount of land impacted, species studied, number of school children reached, or products produced. Research projects have been marked as such in the description. Full workprograms are available at the LCMR office Room 65, State Office Building. The abstracts are current as of 12/30/02.

1999 LCMR PROJECT ABSTRACTS

Subd. 3 Administration

LCMR Administration

Subd. 4 Recreation

- 4(a) Local Initiatives Grants Program
- 4(b) Mesabi Trail Land Acquisition and Development-Continuation
- 4(c) Kabetogama to Ash River Community Trail System
- 4(d) Mesabi Trail Connection
- 4(e) Dakota County Bikeway Mapping
- 4(f) Mississippi Riverfront Trail and Access
- 4(g) Management and Restoration of Natural Plant Communities on State Trails
- 4(h) Gitchi-Gami State Trail
- 4(i) State Park and Recreation Area Acquisition, Development, Betterment, and Rehabilitation
- 4(j) Ft. Snelling State Park-Upper Bluff Implementation-Continuation
- 4(k) Interpretive Boat Tours of Hill Annex Mine State Park
- 4(l) Metropolitan Regional Parks Acquisition, Rehabilitation and Development
- 4(m) Como Park Maintenance
- 4(n) Luce Line Trail Connection through Wirth Park

Subd. 5 Historic

- 5(a) Using National Register Properties to Interpret Minnesota History
- 5(b) Historic Site Land Acquisition
- 5(c) Gibbs Farm Museum Interpretation
- 5(d) Traverse des Sioux Site Development
- 5(e) Old Wadena Historic Site Development

Subd. 6 Water Quality

- 6(a) On-site Sewage Treatment Alternatives-Performance, Outreach and Demonstration-Continuation

6(b) Identification of Sediment Sources in Agricultural Watersheds

6(c) Accelerated State-Wide Local Water Plan Implementation

6(d) Tracking Sources of Fecal Pollution Using DNA Techniques

6(e) Groundwater Flow in the Prairie du Chien Aquifer

6(f) Lake Minnetonka Citizens Monitoring and Education Network

6(g) Erosion Impacts on the Cannon Valley Big Woods

6(h) City of the Lakes Flood Mitigation and and Flow Stream Protection

Subd. 7 Agriculture and Natural Resource Based Ind

- 7(a) Green Forest Certification Project
- 7(b) Accelerated Transfer of New Forest-Research Findings
- 7(c) Minnesota Wildlife Tourism Initiative
- 7(d) Integrated Prairie Management
- 7(e) Improved Agricultural Systems Overlying Sensitive Aquifers in Southwestern Minnesota
- 7(f) Diversifying Agriculture for Environmental, Economic, and Social Benefits
- 7(g) Minnesota River Basin Initiative: Local Leadership
- 7(h) Commercial Fertilizer Plant of Livestock Solid Waste Processing
- 7(i) Preservation of Native Wild Rice Resource
- 7(j) Wild Rice Management Planning
- 7(k) Mesabi Iron Range, Water and Mineral Resource Planning
- 7(l) Sustainable Aquaculture Development in Minnesota
- 7(m) Sustainable Farming Systems-Continuation
- 7(n) Economic Analysis of Agriculture for Multiple Benefits
- 7(o) Non-Wood Agricultural Fibers and Industrial Hemp for Pulp and Paper Manufacture
- 7(p) Sustainable Livestock Systems
- 7(q) Forest Wildlife Biologist for Ruffed Grouse

7(r) Organic Farming Training Project

7(s) Construction and Demolition Waste Abatement Demonstration Project

Subd. 8 Urbanization Impacts

8(a) Resources for Redevelopment: A Community Property Investigation Program

8(b) Tools and Training for Community-Based Planning

8(c) Protecting Dakota County Farmland and Natural Areas

8(d) Urban Corridor Design

8(e) Conservation-Based Development Program

8(f) Chisago Lakes Outlet Channel Project

8(g) Blufflands Implementation

Subd. 9 Innovations in Energy and Transportation

9(a) Ice Arena Design for Efficiency and Air Quality-Continuation

9(b) Promoting High Efficiency Cogeneration

9(c) Evaluate Biodiesel Made from Waste Fats and Oils

Subd. 10 Decisionmaking Tools

10(a) Goodhue County Natural Resources Inventory and Management Plan

10(b) Public Access to Mineral Knowledge

10(c) Updating Outmoded Soil Surveys-Continuation

10(e) Minnesota Environmentally Preferable Chemicals Project

10(f) GIS Utilization of Historic Timberland Survey Records

10(g) By-Products Application to Agricultural, Mineland and Forest Soils

10(h) Winter Severity Index for Deer

Subd. 11 Environmental Education

11(a) Uncommon Ground: An Educational Television Series

11(b) Karst Education for Southeastern Minnesota

11(c) Minnesota Wolf Public Education

11(d) Bear Center

11(e) Accessible Outdoor Recreation

11(f) Science Outreach and Integrated Learning on Soil

11(g) Teacher Training in Interdisciplinary Environmental Education

11(h) Development and Rehabilitation of Recreational Shooting Ranges

11(i) Youth Outdoor Environmental Education Program

11(j) Twin Cities Environmental Service Learning-Continuation

11(k) Minnesota Whitetail Deer Resource Center Exhibits

11(l) Sustainability Forums

11(m) Minnesota River Watershed Ecology and History Exhibit

11(o) Aquaculture, Hydroponics, and Greenhouse Research Lab

Subd. 12 Benchmarks and Indicators

12(a) Measuring Children's Exposures to Environmental Health Hazards

12(b) Minnesota County Biological Survey-Continuation

12(c) Environmental Indicators Initiative - Continuation

12(d) Dakota County Wetland Health Monitoring Program

12(e) Predicting Water and Forest Resources Health and Sustainability

12(f) Potential for Infant Risk from Nitrate Contamination

12(g) Assessing Lake Superior Waters Off the North Shore

12(h) Minnesota's Forest Bird Diversity Initiative-Continuation

12(i) Farm Ponds as Critical Habitats for Native Amphibians

12(j) Improved Minnesota Fungus Collection and Database

Subd. 13 Critical Lands or Habitats

13(a) Sustainable Woodlands and Prairies on Private Lands-Continuation

13(b) National Prairie Passage-Linking Isolated Prairie Preserves

13(c) Greening the Metro Mississippi-Minnesota River Valleys

13(d) Restoring the Greater Prairie Chicken to Southwestern Minnesota

13(e) The Prairie Heritage Fund -Continuation

13(f) Public Boat Access and Fishing Piers

13(g) Arboretum Land Acquisition and Wetlands Restoration-Continuation

13(h) Native Prairie Prescribed Burns

13(i) Implement the Chisago and Washington Counties Green Corridor Project-Continuation

13(j) RIM Shoreland Stabilization

13(k) Enhancing Canada Goose Hunting Opportunities for Recreation and Management Purposes

13(l) Nongame Wildlife Match Account

13(m) Wildlife Habitat Acquisition and Development - Chub Lake

Subd. 14 Native Species Planting

14(a) Minnesota ReLeaf Matching Grant Program-Continuation

14(b) Landscaping for Wildlife and Nonpoint Source Pollution Prevention

14(c) Lakescaping for Wildlife and Water Quality Initiative

14(d) Development and Assessment of Oak Wilt Biological Control Technologies-Continuation

14(e) Restoring Ecological Health to St. Paul's Mississippi River Bluffs

Subd. 15 Native Fish

15(a) Mussel Resource Survey

15(b) Freshwater Mussel Resources in the St. Croix River

Subd. 16 Exotic Species

16(a) Biological Control of Eurasian Watermilfoil and Purple Loosestrife-Continuation

16(b) Evaluate establishment, impact of leafy spurge biocontrol agents

16(c) Restoring Native Vegetation in Parks and Nature Centers

Sec. 3 Additional Appropriations

Sec. 3 FY 99 ML 1997 Subd. 4(b) Metropolitan Regional Park System \$495,000

Sec. 3 FY 99 ML 97 Subd. 4(a) State Park and Recreation Area Acquisition \$496,000



- LCMR General Info --
- LCMR Funded Projects--
- LCMR Publications --
- Trust Fund --

1999 LCMR PROJECT ABSTRACTS

Laws 1999, Chapter 231, Section 16 (July 1, 1999 through June 30, 2001)

- Environment and Natural Resources Trust Fund (TF)
- Future Resources Fund (FRF)
- Great Lakes Protection Account (GLP)

The following documents are short abstracts for projects funded during the 1999-2001 biennium. The final date of completion for these projects is listed at the end of the abstract. When available, we have provided links to the programs web site. The sites listed on this page are not created, maintained, or endorsed by the Minnesota Legislature. If you would like further information about specific projects, please contact the appropriate program manager at the address or phone number listed. For a list of 1999 Projects that includes the title and dollar amount only: [1999 Project List](#).

Subd. 4 Recreation	Subd. 5 Historic
Subd. 6 Water Quality	Subd. 7 Agriculture and Natural Resource Based Ind
Subd. 8 Urbanization Impacts	Subd. 9 Innovations in Energy and Transportation
Subd. 10 Decisionmaking Tools	Subd. 11 Environmental Education
Subd. 12 Benchmarks and Indicators	Subd. 13 Critical Lands or Habitats
Subd. 14 Native Species Planting	Subd. 15 Native Fish
Subd. 16 Exotic Species	Section 17, Additional State Park Appropriations

SUBD. 4 RECREATION

LOCAL INITIATIVE GRANTS PROGRAM

4(a) \$5,117,000 FRF/TF
 Wayne Sames
 Department of Natural Resources
 DNR, Office of Planning
 Box 10, 500 Lafayette Rd.
 St. Paul, MN 55155-4010
 Phone: (651) 296-1567
 Fax: (651) 296-6047
 E-mail: wayne.sames@dnr.state.mn.us

Overall Project Outcome and Results The key objective and results of the Local Initiatives Grant Program is to assist local governments and private organizations in acquisition and development of local parks, acquisition of natural and scenic areas, improvement of fish and wildlife habitat, and implementation of a variety of conservation projects. The 1999 appropriation resulted in acquisition or development of 30 Outdoor Recreation Grant projects, including acquisition of 69 acres of park land; 6 Natural and Scenic Area projects totaling 237.5 acres, 92 habitat improvement projects through the Conservation Partners Grant program, and 43 general conservation projects through the Environmental Partnerships Grant program.

The Outdoor Recreation Grants resulted in a significant improvement of local park facilities in communities throughout the state. The Natural and Scenic Areas protected included scenic land on Lake Superior, other lake and river shore lands, and high quality woodlands. Conservation Partners projects included prairie, forest, wetland and lake restoration projects and several associated research projects. Environmental Partnerships projects included a number of environmental education, environmental monitoring, and other conservation service projects.

More detailed descriptions of funded projects are available from the DNR Local Grants Program.

Project Results Use and Dissemination Most of these projects resulted in acquisition of land, development of outdoor recreation facilities and on the ground habitat improvements. Those that involved research or environmental education have made the information available in a number of ways, including informational brochures, interpretive displays, etc. Final project reports are submitted for the Conservation Partners and Environmental Partnerships grant programs. These reports are available for review by contacting the DNR Local Grants Program.

Project completed June 30, 2002.

MESABI TRAIL LAND ACQUISITION AND DEVELOPMENT- CONTINUATION

4(b) \$ 1,000,000 FRF/ Match

Robert Manzoline

St. Louis and Lake Counties Regional Railroad Authority

Northland Office Center

307 S. First St. So.

Room 113

Virginia, MN 55792

Phone: (218) 749-0697

Fax: (218) 749-0698

<http://www.mesabitrail.com/frames/main.html>

This appropriation is for the continuation of the Mesabi Trail project. Construction of the trail began in 1994 and is anticipated to be completed in the year 2004. This biennium portion is to acquire and develop 37 miles of the Mesabi Trail. There are five segments that make up the 37 miles: 1) A 6-mile segment from the City of Taconite to the City of Calumet; 2) An 8-mile segment from the City of Calumet to the City of Nashwauk; 3) A 5-mile segment from the City of McKinley to the City of Biwabik; 4) A 9-mile segment from the Giants Ridge area to the City of Embarrass; and 5) A 6-mile segment from Mt. Iron to the City of Kinney. The project is also set up to procure design and engineering for trailheads and enhancements. The State of MN, Department of Highway Bicycle Design Standards will be used for trail design. The trail is being developed for multiple user groups in most areas. This appropriation must be matched by at least \$1,000,000 of nonstate money.

Project due to be completed by June 30, 2004.

KABETOGAMA/ ASH RIVER COMMUNITY TRAIL SYSTEM

4(c) \$100,000 FRF/Match

Lee Herseth

Kabetogama Lake Association

10078 Gappa Road

Lake Kabetogama, MN 56669
Phone: (218) 875-2111 or (218) 875- 3803
Fax: (218) 875-2114

This project completed 4.8 miles of biking trail, 1.5 miles of hiking/cross-country ski trail, and four trail head parking lots. Two short loop trails, a bridge and 11,000 feet of boardwalk were also constructed. Trailhead signing and directional trail signing is complete.

This trail system now connects two gateway communities, Ash River and Lake Kabetogama, of Voyageurs National Park. The system consists of 23.5 miles hiking, 4.8 miles biking, and 19.6 miles cross country ski trails. The combination of multi-purpose trails provides diverse tourism opportunities annually for over 250,000 visitors and educational programs for over 3,000 students.

The hike/ski/bike trail alignments were approved by the DNR, Voyageurs National Park and the Kabetogama Lake Association. The trail met federal NEPA requirements and all necessary permits were obtained. The majority of LCMR funding was used for trail development.

An August 24, 2002 grand opening celebrated the project. Participants included Senator Mark Dayton, National Park Service and DNR staff, Kabetogama Lake Association, volunteers and friends.

Project completed June 30, 2002.

MESABI TRAIL CONNECTION

4(d) \$80,000 FRF/ Match
Curt Anttila
East Range Powers Board
P.O. Box 127
Aurora, MN 55705
Phone: (218) 229-3671
Fax: (218) 229-3561
E-mail: erpb@the-bridge.net

This appropriation is to develop trail connections to the Mesabi Trail with the communities of Aurora, Hoyt Lakes, and White. The project will develop and surface 2.25 miles of new multi-use trail, primarily along existing abandoned mining haul roads. The project will also surface .85 miles of trail constructed in 1997 in the City of Aurora. This trail connection will provide a direct link to the city of Biwabik and the Giants Ridge Golf and Ski Resort. It will have an all-weather 10' wide bituminous surface and be constructed to conform to current state and federal accessibility standards. This appropriation must be matched by at least \$80,000 of nonstate money.

Project due to be completed by June 30, 2002. Final report not yet received as of 12/27/2002.

DAKOTA COUNTY BIKEWAY MAPPING

4(e) \$15,000 FRF
Jack Ditmore
Dakota County Physical Development Division
Western Service Center
14955 Galaxy Avenue
Apple Valley, MN 55124
Phone: (612) 891-7007
Fax: (612) 891-7031

E-mail: jack.ditmore@co.dakota.mn.us
Web Address: <http://www.co.dakota.mn.us/planning>

A cost share agreement was funded integrating the digital elevation information in the Dakota county geographic information system database with trail and bikeway routes, and developed maps displaying trail difficulty ratings for trail and bikeway users.

Project completed June 30, 2000.

MISSISSIPPI RIVERFRONT TRAIL AND ACCESS

4(f) \$155,000 FRF/ Match
Tom Montgomery/ Marty McNamara
City of Hastings
101 East 4th Street
Hastings, MN 55033
Phone: (651) 437-4127
Fax: (651) 437-7082

This project helped to protect wildlife areas, connect existing trails, improve the public boat access and preserve the river front areas between the City of Hastings Lock and Dam #2 for public use. It improved 3,000 feet of road and trail, added lights to the trail, and connected the Riverfront Trail to an existing fifteen-mile loop trail system around Hastings. It also will allow connection of the Hastings' trail system to Dakota County's planned trail connection to Spring Lake Park.

The Army Corps of Engineers estimates that over 50,000 people annual use the Lock and Dam #2 areas. The boat launch was been improved to hold 45 vehicle and trailer parking stalls. This boat launch allows easy access to both the Mississippi and St. Croix Rivers. This area used to be an oil tank farm. The project goal was to restore the tank farm area to a scenic and natural area. This project has worked to preserve a large natural area on the Mississippi River for public use consistent with the MNRRA Comprehensive Master Plan.

Maps of the trail system are available at Hastings City Hall and through the Hastings Chamber of Commerce. The City of Hastings has also provided signage marking the trail system.

Project completed June 30, 2002.

MANAGEMENT AND RESTORATION OF NATURAL PLANT COMMUNITIES ON STATE TRAILS

4(g) \$150,000 TF
Angela Anderson
Department of Natural Resources
Box 52, 500 Lafayette Road
St. Paul, MN 55155-4052
Phone: (651) 296-6768
Fax: (651) 296-5475
E-mail: angela.anderson@dnr.state.mn.us

Overall Project Outcome and Results This project had a significant role in restoration, re-establishment and management of natural plant communities along State Trails. Re-established a total of:

- 4 sites to native oak savanna
- 40 acres along the Glacial Lakes State Trail
- 4 acre site along the Harmony Preston Valley Trail
- 3 acres along the Shooting Star State Trail
- 12 acre site containing a Big Woods remnant, along the Luce Line State Trail, was cleared of exotic

buckthorn and 2000 native understory shrubs and trees were planted to restore plant diversity

- 1000 native shrubs and trees were planted along the Glacial Lakes Trail to provide a windbreak and screening.
- A prescribed burn was conducted on 35 acres of pine savanna along the Willard Munger State Trail, and to control non-native buckthorn, siberian elm and other non-native plants on selected sites along State Trails statewide.
- 7 interpretive exhibits at trail sites to inform trail users of oak savanna restoration
- An exotic species identification guide was produced and will be distributed to natural resources managers who manage public lands.

Monitoring of these projects over the next few years will provide assistance to future restoration and management work.

Project completed June 30, 2001.

GITCHI-GAMI STATE TRAIL

4(h) \$550,000 TF

Larry Peterson

State Park Development and Real Estate Manager

500 Lafayette Road

St. Paul, MN 55155-4039

Phone: 651-296-0603

Fax 651-296-6532

E-mail: larry.peterson@dnr.state.mn.us

Overall Project Outcome and Results This project originated as a request for funding for the three mile segment of the Gitchi Gami State Trail within the boundaries of Split Rock Lighthouse State Park. The project was combined with a TEA21-funded project for a trail connection between the park and the City of Beaver Bay, to create an 8 mile trail segment. Overall project construction cost was \$1,745,000. The LCMR funding played a critical role in accelerating the project engineering and environmental documentation so that the TEA21 funding could be used for the longer 8 mile project. The three mile segment of the project within Split Rock Lighthouse State Park was completed in the summer of 2002 and provides spectacular views to trail users.

Project Results Use and Dissemination This trail segment will be advertised within various state park publications and credit will be given to LCMR funding wherever possible.

Project completed June 30, 2002.

STATE PARK AND RECREATION AREA ACQUISITION, DEVELOPMENT, BETTERMENT, AND REHABILITATION

4(i) \$1,000,000 TF

John Strohkirch

State Park Development and Acquisitions

500 Lafayette Road

St. Paul, MN 55155-4039

Phone: (651) 296-8289

Fax: (651) 296-6532 of (651) 297-1157

E-mail: john.strohkirch@dnr.state.mn.us

This project supported acquisition, development, and rehabilitation activities in six state parks. DNR acquired land from willing sellers within the boundaries of Minneopa State Park (401 acres), Interstate State Park (1

acre), and Savannah Portage State Park (45 acres). This funding also helped replace the Nicollet Court motel room in Itasca State Park, rehabilitated the Banning State Park sewer system, and supported the visitor center design work at Forestville State Park.

Project completed June 30, 2002.

Sec. 17. ADDITIONAL APPROPRIATIONS The following amounts are appropriated in fiscal year 1999 from the Minnesota Environment and Natural Resources Trust Fund referred to in Minnesota Statutes, section 116P.02, subdivision 6. \$496,000 in fiscal year 1999 is added to the appropriation in Laws 1997, chapter 216, section 15, subdivision 4, paragraph (a), clause (1), for state park and recreation area acquisition. \$495,000 in fiscal year 1999 is added to the appropriation in Laws 1997, chapter 216, section 15, subdivision 4, paragraph (b), metropolitan regional park system.

FORT SNELLING STATE PARK / UPPER BLUFF IMPLEMENTATION- CONTINUATION

4(j) \$100,000 TF
John Lilly
Minnesota Department of Natural Resources
1200 Warner Road
St. Paul, MN 55106
Telephone Number: 651/772-6149
Fax Number: 651/772-7977
E-Mail Address: John.Lilly@state.mn.us

Overall Project Outcome and Results The Upper Bluff contains 28 historic buildings with over 380,000 square feet of usable space. This 141 acre site is comprised of the Polo Grounds, Area J and Officer's Row. During the 1997 - 1999 biennium. These funds were used to develop a conceptual plan (now called the Reuse Study) for this area.

The plan includes: redevelopment of the Parade Grounds that will result in a state of the art youth sports athletic complex to include four softball, two baseball and seven soccer/rugby fields. The facilities will also be available to Metro area groups through a reservation system. The implementation and management of this complex will be guided by a 30 year lease established with Minneapolis Parks & Recreation Board on January 7, 2001. Several agencies partnered in developing this lease include the National Park Service, State Historic Preservation Office, Dept. of Veteran Affairs, Ft. Snelling State Park Association and Dept. of Natural Resources-Parks. Currently, Minneapolis is in Phase 2 of the new waterline project which will provide service to the entire Upper Bluff area.

The Area J/Officer's Row segment of the Upper Bluff property has been reviewed through a similar Section 106 Historical Review and Environmental Assessment process with National Park Service and the State Historic Preservation Office. This has involved a deed change to allow uses other than just recreational. Other documents prepared to date include the "Program of Preservation and Utilization" and the "Design Guidelines". These all must be approved through the Federal offices before preparation of lease(s) for prospective tenants. Based on a 1999 "call for interest" and subsequent user viability study, this study short listed three potential tenants for the project to include: Minnesota Valley Academy, Native Arts High School and Ft. Snelling Academy. The Ft. Snelling Academy board recently decided to close their doors; as such, previous proposals are being reviewed for a replacement.

There have been some additional studies prepared as part of the Upper Bluff project. These include a reuse study of Building 151(BOQ), a historical study of the entire Upper Bluff area and a HABS report for Building 63. An interpretive study of the area will be forthcoming.

Project Results Use and Dissemination The Reuse Study has been reprinted twice and supplied to a number of parties interested in the Upper Bluff area. Also interviews were offered to twelve interested organizations and nine interviews were held to evaluate their viability. This provided these groups with additional

opportunity to offer detail to the proposals and inquire further into potential lease requirements. Inquiries have continued to come in throughout the process and more interest is expected.

Project completed June 30, 2001.

INTERPRETIVE BOAT TOURS OF HILL ANNEX MINE STATE PARK

4(k) \$60,000 TF
John Strohkirch
State Park Development and Acquisitions
500 Lafayette Road
St. Paul, MN 55155-4039
Phone: (651) 296-8289
Fax: (651) 296-6532 of (651) 297-1157
E-mail: john.strohkirch@dnr.state.mn.us

The project included the purchase of a tour boat and associated docking facility at Hill Annex Mine State Park. This project has allowed DNR State Parks to add interpretive tours of the Hill Annex open pit mine via boat excursions as an option to the existing bus tours. Interpretive tours by boat will give visitors a better perspective of the size and unique geology of the Hill Annex Mine.

Project completed June 30, 2001.

METROPOLITAN REGIONAL PARKS ACQUISITION, REHABILITATION AND DEVELOPMENT

4(l) \$2,000,000 TF
Arne Stefferud
Metropolitan Council
Mears Park Centre
230 East Fifth Street
St. Paul, MN 55101-1634
Phone: (651) 602-1360
Fax: (651) 602-1404
E-mail: arne.stefferud@metc.state.mn.us

Overall Project Outcome and Results: The key objective of these appropriations is to continue the acquisition, development, and rehabilitation of the metropolitan regional park system, consistent with the Metropolitan Council's regional recreation open space capital improvement plan. Funds from the State appropriation are matched on a 60/40 basis with bonds issued by the Metropolitan Council and then granted to regional park implementing agencies as subgrants. The subgrants financed the following capital improvements:

1. Design/engineering work to match a TEA-21 grant for a 3.3 mile trail in Hyland-Bush Anderson Lakes Park Reserve, Bloomington.
2. Complete the restoration of the Harriet Island Regional Park picnic pavilion, St. Paul
3. Rehabilitate parking/work areas, septic systems and garage at Baylor Regional Park, Carver County.
4. Design/engineering work for replacing the bicycle/pedestrian trails, street modifications, landscaping and signage at the Lake of the Isles portion of Minneapolis Chain of Lakes Regional Park, Minneapolis Park & Recreation Board.
5. Complete internal park roads, trails, enhance existing beach and picnic area at Rice Creek Chain of Lakes Park Reserve, Anoka County.
6. Correct the subgrade and pave a portion of the internal park access road in Lake Minnewashta Regional Park, Carver County.
7. Relocate and expand the boat launch at Lake Byllesby Regional Park, Dakota County.

8. Partially finance the historic/interpretive displays in the "Mill Ruins" portion of Central Mississippi Riverfront Regional Park, Minneapolis Park & Recreation Board
9. Partially finance lighting a 5 kilometer ski trail, constructing a trail bridge over Battle Creek Road plus new trails, parking improvements and restoring oak-savannah and prairie at Battle Creek Regional Park, Ramsey County.
10. Partially finance rebuilding 7 miles of paved bike/pedestrian trail in Baker Park Reserve, Three Rivers Park District.

Project Results Use and Dissemination: With regard to the directive for the Metropolitan Council to collect, digitize and publish a map illustrating all local, regional, state and federal parks and all off-road trails with connecting on-road routes, the Metropolitan Council collected data in 1999 from local governments and other entities. The data was digitized and published in September 1999 by the Lawrence Group in 2000 King of Maps, Twin Cities Metro Street Atlas. This publication is available at bookstores and other map retail outlets. The park and trail data is contained in the updated versions of the atlas for 2001, 2002 and 2003. The partnership approach with a private map publishing company was the only way the data could be published in a format that was useful to the public, and published at an affordable price to the consumer.

Capital improvement projects completed June 30, 2002. Map data collection, digitization and publication project completed September 1999.

Project completed June 30, 2002.

Sec. 17. ADDITIONAL APPROPRIATIONS The following amounts are appropriated in fiscal year 1999 from the Minnesota Environment and Natural Resources Trust Fund referred to in Minnesota Statutes, section 116P.02, subdivision 6. \$496,000 in fiscal year 1999 is added to the appropriation in Laws 1997, chapter 216, section 15, subdivision 4, paragraph (a), clause (1), for state park and recreation area acquisition. \$495,000 in fiscal year 1999 is added to the appropriation in Laws 1997, chapter 216, section 15, subdivision 4, paragraph (b), metropolitan regional park system.

COMO PARK CAMPUS MAINTENANCE

4(m) \$500,000 FRF
Victor L. Camp
St. Paul's Como Zoo
Division of Parks and Recreation
City of St. Paul
1250 Kaufman Drive
St. Paul, MN 55103
Phone: (651) 487-8202
Fax: (651) 487-8204
E-Mail: vic.camp@ci.stpaul.mn.us

This project supported the repair and maintenance of deteriorating physical structures and utility systems serving the plant and animal exhibits at the Como Park Zoo and Conservatory in St. Paul. It allowed the repair and replacement of a zoo perimeter fence, the concrete facade in front of the conservatory, portions of heating systems, and zoo pathways, and the installation of an emergency generator and wiring in the primate facility.

Project completed June 30, 2002.

LUCE LINE TRAIL CONNECTION THROUGH WIRTH PARK

4(n) \$300,000 FRF/ Match
Tim P. Brown
Minneapolis Park and Recreation Board

400 South Fourth
Suite 200, Grain Exchange
Minneapolis, MN 55415
Phone: (612) 661-4813
Fax: (612) 661-4777
E-mail: timothy.p.brown@ci.minneapolis.mn.us

Overall Project Outcome And Results 5,010 feet of bicycle and pedestrian trail was completed through Wirth Park to connect the Minneapolis Regional Trail system with the Luce Line State Trail. The completed Luce Line segment links with the Basset's Creek Trail, to connect the Cedar Lake Trail with the Wirth Parkway Trail and a future Luce Line segment in Golden Valley.

This connection is part of one of the longest trails in the state extending from Hutchinson to Minneapolis. The new trail enables pedestrians and cyclists to access the 45-mile regional trail systems of the Minneapolis Park Board with its connections to other trail systems in Hennepin, Anoka and Dakota Counties and the City of St. Paul. Along with providing a first rate recreational facility the trail completes an important bicycle commuter route from the western metro area to downtown Minneapolis.

Built to MNDOT Bike Trail specifications, the new bituminous trail has a minimum width of 10 feet. The trail is striped and has signage to provide maximum safety and navigation. Restoration of disturbed areas was also completed including grading, seeding and the planting of 40 small trees to replace trees lost during the trail construction.

Project completed June 30, 2002.

SUBD. 5 HISTORIC

USING NATIONAL REGISTER PROPERTIES TO INTERPRET MINNESOTA HISTORY

5(a) \$90,000 FRF
John F. Lauber
Minnesota Historical Society
345 Kellogg Blvd. W.
St. Paul, MN 55102-1906
Phone: (651) 296-5434
Fax: (651) 282-2374
E-mail: john.lauber@mnhs.org
Web Page Address: www.mnhs.org

Overall Project Outcome and Results This project created an addition to the Minnesota Historical Society's Web site. Using National Register properties to interpret four themes in Minnesota history, a total of 80 properties are featured. A searchable database provides the interactive framework, allowing users to access information in a variety of ways and to search by location, keyword or create a custom search.

The project grew out of a long-held commitment to make information about Minnesota's historic properties widely accessible. For more than 30 years, the State Historic Preservation Office has been working to identify, evaluate, designate and protect the state's historic resources. This work has yielded a wealth of information and has put more than 1,500 properties on the National Register of Historic Places.

A steering committee worked with teams of consultants to develop several approaches to exploring Minnesota's historic properties and identified themes for each. The site features the following themes:

- *A Minnesota Sampler* provides a tour of the state's architectural resources.
- *The Iron Range Region* explores Minnesota's industrial heritage.
- *Getaways through the Years* revisits the places where Minnesotans have spent their leisure time. *Minnesota from the Railroad* examines how the Great Northern helped shape Minnesota's countryside.

Each theme includes a historical overview, illustrated descriptions of properties, location maps, bibliography and links to related sites.

More themes and properties will be added over time. A searchable database of all 1,500 Register properties were added in the fall of 2001. It is expected that greater understanding will lead to greater appreciation for and stewardship of Minnesota's significant cultural resources.

Project completed June 30, 2001.

HISTORIC SITE LAND ACQUISITION

5(b) \$175,000 TF
John Crippen
Minnesota Historical Society
Fort Snelling History Center
St. Paul, MN 55111
Phone: (651) 296-3979
Fax: (651) 296-8404
E-mail: john.crippen@mnhs.org
Web Page Address: www.mnhs.org

The primary project result was the purchase of 80 acres of land adjacent to the Jeffers Petroglyphs site in Cottonwood County. It will protect the site from possible development or commercial activity nearby, and it will enhance the site experience for 10,000 visitors each year. Over the next several years, the use of the land will revert from agricultural to restored prairie. The land is also adjacent to the site's large collection of the endangered Prairie Bush Clover, and it is hoped that this acquisition will provide expansion space for that plant.

Project completed June 30, 2002.

GIBBS FARM MUSEUM INTERPRETATION

5(c) \$150,000 FRF
Priscilla Farnham
Ramsey County Historical Society
323 Landmark Center
75 West 5th Street
St. Paul, MN 55102
Phone: (651) 222-0701
Fax: (651) 223-8539
E-mail: admin@rchs.com
Web Page Address: www.rchs.com

Overall Project Outcome and Results The key objective was to build and furnish replica structures and to recreate land use of the Dakota and pioneers including: Dakota bark lodge, two canvas tipi, furnishings

including clothing and tools, restoration of 1.3 acres of prairie using Francis Marschner's interpretation of the original land survey notes of 1847 and planting 174 species of plants include grasses like Big and Little bluestem, Switch grass, Indian grass, and wildflower species like Butterfly weed, Yellow coneflower, Prairie onion and Prairie rose.

The significance of a positive, hands-on perspective of a culture that is part of Minnesota's heritage is enormous. Most contemporary people know of Dakota people only through tales of war and deprivation. The Dakota culture is here represented at its best – not just in decline and despair. Some of the most effective learning occurs outside the classroom when a person experiences life in another era. It's the only site in Minnesota showing a period of friendship and cooperation between the in-coming pioneers and the indigenous peoples. It serves as a beacon of hope for cross-cultural understanding for all peoples.

Attendance has increased over last year (20,000); our new marketing plan anticipates reaching its goal of 30,000 visitors.

Project completed June 30, 2001.

TRAVERSE des SIOUX SITE DEVELOPMENT

5(d) \$250,000 TF

Thomas Ellig

Minnesota Historical Society

Lower Sioux Agency

32469 Cty. Hwy. 2

Morton, MN 56270

Phone: (507) 697-6321

Fax: (507) 697-6310

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Overall Project Outcome and Results Of the many results from this project, the most important is that the site has changed from an undeveloped to a developed site. Traverse des Sioux historic site is now more accessible to the entire public and interpretation of the site has been dramatically expanded and improved. The site now has approximately 1.25 miles of ADA compliant trails, 2 interpretive kiosks, 12 interpretive markers and 7 building identification markers. The trail also includes 5 benches for rest areas. Besides the trail and marker development, there is a new hard-surfaced parking lot that will accommodate more vehicles. Also, approximately 25 acres of the site have been restored to native prairie that when fully established, will include 7 grasses and 30 flower species. Prior to this development, site attendance was about 1,000 visitors per year. Annual attendance is now estimated to increase to 5,000 annually.

A major public benefit of this project will be the expansion of the interpretive programming at the site. Of the ten major interpretive themes identified for Traverse des Sioux, only 3-4 of them were being interpreted prior to this project. Now, all 10 themes are part of the site's daily interpretive program. Besides daily interpretation, the site can now offer special programs. This will allow for increased use of the site by the public, and especially, school groups.

Project Results Use and Dissemination The primary result of this project has been to improve public access to the site and to expand and improve site interpretation. This result is being disseminated in a variety of ways. The Minnesota Historical Society (MHS) promotes the site through its web page at www.mnhs.org (Museums & Historic Places – Historic Sites). The site is also promoted through the MHS Special Events advertising and in the Society's quarterly news magazine *Minnesota History*. The site also has its own brochure as well as being promoted through the MHS's Sites Guide. The site's close proximity to the Nicollet County Historical Society museum means that the NCHS will be disseminating information about the site on a frequent basis.

Project completed June 30, 2001.

OLD WADENA HISTORIC SITE DEVELOPMENT

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Overall Project Outcome and Results A 4' x 55' steel footbridge was erected across the Partridge River on May 31, 2000. This provided access to the Little Round Hill for the first time, allowing community members and all park visitors to explore the site of Aywishtoyah's trading post and the battle between the post and the Dakota.

Project completed June 30, 2001.

SUBD.6 WATER QUALITY

ON-SITE SEWAGE TREATMENT ALTERNATIVES: PERFORMANCE, OUTREACH & DEMONSTRATION-CONTINUATION

6(a) \$550,000 TF
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RESEARCH PROJECT

To evaluate alternative system performance and increase the use of these systems to solve sewage treatment problems, this project had three objectives: 1. Establish five demonstration installations of alternatives and evaluate performance; 2. Monitor alternative technologies at research sites for pathogen, solids and nutrient removal; and 3. Evaluate additional methods to improve nitrogen and pathogen removal using constructed wetlands.

Overall Project Outcome and Results: Results of these three objectives are summarized as follows:

1. Five demonstrations were conducted. The alternative systems installed were sand filters, a textile filter, and a composting toilet with a drip distribution system.
2. Key findings of the research are:
 - o Pressure distribution of septic tank effluent increases the performance (efficiency and operation) of most alternative systems. Alternative systems require more management than "conventional" systems.
 - o Alternative systems typically achieved secondary treatment standards (as per municipal wastewater plant—25TSS and 30BOD); and many systems consistently achieved < 200 fecals/100 ml, (recreational beach standard).

- o Seasonal variations in performance and management must be accounted for in design and operation
- 3. Protocols and methodology for evaluating system performance using seeded bacterial pathogens and viral pathogens have been developed.

Project Results Use and Dissemination: Results of this project are detailed on a web page that was developed in the summer of 2000. The address is www.bae.umn.edu/septic. A comprehensive technology transfer plan coordinated by the principals of this project continues to provide design, construction, operation and maintenance information to homeowners, contractors, resorts, Extension educators, and local and state planning and regulatory agency staff. Tools include fact sheets, technical publications, training workshops, conferences, and satellite video conferences. These have reached more than 1600 contractors and technical experts and at least 10,000 of the public.

Project completed June 30, 2002.

IDENTIFICATION OF SEDIMENT SOURCES IN AGRICULTURAL WATERSHEDS

6(b) \$350,000 TF/ Match
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RESEARCH PROJECT

Overall Project Outcome and Results Quantifying the contribution of overland sources versus streambank sources to riverine suspended sediment is fundamental to directing management efforts aimed at reducing sediment loads and achieving sustainable agriculture. A technique using radioisotopes and other geochemical tracers to fingerprint and quantify sources of sediment to rivers was successfully tested on two sub-basins in the Sand Creek watershed, Scott County, Minnesota. The technique employed in this study made several modifications to the methods presented by Walling and Woodward, 1992; Walling et. al, 1999; He and Owens, 1995. The underlying premise of the technique is that streambanks and soils with differing land use, mineralogy and exposure to atmospherically deposited radioisotopes and metals will have unique signatures of these tracers. Ten geochemical and isotopic tracers were identified that could statistically discriminate between sediments originating from erosion of streambanks versus cultivated fields. A source apportionment mixing model using the composite fingerprint of all tracers was developed to estimate the contribution from each erosion source. Erosion of streambanks accounted for greater than 70% of the total suspended sediment load measured during eight storm events in 2000 and 2001. For individual events, streambank erosion was estimated to contribute 45 – 95% of suspended sediment loading. Tile drainage networks and runoff from fields with perennial vegetation were determined to have negligible direct sediment inputs to the creeks in this study. However, flow from tile outfalls increases the flashy nature of the stream hydrograph and exacerbates streambank erosion.

Project Result Use and Dissemination The results found in this study are almost certainly representative of larger watersheds, and it highlights the need to begin focusing management techniques and funding efforts on practices that can reduce erosion of streambanks. Findings from this study will be presented to state and local agencies concerned with reducing suspended sediment loads in Minnesota's rivers, and will also be presented internationally through journal publications and presentations at scientific meetings.

Project completed by June, 30, 2002.

ACCELERATED STATE-WIDE LOCAL WATER PLAN IMPLEMENTATION

6(c) \$1,000,000 FRF/ Match
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Overall Project Outcome and Results Grants were awarded to 9 counties, 4 watershed districts, 2 soil and water conservation districts and 2 joint powers boards for the purpose of implementing high priority actions identified in current state approved and locally adopted comprehensive water management plans. The monies were used to complete the following projects:

- Reduce phosphorus and sediment loading to Little Rock Creek.
- Stabilize water levels of Kismet Basin and protect Brown's Creek trout fisheries.
- Evaluate the effectiveness of Polymer/Kenat stormwater treatment in a confined urban watershed.
- Identify and prioritize Como Lake management issues through active citizen and agency involvement.
- Develop 5 wellhead protection plans coordinated with Community Based Land Use Planning projects.
- Improve groundwater recharge estimates and enhance local groundwater management.
- Collect and treat stormwater to significantly reduce pollution that enters Leech Lake.
- Develop Master Sanitary Sewer Plan to provide alternative solution for failing ISTS.
- Inspect on-site septic systems on the Whitefish Chain of Lakes.
- Inventory minor watersheds and increase Secchi disc and Chlorophyll-a readings by 5%.
- Develop a karst educational exhibit and groundwater monitoring station.
- Stabilize a streambank to reduce pollutants from the water supply of the City of East Grand Forks.
- Target technical assistance to the most vulnerable municipal public water supply in 9 metro counties.
- Gather data on stormwater infiltration by developing a demonstration site and a series of fact sheets.
- Inventory/evaluate wastewater treatment systems and develop a long-range sewage treatment plan.
- Address Red River mediation agreement concerns and install relevant practices.
- Demonstrate agricultural best management practices.

Project Results Use and Dissemination Results of the specific projects are available upon request from the Board of Water and Soil Resources.

Project completed by June 30, 2002.

TRACKING SOURCES OF FECAL POLLUTION USING DNA TECHNIQUES

6(d) \$300,000 TF
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RESEARCH PROJECT

Overall Project Outcomes and Results The rep-PCR DNA fingerprint technique, using repetitive DNA sequences, was investigated as a means to differentiate human from animal sources of fecal pollution. BOX PCR primers were used to generate 2466 DNA fingerprints from *Escherichia coli* strains from human and animal sources in Minnesota (humans, dogs, cats, horses, deer, geese, ducks, chickens, turkeys, cows, pigs, goats, and sheep). This constituted a known source DNA fingerprint library. Fingerprints were analyzed using curve-matching algorithms. Jackknife analyses indicated that 70.2 – 96.2% of animal and human isolates were assigned into the correct source groups. However, when only unique isolates were examined (isolates from a single animal having distinct DNA fingerprints), Jackknife analyses indicated that 52.8 – 78.5% of the isolates were assigned to the correct source group. BOX DNA fingerprints were generated from 300-400 *E. coli* isolated from each of four Minnesota watershed areas (Mississippi River, Prairie Creek, Rush River, and Grindstone River) and compared to those in the known source fingerprint library. Based on similarity cut-off values of 80% or greater, about 83% of the environmental isolates could be assigned to a source group. In general, the rural sites were dominated by *E. coli* bacteria originating from livestock species, while the urban site was impacted by a mixture of domestic animals and wildlife. Database size was found to be important in accurately determining sources of fecal pollutants. Taken together, the results indicate that rep-PCR using the BOX A1R primer may be a useful and effective tool to rapidly determine sources of fecal pollution.

Project Results Use and Dissemination Results from this project can be found at <http://www.ecolirep.umn.edu>. The DNA fingerprint library is currently being used to determine potential sources of fecal pollution in three watershed areas in Minnesota (part of 2001 LCMR appropriation). Results from this current project have been presented at many local and national conferences.

Phase one of project completed June 30, 2001. Second appropriation in 2001 to be completed in 2004.

GROUNDWATER FLOW IN THE PRAIRIE DE CHIEN AQUIFER

6(e) \$110,000 TF
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RESEARCH PROJECT

Overall Project Outcome and Results The goal was to characterize groundwater flow in the Prairie du Chien Group, and underlying Jordan Sandstone of southeastern Minnesota. Hydrostratigraphic features were documented in cores and outcrops from 11 counties, collected geophysical logs from nine boreholes in five counties, and conducted comprehensive tests of three scientific boreholes. Groundwater chemistry was analyzed for 28 wells in 10 counties. Data from published investigations were re-evaluated. Results revealed that the Prairie du Chien and Jordan consist of three hydrogeologic units: 1) An upper Shakopee aquifer in which flow occurs chiefly along a few thin intervals with high conductivity. One such interval in its lower part exists over much of southeastern Minnesota, 2) a lower Oneota confining unit with few cavities, and 3) a lower Jordan Aquifer.

The results have practical value for protecting the Prairie du Chien and Jordan Aquifers, which supply water to over 15,000 wells in southeastern Minnesota. They can be used to model groundwater flow rates and paths, assess vulnerability to contamination, and properly regulate well construction.

Project Results Use and Dissemination An MGS publication summarizing the results is in preparation.

Specific results were presented to local southeastern Minnesota water planners. A formal presentation is scheduled for the October 22, 2001 Midwest Groundwater Conference.

The results have or will be used by governmental agencies and private corporations with groundwater concerns in southeastern Minnesota. It will particularly benefit MDH efforts to develop wellhead protection plans for the over 100 communities that use these aquifers, and MPCA staff at sites of contamination. The scientific techniques are being adopted by the MDNR-Waters, including application to LCMR 2001 for this project.

Project completed June 30, 2001.

LAKE MINNETONKA CITIZENS MONITORING AND EDUCATION NETWORK

6(f) 40,000 FRF/ Match
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Overall Project Outcome and Results The *Lake Minnetonka Citizens Monitoring and Education Network* organized, trained and activated about 60 citizen volunteers who performed various volunteer monitoring duties during the project period and beyond. The volunteers attended five, two-hour educational seminars and 13 training sessions. Because these sessions were taped and broadcast (usually several times per week) on the local cable network, many members of the Lake Minnetonka community had an opportunity to follow the progress of the volunteers' activities.

The volunteers monitored water clarity, conducted the first-ever comprehensive aquatic plant inventory, the first-ever comprehensive shoreland inventory, an inventory of the Eurasian watermilfoil weevil, zebra mussel samples and zebra mussel inspections. This work was completed with the assistance of various financial and technical cooperators, including Cargill, Hennepin Parks, the Lake Minnetonka Conservation district, Minnesota Sea Grant, Professor Ray Newman and numerous members and friends of the Lake Minnetonka Association. The results of these monitoring activities have been shared with cooperators and summaries have been provided to local media in the forms of press releases and through the local cable broadcasts.

The work of the *Lake Minnetonka Citizens Monitoring and Education Network* continues past the project period and is supported completely with local resources.

Project Results Use and Dissemination The education and training sessions continue to be broadcast on the local cable channel, in fact, the Lake Minnetonka Association has been assigned a regular weekly time in their schedule. In addition, the Lake Minnetonka Association published "*A Citizens Guide to Understanding and Protecting Lake Minnetonka*," that was given to the volunteers and others in the Lake Minnetonka community.

Project completed June 30, 2001.

EROSION IMPACTS ON THE CANNON VALLEY BIG WOODS

6(g) \$150,000 TF
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RESEARCH PROJECT

Overall project outcomes and results This project determined the historical and contemporary soil erosion trends across the big woods ecosystem in Rice County in order to develop effective land management tools for future natural resources planning. The study found, through the use of GIS databases and 512 field observations, that a large amount of sediment (30,000,000 m³ or 1,100,000,000 ft³) is held within the valleys of eastern Rice County. The areas containing these sediments were commonly associated with high agricultural land-use, steep valleys, and increasing watershed area. Large stream flows through these sediment-rich areas have the potential to lower the water quality in the Cannon River.

Subsurface agricultural tile drainage has been suggested as a soil conservation strategy in eastern Rice County, where permeable soils overlie a dense glacial till. A partially tile-drained hillslope was monitored where waterlevels lowered on the tile-drained side of the hill by 80 cm when compared to the undrained side were observed. This suggests that tile drainage could increase the ability of the upland soils to absorb rainfall and decrease runoff thereby decreasing soil erosion locally. While tile drainage may provide site-specific benefits, there are likely disadvantages related to potential increases in stream peak flows causing erosion and rapid stream dissection.

Project results use and dissemination Delivery of information to the general public and land-use managers has taken several forms. The Big Woods Project has coordinated several tours to educate local groups (25-30 participants). The University of Minnesota has had up to 15 students and staff working on different aspects of this project; used sites on course field trips (~50 students); developed customized products for the Nerstrand Big Woods State Park; worked with local colleges; and established a website documenting research activities. Project data and information has been used by county and regional land resource managers to assist in long-range planning and addressing water quality concerns in the Cannon River Watershed.

Project completed June 30, 2001.

CITY OF LAKES FLOOD MITIGATION AND FLOW STREAM PROTECTION

6(h) \$500,000 FRF/ Match
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Overall Project Outcome and Results Completed construction of the gravity flow stream connection between Lake Calhoun and Lake Harriet to improve lake water quality and equalize water levels in the Minneapolis Chain of Lakes. Gravity flow outlet has been functional since May 2000 and operated efficiently and as designed during high water episodes in 2001.

Historically, lake levels within the Chain of Lakes have been maintained using mechanical pumping of 800 million gallons of water (up to \$8,000 of electricity per year). The gravity flow system moves water at a maximum rate of 28.4 cfs, while the pumping system moved only 22.3 cfs. The increased stability of water

levels will safeguard shoreline vegetation and infrastructure from disastrous flooding.

Phase one construction for Lake of the Isles Park has been designed, permitted, bid and construction contract awarded. The current phase one includes shoreline stabilization and wetland and flood storage creation, with shoreline stabilization along the east shore of the main lake and on the south shore of the Kenilworth Lagoon.

Project completed June 30, 2001.

SUBD. 7 AGRICULTURE AND NATURAL RESOURCE BASED INDUSTRY

GREEN FOREST CERTIFICATION PROJECT

7(a) \$150,000 TF

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Overall Project Outcome and Results This project offered opportunities for private forests to become green certified throughout Minnesota. The primary result of this project was qualifying 115,000 acres of non-industrial private forests (NIPFs) for certification under the Forest Stewardship Council system through the certification of foresters, forest support organizations and educational institutions. Over 3,000 acres were directly certified as well managed by the end of this project through the green certification of two consulting foresters and one environmental learning center. 112,000 will qualify for certification through the certification of one consulting forester, one forestry support organization and one education institution that completed the certification process near the end of the project.

A secondary result of this project was to offer chain-of-custody (COC) certification to small sawmills and wood product manufacturers. COC assures that any certified wood products that are sold in the market place can be traced back to the certified forest from where they originated. Ten wood products companies were certified as a result of this project.

The experience gained from this project demonstrated that many private forest owners are interested in forest certification but more flexible, less costly systems need to be developed to allow foresters and the State DNR to participate fully. This project was able to support the development of a new system that is showing promise in making certification more affordable and flexible.

Project completed June 30, 2001.

ACCELERATED TRANSFER OF NEW FOREST-RESEARCH FINDINGS

7(b) \$115,000 TF

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Funding accelerated the transfer of new forest-research findings through educational programming coordinated by the *Sustainable Forests Education Cooperative*. The Cooperative, a public/private partnership of natural resource agencies, industry, and non-profit organizations, offers a new model in collaborative continuing education. The formation of the *Sustainable Forests Education Cooperative* recognized the need to structure educational opportunities in an interdisciplinary and collaborative environment. Educational programming of the Cooperative encourages an integrated, systems approach to resource management where social, economic, and ecological values must work together to sustain healthy, productive forest systems.

Workshops (15 serving over 600 natural resource professionals), an international conference (220 participants from Canada, United States, and Mexico), and the development of educational components for the publication/manual *Tying Forest Stands to Landscapes* were products of the acceleration of funding for the Cooperative. Funding played a critical role in launching this new experiment in collaborative education—the *Sustainable Forests Education Cooperative*. It is now recognized across the nation as a successful model for how to structure and offer continuing education to multi-disciplinary audiences in natural resources management (see *Journal of Forestry*, September 2001).

Project completed June 30, 2001.

MINNESOTA WILDLIFE TOURISM INITIATIVE

7(c) \$250,000 TF
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Overall Project Outcome and Results Wildlife tourism is estimated to be a \$400 million industry per year in Minnesota. This project provided an array of workshops, grants, web site development, information efforts and advertising to accelerate the process by which Minnesota is becoming a more significant national destination for wildlife tourism.

A total of 19 workshops were held for 286 people to teach them the basics about wildlife tourism as an industry that supports the preservation and wise management of natural resources on public forest, wildlife and park lands. Six field trips were also carried out for 180 people to introduce them to a variety of wildlife watching destinations. A total of 200 wildlife watching signs were posted at the entrance to public lands that were identified in the book *Traveler's Guide to Wildlife in Minnesota*. A total of 12 communities utilized grants to develop wildlife watching promotional materials for their local areas.

Project Results Use and Dissemination This information has been used in local communities in development or promotion of the Pine to Prairie Birding Trail, Great River Birding Trail (Mississippi River corridor), Minnesota River Birding Trail, and in creation of local birding festivals. Some of the lessons learned from this process have been written up as a tourism curriculum for local communities and local colleges. It is called the *Saga of Grackle Junction*. This curriculum was written and developed by the Nongame Wildlife Program and teaches the process by which wildlife tourism can be developed in a community. National advertising exposure about wildlife watching opportunities in Minnesota also appeared in *Audubon* magazine, *Birder's World*, *Wild Bird*, and *National Wildlife* magazine. Wildlife watching information was also incorporated into information and maps of the state's Wildlife Management Areas on the DNR web site.

Project completed June 30, 2001.

INTEGRATED PRAIRIE MANAGEMENT

7(d) \$350,000 TF
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RESEARCH PROJECT

This project was made up of 2 subprojects. The first examined challenges of conserving prairie in the Felton Prairie Complex of Clay County where it overlies valuable aggregate resources. This included, 1) an aggregate inventory using rotonic drilling, 2) the reclamation of an abandoned gravel pit to a wetland and prairie reconstruction to provide a place for public interpretation of the Felton Prairie Complex and adjacent gravel mining activities, and 3) integrated stewardship planning. A site-specific stewardship plan was developed for about 2,000 acres of public land within the Complex with emphasis on developing a conflict resolution process for the 800 acres containing both prairie and gravel. The process recognized society's interest in prairie conservation as well as the need for aggregate resources.

The second part of the project researched management effects of fire and grazing on prairie vegetation and grassland birds, and the use of prairie vegetation by livestock at selected sites in a 9-10 county area, including Clay County. Rotational grazing contributed to the maintenance of desirable prairie plants more than continuous grazing or no grazing. In spite of a short study period, prescribed burning increased desirable prairie plants over no-burn controls. The post-burn age of prairie plots affected birds differently depending on their habitat requirements, emphasizing the need for a mosaic of post-burn ages of prairie management units in the landscape. Prairie vegetation can provide desirable livestock forage during the warm part of the grazing season since many native grasses grow best then. Moderately-grazed prairie contained more birds than either heavily grazed or lightly-grazed plots. A landowner's guide to prairie management was prepared and will be widely distributed to individuals and agency prairie managers. It contains findings of this study and other research which is applicable to native prairie management and planting prairie in aggregate-mined areas.

Project completed June 30, 2002.

IMPROVED AGRICULTURAL SYSTEMS OVERLYING SENSITIVE AQUIFERS IN SOUTHWESTERN MINNESOTA

7(e) \$200,000 FRF
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RESEARCH PROJECT

Overall Project Outcome and Results Water supplies from Lincoln Pipestone Rural Water System District's (LPRWSD) are seriously threatened by elevated nitrate levels. This project was successful in bringing various

state and federal agencies, UM, area farmers and ag professionals together to develop a response strategy. Local county offices secured EQIP and EPA 319 funds for cost share incentives. Funds provided the technical expertise to develop and coordinate nutrient management plans. Over 40% of the cropland within the Verdi well field enrolled in EQIP. Similar efforts are now taking place in the Holland well field. A grant from LPRWSD will continue plan writing and technical support through 2003.

Current nitrogen recommendations were reexamined in these critical recharge areas. Research found that delaying N applications, using anhydrous ammonia, and/or using band application methods all would be preferred management methods. Continuation of this research, made possible by a grant from LPRWSD, will allow three full cropping seasons to revise existing BMPS.

Public drinking water compliance often requires nitrate removal treatment. An alternative approach for shallow water table aquifers may be phytofiltration. Perennial forages, irrigated with the nitrate-rich ground water during the growing season, remove nitrate and thus reduce nitrate concentrations in recharge water. This research found that this remediation approach has potential in areas where ground water can be readily influenced by leaching. This research will also be continued through 2003. Computer simulation output provided valuable insight into the relationships between management, crop types, and nutrient inputs across soil types in both well fields; this data will be very beneficial in future land use management planning efforts.

Project Results Use and Dissemination Numerous education events were conducted with local producers, dealerships, and water planners. Local media coverage was excellent. "One-on-one" interaction with producers during the nutrient plan writing and implementation was highly effective.

All of these various components will have a number of publications, revised BMPs, and subsequent Extension bulletins developed upon conclusion in 2003.

Project completed June 30, 2001.

DIVERSIFYING AGRICULTURE FOR ENVIRONMENTAL, ECONOMIC, AND SOCIAL BENEFITS

7(f) \$400,000 TF

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RESEARCH PROJECT

Cover crops, agroforestry, and native perennial legumes and some approaches to improve the economic and environmental outcomes of cropping systems were evaluated. In northern Minnesota, systems with perennial ryegrass interseeded into soybeans, wheat, and flax with perennial ryegrass seed harvested the following year were more profitable than continuous wheat or a soybean/wheat rotation. Intercropping of alfalfa, red clover, and vetch with wheat did not reduce the incidence of Fusarium head blight of wheat. In southern Minnesota, winter rye cover cropping following corn in a corn-soybean system reduced nitrate-nitrogen losses an average of 60% compared to a conventional corn-soybean rotation. Superior winter rye varieties were identified for use in nitrogen scavenging. Nitrogen scavenging crops can improve the environment for all citizens. Yellow sweetclover, mammoth red clover, and non-dormant alfalfa produced significant biomass and N accumulation when interseeded with a small grain crop and can be used to reduce synthetic N fertilizer use by producers. Living mulch systems using Kura clover can be effective at providing ground cover and suppressing weeds therefore reducing erosion and herbicide use. Improved hybrid hazelnuts have potential as a new woody nut crop in southern and central Minnesota. Hazelnuts were successfully established and survived a winter in diverse environments. Controlling competing vegetation enhanced hazelnut establishment. Collections and populations of Illinois bundleflower and false indigo, two native perennial legumes, were developed and evaluated. These legumes could be the basis of a new seed production

industry and can be used for prairie restoration and grazing systems. Establishment of these legumes for use in grazing systems is challenging unless competition with cool season grasses and weeds is minimized. Research was conducted in 30 diverse environments and the information transferred to 2000 producers at field days, meetings, and workshops. Informational fact sheets, scientific publication, and a web site were developed.

Project completed June 30, 2001.

MINNESOTA RIVER BASIN INITIATIVE: LOCAL LEADERSHIP

7(g) \$300,000 TF

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Overall Project Outcome and Results are located on the Minnesota State University, Mankato – Data Center web site: <http://mrbdc.mnsu.edu>. This project was twofold - organizing 13 major watersheds in the basin into Watershed Teams based upon logical relationships and secondly, implementing projects on the ground in those watersheds.

The watershed team approach allows for a more consolidated look at planning and project implementation that makes use of regional tools available by cooperators and partners. This approach also accelerates the distribution of information within the basin. The Watershed Coordinators continue to meet periodically to address basin-wide issues and to advise the MRBJPB.

Projects were implemented basin-wide with a 75-25 cost share. The total cost was \$264,679.13 (\$180,828.37 from LCMR, \$6,800 from other state and federal organizations, and \$85,548.51 from either local or private contribution). 226 rock inlets replaced open tile intakes with blind inlets in Carver, Cottonwood, Faribault, Scott, Le Sueur and Redwood Counties. In Stevens and Scott Counties, streambank stabilization projects along with grade stabilization were implemented. Area II MRB Projects, Inc. installed a floodwater retention project on Taylor Dam #3 and constructed a small dam on Lake Marshall. BERBI implemented 5 projects that included drainage ditch streambank stabilization, grade stabilization, installation of terraces, sediment basin construction, waterways and gully stabilization.

These projects will reduce sediment and phosphorus in the river thereby improving water quality. Soil loss reduction varied from project to project, from 0.5 ton to 55 tons per year. Phosphorous load reduction amounts also varied between projects, from 0.6 pounds to 730 pounds. Improved wildlife habitat and recreation were side benefits in some of the projects. Working with partners on data collection will further assess the benefits of these projects.

Project Results Use and Dissemination Project information has been disseminated to a large audience - through board meetings, the MRBJPB annual report that goes out to many organizations, at the MRBJPB annual conference and on the web site.

Project completed June 30, 2002.

COMMERCIAL FERTILIZER PLANT FOR LIVESTOCK SOLID WASTE PROCESSING

7(h) \$400,000 FRF/ Match

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The objective of the project was to establish a commercial grade fertilizer plant that would process and enhance 1,800 dairy cows waste through micronization technology. Partial completion of the project enabled the irrigation of 90 million gallons of liquid waste in the past three seasons at a rate of 250,000 to 300,000 gallons per day. The application was applied during the growing season on standing crop thus reducing surface and subsurface runoff into the state's waterways saving eventual cleanup costs. Green House gas's emissions were reduced by 12,000 tons per year. However, the micronizing of the solids to organic base fertilizer remains unfinished. The powermaster is unable to process the solids at current moisture levels (65-70%) a solution is to lace a dryer in front of the powermaster which will reduce the moisture content from 70 to 40 to 45% level, but dryer would cause expenditures to exceed both planned capital and operational cost. As a result, AquaCare International requested a halt to LCMR funds in 2001. AquaCare is currently working with a small Arkansas company that is developing an infrared dryer that could possibly solve this problem, and it is exploring other uses for the micronization equipment.

Project completed by June 30, 2002.

WITHDRAWN: PRESERVATION OF NATIVE WILD RICE RESOURCES

7(i) \$200,000 FRF/ Match
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RESEARCH PROJECT

This appropriation was to analyze critical factors in different northern wild rice habitats and determine methods to preserve the natural diversity of wild rice. The project canceled on December 31, 1999.

WILD RICE MANAGEMENT PLANNING

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RESEARCH PROJECT

Project results have direct application to wild rice management in Minnesota. Results indicated that overarching application applied to all rice lakes as management strategies are not appropriate. Individual or geographically clustered-lakes approaches and tailored management, dependent on specific physical characteristics and land use, is a more appropriate approach to successful wild rice management.

Management philosophy and strategies are outlined in greater detail in the wild rice management plan, to be completed and distributed in September 2002.

Wild rice distribution, wildlife habitat, presence of water flow obstructions, and land use were evaluated in 43 lakes across northern Minnesota. Physical and chemical data were digitally mapped using the Arc-View Geographic Information System. Pigment-filtered photography was used on one rice-bearing system (Crow-Wing River) to test efficacy of defining wild rice beds using air survey. Videotape of the river system showing plant production through visible, thermal, carotene-filtered and chlorophyll-a filtered camera lenses was collected. Air surveys indicated that on-ground verification of wild rice beds is still necessary. Chemical data including pH, alkalinity, TDS, water temperature, and dissolved oxygen were transcribed to computer data spreadsheets. Digital data layers were superimposed to direct attention to physical characteristics that potentially support or deter wild rice production. Ten priority lakes were chosen to serve as management priority basins. A management plan utilizing habitat data and physical and chemical condition of these lakes was available in fall, 2002. Data translated to paper maps shows native and paddy lakes, as well as altered and drained lakes across political boundaries. CD-Rom versions of the wild rice database have been prepared and are available upon request. A historical inventory database of wild rice lakes was compiled. Date, including historical inventory, appears on the website www.minnesotawildrice.org.

Project completed June 30, 2002.

MESABI IRON RANGE, WATER AND MINERAL RESOURCE PLANNING

7(k) \$650,000 TF

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RESEARCH PROJECT.

Overall Project Outcome and Results The Geological Survey (MGS) obtained 1,350 well records and 13,000 mining borehole records, verified their locations, and entered information into the County Well Index, an electronic database. The data was used to produce a topographic map of the bedrock surface. Bedrock topography and digital surface elevation data were used to determine thickness of overburden. Land surface

data from 1899 was captured digitally and used to establish pre-mining drainage, and describe changes to the land surface.

Continuous water level measurements of the Canisteo Pit were recorded and hydraulic characteristics of the surficial overburden determined utilizing 18 wells. Maximum groundwater discharge from the pit is estimated at 0.91 cfs, well below the estimated average input of 5 to 8 cfs, indicating surface water discharge will occur. Models utilizing 83 years of historic climate data revealed the pit will fill and overflow in 4.5 to 8.5 years. Three possible outlet locations and downstream impacts are discussed.

Surface and mineral ownership research was completed for 232 stockpiles within two study areas containing 6,906 acres. Stockpile materials were examined for use by the aggregate and the iron mining industries. An electronic database was created consisting of 34 related tables and forms for browsing information on stockpiles' content, location and ownership.

Project Results Use and Dissemination Bedrock topography maps were used to support ground water modeling of the Canisteo Pit. Electronic files of the maps are available at ftp://156.98.153.1/pub2/mesabi_w. The maps will be published in the MGS Miscellaneous Map series.

Map plates and a CD-ROM of stockpile data were provided to local units of government, the mining industry, Departments of Revenue and Transportation, Iron Range Resources and Rehabilitation Board, Iron Mining Association of Minnesota, and independent sand and gravel contractors on the Mesabi Iron Range for use in their land and resource use planning.

Hydrological data of the Canisteo Pit was provided to Taconite, Bovey, Coleraine, Grand Rapids, Itasca County officials and the West Range Planning Board. Results will also be provided to the mining industry as a watershed reclamation model. Results will be used in the siting and design of an outlet channel.

Project completed June 30, 2002.

SUSTAINABLE AQUACULTURE DEVELOPMENT IN MINNESOTA

7(l) \$185,000 FRF

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This was a two-part project, demonstration of aquaponics production of fish and vegetables in an urban environment in cooperation with the University of Minnesota and a pilot study of ozone application in large recirculating aquaculture systems with MinAqua Fisheries. The first part failed to get started because of lack of suitable urban greenhouse by community gardening enthusiasts and lack of suitable collaborators with the university.

The second part was partially successfully carried out. three batches of tilapia fingerlings were tested on the impact of ozone application in recirculating tilapia fingerling systems. Test results indicted that ozone application had a clear impact on improving water quality by lowering both suspended solids and biological oxygen demand. Total treatment and stayed at that level thereafter. Biological oxygen demand decreased from 13.7 mg/ml to 2.1 mg/ml after three months of treatment.

Impact of ozonation on fish growth was mixed. First two batches of fish had an improved feeding conversion ration (FCR) at about 0.9 pound of feed per pound of fish growth. FCR for third batch is about the same as that without unzonated systems (7.7%). The test was not complete because of a lighting storm that damaged ozone generator before the testing was completed. New testing is still on going and will be completed by

June 2003.

Results and demonstration have been shared with various groups from within as well as outside of Minnesota. Visitors who toured the ozone application on site have been very impressed by how much clearer the water is in the ozonated system.

Project completed June 30, 2002.

SUSTAINABLE FARMING SYSTEMS- CONTINUATION

7(m) \$350,000 FRF

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Partnerships to Deliver Research and Outreach Programs: This project developed creative solutions to environmental and economic problems associated with many current agricultural practices. Two local teams, in the Chippewa River and Sand Creek Basins, planned and implemented all project activities. Oversight was provided by a statewide Steering Committee. These enduring relationships are a tangible result of the project. The partnership consisted of farmers, researchers, landowners, private sector representatives, agency personnel, community members and non-profit organizations representatives.

Research Projects on Sustainable Farming Systems: Field-based and computer model simulation shows that farm management decisions have a direct impact on water quality. Rainfall events large enough to generate runoff can occur at any time during the growing season. The majority of soil erosion and water quality degradation is caused by large, infrequent rainstorms. Land management practices need to take this into account. There are many management practices – such as conservation tillage, strip-till, contour strips, terracing, grass strips, etc – that can be used on cropland to reduce soil erosion and protect water quality. However, large soil losses can still occur when rainstorm runoff events coincide with young crops. Grass-based management systems, in comparison, protect against soil erosion and prevent water quality degradation year round. Economic analysis of three farms show that sustainable farms demonstrate that economic performances match and often exceed conventional farms. Additional analysis of economic and field data will be done.

Outreach Programs: From July 1, 1999 through June 30, 2001, 34 field days and workshops were held throughout the State with attendance at the events estimated to be 2,275 people. Outreach will continue beyond the time frame of this project to share information learned from the economic analysis and water quality research. Scientific journal articles describing the research are being written.

Project completed June 30, 2001.

ECONOMIC ANALYSIS OF AGRICULTURE FOR MULTIPLE BENEFITS

7(n) \$200,000 FRF

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A 15-member working group analyzed environmental and social benefits in two Minnesota watersheds that could result from changing agricultural land use practices. The 40,000 plus acre study areas were in the lower Chippewa River Basin, and the entire Wells Creek watershed. Staff characterized baseline agricultural land-use environmental performance and found that current farming systems contribute from almost zero to several tons or lbs/acre of various pollutants to the streams.

Watershed residents helped develop scenarios for possible land-uses: (A) continuation of current trends, (B) adoption of best management practices in row crops, (C) more economic diversity through longer crop rotations and wetland restoration and (D) adding more perennial cover to the working landscape. We used the ADAPT model to predict in-stream environmental benefits including impacts on fish in the streams for each scenario. Other potential wildlife impacts were reviewed and greenhouse gas emissions were calculated. Social scientists analyzed social and farm economic impacts. Economists estimated non-market economic values for environmental benefits by calculating avoided costs and by performing a contingent valuation survey of Minnesota citizens.

Results show that changes in Scenarios B, C and D in Wells Creek and C and D in the Chippewa could meet national goals for reducing in-stream nitrogen (40%) and state goals for phosphorous (40%). Analyzing institutional missions and resource flows of farmers made it clear that institutions need to support farmers marketing diversified crops. Scenarios C and D would have significant non-market economic values in avoided costs. On average, Minnesota households would be willing to pay an additional \$201 per household or a total of \$362 million dollars for significant improvements in environmental performance. The project points to the urgent need to develop public policy, research, education and marketing strategies to promote greater diversification of food/fiber production in ways that yield clear environmental and social benefits.

Project completed June 30, 2001.

NON-WOOD AGRICULTURE FIBERS AND INDUSTRIAL HEMP FOR PULP AND PAPER MANUFACTURE

7(o) \$200,000 FRF

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Overall Project Outcome and Results The technical and economical feasibility of a small-scale pulp mill utilizing agricultural residues for the production of papermaking fibers was determined. Two different processing sequences developed were investigated. Pulp fiber from wheat and barely straw showed excellent papermaking properties. It was possible to replace 10%-30% of a wood fiber furnish with non-wood pulps, while maintaining high paper quality. Pilot plant papermachine run using 20 % cereal straw fiber were performed successfully. An engineering company (Kellogg Brown & Root Inc.) was commissioned to conduct a feasibility study for the evaluation of both processes. Order-of-magnitude +/- 25% capital cost estimates, manufacturing cost estimates and a financial analysis were developed. Capital investment cost for both processes was determined to exceed \$230 Million. Considering the presently suggested operation conditions internal rate of return was identified to be below 6% in all cases. Several modifications capable of reducing capital costs and/or production costs were identified.

In addition, a detailed report focused on the potential use of industrial hemp (*Cannabis sativa L.*) as paper making raw material was generated. Even though Hemp has a number of properties that favor its use as a papermaking raw material, there are several issues that must be addressed. Among these are problems

related to economical bark/core separation, long-term storage and issues with the smaller core fibers. Although a given area of land will produce a greater quantity of hemp than wood fiber, the fact that hemp is an annual crop requiring relatively intensive inputs translates to substantial overall environmental impact from hemp production.

Project Results Use and Dissemination Technical feasibility of potential use of cereal straw fiber for paper manufacture was demonstrated and was presented to Paper Industry on several occasions. There is a strong interest in this fiber material, nevertheless process modifications are required to improve economics. Several modifications capable of reducing capital costs and/or production costs were identified and will be considered.

Project completed June 30, 2001.

SUSTAINABLE LIVESTOCK SYSTEMS

7(p) \$350,000 FRF

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This project provided farmers with working partners as they developed whole farm plans, provided research for specific grazing issues where there is a dearth of information, and brought new information to other farmers and the public through field days and other educational activities

A group of farmers from the Montevideo area were organized as the Chippewa River Whole Farming and Monitoring Team. Together with agricultural and natural resource professionals they would meet to develop goals and plans for their farming operations. Over the two years of the project their self organized goals moved from the routine issues of farm operation to higher order goals of increasing their ability to add value to their livestock products through building direct marketing links with consumers. A second set of farmers set the agenda for research conducted on their farms and at the West Central Research and Outreach Center addressing sustainable livestock production. Key outcomes include establishing that dairy heifers pastured can gain at equal rates to heifers in a feed lot at lower costs, heifers will grow normally grazing green corn from September through November when pasture supplies are low, lactating dairy cows can be housed without a barn during winter if protected from wind and provided a dry pack, stocker steers on pasture benefit from being fed relatively small amounts of supplemental grain. This project reoriented the goals of sheep and dairy research toward sustainable systems, which continued beyond this project.

Five public workshops were provided during the time of the project. Another workshop teaching farmers how to develop and manage a grazing system was adapted for presentation as a internet based activity. One of the farmer partners is featured as a case study for learning how to manage a grazing system in a video.

Project completed June 30, 2001.

FOREST WILDLIFE BIOLOGIST FOR RUFFED GROUSE

7(q) \$1,000,000 FRF/ Match

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This appropriation is to fund a position and related costs for a forest wildlife biologist employed by the Ruffed Grouse society that will provide technical assistance to public and private landowners for improved ruffed grouse habitat and related forest wildlife conservation. The specific results of the project are: 1) Establish an endowment to fund a Forest Wildlife Biologist position in Minnesota; 2) Staff the endowed Forest Wildlife Biologist position; and 3) Coordinate and deliver programs and products to promote forest wildlife conservation. This appropriation must be matched by at least \$1,000,000 of non-state money.

The Wildlife Biologist position established through this project will operate in perpetuity. A 2-year report of accomplishments will be submitted by June 30, 2001; biennial reports will be submitted every two years thereafter through June 30, 2007.

ORGANIC FARMING TRAINING PROJECT

7(r) \$350,000 TF

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The Minnesota Food Association (MFA) and Cooperative Development Services (CDS) collaborated to develop a comprehensive training/mentoring program to support conventional and new immigrant farmers in converting from conventional or traditional farming methods to sustainable and organic production practices. The educational process included a combination of educational workshops, establishment of training gardens for new immigrant participants, individual on-farm mentoring, development of a farmer network for information exchange between converting and experienced organic producers, and farm and experiment station field days. Over 1000 people, including members of new immigrant communities (Hmong, Latino, and African) and conventional farmers interested in conversion to organic/alternative methods, were directly served by the project. Eleven experienced organic producers participated as mentors in this project. The scope of the project included commodities, small grains, as well as vegetables and fruits. The project's informational outcomes are particularly important at this time when the organic market share is growing at a rate of over 20% annually. Informational materials developed by the project include marketing surveys on "ethnic" and alternative crops, production guides on alternative crops, and, in conjunction with other agencies, a website dedicated to information exchange on organic production. Additionally, information generated by the project will be published and disseminated in a manual on organic conversion by December 2001. The project was facilitated through partnership with public, private, and non-profit agencies, including the University of Minnesota, the Minnesota Extension Service, the Farm Service Agency of the United States Department of Agriculture, the Sustainable Farming Association, and new immigrant community organizations. This project was also financially supported by the Otto Bremer Foundation. For access to further information, contact the Minnesota Food Association at (651)766-8895, Cooperative Development Services at (651)287-0184 or Elizabeth Dyck, Lamberton Experiment Station at (507)752-7372.

Project completed June 30, 2001.

CONSTRUCTION AND DEMOLITION WASTE ABATEMENT DEMONSTRATION PROJECT

7(s) \$250,000 FRF

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Results - The project helped build a model community-based enterprise that diverted approximately 8,000 cubic yards of construction and demolition debris from landfills to be reused in construction markets. Labor fee oriented deconstruction was the most cost effective in the short term versus relying solely on the resale of materials for revenues. Case studies in June 2001 show that residential labor fee jobs averaged 190 % coverage of variable costs while non-labor fee jobs covered less than 100 %. However, there were not enough labor fee jobs available to sustain operations. This highlights the importance of determining the most efficient method of selling materials. Selling directly from sites proved more efficient than selling through the retail outlet or the warehouse. Each dollar of site sales returned \$0.50 to pay for the deconstruction process while Warehouse sales returned \$0.29 and retail sales returned < \$0.17. Each location served distinct customers resulting in greater cumulative revenues - from \$112,000 annually before project start to \$185,000 in year 1 and \$241,000 in year 2 of the project. Operating revenues funded only 41% of wages/benefits at project start but grew to 70% by project end. This resulted in a more sustainable enterprise that can be replicated elsewhere in Minnesota. As an on-going enterprise, the deconstruction program will continue to benefit

Dissemination - An estimated 50,000+ Minnesotans received direct project information. The project received significant public attention through airing of a public radio segment both in Minnesota and nationally. Two network news programs and one cable show also produced segments that were aired and viewed by thousands. The result was significant phone demand for information plus invitations to present at seminars and to provide tours. Finally, indirect information went to as many as 1,000 deconstruction customers.

Project completed June 30, 2001.

SUBD. 8 URBANIZATION IMPACTS

RESOURCES FOR REDEVELOPMENT: A COMMUNITY PROPERTY INVESTIGATION PROGRAM

8(a) \$100,000 FRF

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Overall Project Outcome and Results Environmental brownfield assessments were conducted at 25 properties for 23 nonprofit organizations (two assessments were conducted for each of two nonprofits). For several projects, multiple nonprofits partners were involved. Most were in the Twin Cities metropolitan area, but assessments were also done in Duluth, Warren and Buffalo. In some cases the assessments were conducted so nonprofits could purchase the site where the nonprofit was already located, but most of the time the nonprofit was in the process of purchasing the property.

Ultimately, phase I environmental site assessments were conducted at all 25 properties and more extensive phase II assessments were conducted at 10; hazardous building materials surveys were conducted at two project properties. Eight projects have needed and received liability assurance letters from the state voluntary cleanup programs; two more projects will receive such letters soon. The R4R program provided varying amounts of support, but secured donations of in-kind services on all projects. The assessments completed under the project benefited a variety of types of facilities/services: a school and training center for autistic children, a geriatric day-care facility, two women's shelters/resource centers, the headquarters of an adoption agency, low-income housing, a Hmong cultural center, a multiservices facility serving the Latino community in West St. Paul, sober housing, job-training facilities, two churches and a folkdance school, among others.

Project Results Use and Dissemination Because of the complexity of the work involved, the most effective means of communicating the capabilities of the R4R program was through the grassroots network of nonprofits, development consultants, lawyers and environmental and regulatory professionals who were involved in specific projects. The network was and is further kept abreast of program developments through MEI's web site and print and electronic newsletters.

Project completed June 30, 2002.

TOOLS AND TRAINING FOR COMMUNITY-BASED PLANNING

8(b) \$450,000 TF

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Overall Project Outcome and Results This project developed easy-to-use geographic information system (GIS) software, coordinated existing data and provided training to assist local governments as they worked to envision and choose their futures.

The created software, EPICplanner, provides a viewer-friendly interface and data management scheme suitable for novice GIS users. Other features added to the software include easy methods to import and export geographic and tabular data into EPICplanner from other software, including ArcView GIS and Microsoft Excel.

EPICplanner also includes a report builder and modeling feature to address more complex questions. The report builder allows users to answer questions about data and create charts. Modeling with EPICplanner allows the user to create customized planning application scenarios, or the option to use the three already loaded with the program: agricultural suitability, forest viability and development potential.

The Tools and Training project held eight GIS training sessions for local planners throughout the state. More than 120 attendees came away with software, 192 data sets and an increased awareness of the type and amount of data available for land use analysis. Attendees were also given an exercise manual allowing them to review information attained in training sessions. An additional 25 officials from five pilot counties were also given one-on-one training sessions.

Project Results, Use and Dissemination The EPICplanner software is an inexpensive and easy way for all local planners throughout the state to access data, make quick maps and create modeling or planning applications.

The products and training are useful and applicable in many local planning efforts, including comprehensive planning and local water planning. They enable local planners, policy-makers and citizens to make better use of existing data in their decision-making by making the data readily available and easy to interpret and apply to local issues.

Project completed June 30, 2002.

PROTECTING DAKOTA COUNTY FARMLAND AND NATURAL AREAS

8(c) \$200,000 TF/ Match

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Overall Project Outcome and Results A farmland and natural area protection plan was developed to address the threats to farmland and natural areas in rapidly growing Dakota County. The plan contains strategies and tools for protecting high-priority farmland and natural areas, and four implementation options. The plan was adopted by Dakota County Board.

Project Results, Use and Dissemination The project originated in citizen concerns about the impacts of growth and development on farmland and natural areas. A multi-organization collaborative was formed in 1999 to conduct the project, using these funds.

More than 1000 citizens, landowners, elected officials, and other stakeholders participated in over 70 meetings to identify and prioritize high-value farmland and natural areas. Project information was posted on the Dakota County website. Press releases were published in area newspapers, and meeting notices were mailed to over 3,000 interested people. The meetings helped people understand the importance of farmland and natural areas in Dakota County, threats to the resource, and ways to protect priority land areas. National experts spoke about farmland and natural area protection at public meetings, and worked with the project partners to develop land protection strategies.

Digital land cover mapping and analysis were used to identify priority farmland and natural areas. Detailed countywide maps were presented to citizens for their input at public meetings. The final maps reflected a combination of citizen preferences and scientific interpretation.

400 citizens were surveyed by telephone about the need to protect farmland and natural areas in the County, the type of public financing mechanism they preferred (bond, levy, none), and how much they would be willing to pay for a countywide land protection program.

Dakota County is currently working with the Minnesota Department of Agriculture in a pilot program for farmland protection.

Project completed June 30, 2001.

URBAN CORRIDOR DESIGN

8(d) \$400,000 FRF

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Overall Project Outcome and Results The project developed a practical and user friendly three volume guide that can be used by officials and citizens who wish to avoid degrading the environment and incurring future mitigation costs by making more environmentally friendly planning/designs decisions when considering infrastructure projects. Infrastructure types that are commonly used across various geographic scales by cities, small towns, suburbs, and counties in Minnesota were studied in a corridor in Saint Paul and one on the Iron Range. The study identified prototypical infrastructure types, precedent studies were done in design studios, an investigation was made of sustainability strategies, barriers to implementation of strategies were identified, selected designs were developed. A user-friendly three-volume handbook presenting material from the study in a printed and digital format was created. The Saint Paul volume presents an overall design framework, designs for five study areas, a section on organic infrastructure types, and a paper on the legal

barriers to local and regional planning. The Iron Range Study presents green infrastructure design work in two volumes at the regional scale and a paper on the legal barriers to planning in a mining environment.

Project Results Use and Dissemination Presentations of the work have been made to community groups and officials on the Iron Range and in Saint Paul. Public officials and citizens have used the materials from this study to discuss the future of their communities.

The handbook is available on the web and on disks.

Project completed June 30, 2001.

CONSERVATION-BASED DEVELOPMENT PROGRAM

8(e) \$150,000 TF/ Match

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Overall Project Outcome and Results The Conservation-Based Development Program was designed to improve conservation design practices for new development throughout Minnesota. This Program has three primary results:

1. Promote environmentally-sound development practices through education: a) Gave 40 presentations to more than 2,000 local officials, planners, and developers, b) Held individual meetings with approximately 200 people in the development arena, c) Organized or presented at 19 conferences or workshops: 10 Regional; 5 State-wide; and 4 National, d) Featured Conservation Development in slide shows, in several articles and in the *Conservation Design Portfolio* which highlights model developments
2. Assist in the design of model conservation developments: a) Consulted in the design of approximately 30 different conservation-development related projects, b) Worked with 7 local units of government to explore conservation districts and review ordinances.
3. Secure conservation easements in conservation developments: 2 easements were secured, 5 others are awaiting completion, and 6 easements that we reviewed will be held by local units of government. Total area protected by these 13 projects exceeds 600 acres and includes Lake Superior shoreline, buffers to the BWCA, prairie restoration, and other significant features.

Project Results Use and Dissemination The goal is to help give Minnesota landowners and local governments throughout the state more choices when it comes to developing property. While the Land Trust will no longer have a separate program focused on conservation development, we will continue to apply conservation planning and design techniques in all our work throughout the state. In addition, other organizations will continue to utilize materials developed under this Program in their education efforts. More than 3,000 copies of the *Portfolio* will be distributed by the Metropolitan Council, the DNR, Dakota County SWCD, Hennepin Conservation District, Biko Associates, Tree Trust and others. The *Portfolio* will also be on the Minnesota Land Trust's web page: www.mnland.org.

Project completed June 30, 2001.

CHISAGO LAKES OUTLET CHANNEL PROJECT

8(f) \$40,000 FRF/ Match

Mic Dahlberg

Chisago County Public Works

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Project cancelled: The funding was to complete the final construction phase of the outlet channel at Chisago Lakes.

BLUFFLANDS IMPLEMENTATION

8(g) \$33,000 FRF

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Overall Project Outcome and Results This Blufflands Implementation Project, was designed to develop a small community incentive project to act as a framework to provide opportunity for threatened communities to integrate implementation options listed in the Blufflands Design Manual. This project had three targeted results.

1. Dakota Town Square Park Development: Provided assistance for process and development of a park master plan on a vacant centrally located city lot for the construction of a city parks.
2. Landscaping and Maintenance Improvements on Dakota City Property: Provided assistance to make enhancements to a scenic overlook platform, "Welcome Home to Dakota" entrance sign, and Dakota Community Center.
3. Exterior Renovation of a Historic Commercial Building.

Project complete June 30, 2001.

SUBD.9 INNOVATIONS IN ENERGY AND TRANSPORTATION

ICE ARENA DESIGN FOR EFFICIENCY AND AIR QUALITY-CONTINUATION

9(a) \$100,000 FRF

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Overall Project Outcome and Results This project accelerated the installation of energy and indoor air quality improvements in ice arenas through audits, technical assistance and promotion. Project spending was only \$31,690. This is primarily because limited staff availability prevented CEE from going above and beyond the minimal work program requirements in many areas where more thorough work was originally envisioned (e.g. instead of tailoring brochures to each group of recipients, the same brochure was mailed to arena managers, high level city officials and designers).

Fourteen ice arenas received audits that recommended \$665,000 worth of arena upgrades with annual energy cost savings of \$212,000 (\$15,100 per average arena). Assistance with implementation was provided in the form of engineering bid specifications for most of the complicated projects. We also intended to provide additional assistance in the form of construction oversight and post-installation inspections for a limited

number of arenas, but arenas did not have time to complete improvements.

Facility expansions, longer operating hours, and incorrect settings of new refrigeration controls contributed to the lower than expected apparent savings (about half) observed in arenas that previously implemented energy saving improvements.

Project Results Use and Dissemination The benefits of arena energy and air quality improvements were promoted statewide. Case study information was incorporated into promotional flyers that were mailed to the following groups: managers of 203 ice arenas, 363 higher level city officials, and 33 local ice arena designers. Additional targeted outreach included two presentations and a newsletter article. Promotional efforts also provided for further dissemination of a report prepared with previous LCMR funding. This previous report, entitled *Cost-Effective Energy Efficient Improvements for Minnesota's Public Ice Arenas: Overview of 20 Options*, was made available for download, promoted in program literature and handed out at a presentation to arena managers.

Project completed June 30, 2001.

PROMOTING HIGH EFFICIENCY COGENERATION

9(b) \$100,000 FRF

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Overall Project Outcome and Results The project produced two products: (1) an inventory of potential cogeneration sites with key screening factors for assessing cogeneration potential, information on 142 large energy users and 32 survey respondents, initial site assessments of three facilities, and a description of major cogeneration technologies; and (2) a handbook that briefly describes the major regulatory processes necessary for cogeneration projects and provides links to more detailed information. The survey estimates a technical potential of between 1600 and 2100 megawatts of cogeneration in Minnesota

Project Results Use and Dissemination The results of the project are useful for project developers, policymakers and citizens interested in enhancing Minnesota's cogeneration potential. Copies of the reports are available on the Minnesota Planning website or may be obtained by contacting the project manager.

Project completed June 30, 2001.

EVALUATE BIODIESEL MADE FROM WASTE FATS AND OILS

9(c) \$125,000 TF/ Match

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Overall Project Outcome and Results A new biodiesel fuel formulation was developed, evaluated, and its efficiencies were demonstrated via engine testing. Through analysis, equal amounts of waste grease methyl

esters (WGME) and soy methyl esters (SME) were determined to be the best-blended formula that met the objectives of the project. The objectives included developing a biodiesel fuel with low cost considerations and acceptable cold weather performance. This blended fuel consisted of 10% WGME, 10% SME, and 80% petroleum diesel fuel.

The observed findings in the emissions evaluation on this B20 fuel showed a reduction in particulate matter, carbon monoxide, and gaseous hydrocarbons by 16-18%. Nitrous oxides also were reduced by approximately 5%. Furthermore, no difficulties were encountered in the over-the-road demonstration. Lube oil analyses revealed no unusual engine wear; fuel dilution or negative effects on the truck's fuel system, and the truck operators could not discern any change in vehicle performance.

Concurrent project objectives included developing an estimate of the total yellow grease resources available in the Mpls/St. Paul metro area. The findings indicated that 24 million pounds of yellow grease are produced in the metropolitan area yearly. If processed, this was equivalent to 3 million gallons of biodiesel. An economic impact study suggested that a 50% and a 100% increase in yellow grease production, over and above the estimates for the metro area, could result in an annual 4.5 to 6.0 million gallons of WGME biodiesel production, respectively. The increase would allow for consideration of statewide yellow grease production as well as the prospect for collecting grease that is now discarded. Given the assumptions made in the above analysis, Minnesota could potentially generate 3 to 6 million gallons of biodiesel from yellow grease annually. In addition, MDA developed a report, "Factors to Consider Regarding: The Feasibility of Biodiesel from Waste/Recycled Greases and Animal Fats."

Project Results Use and Dissemination The results of the project will be useful to the State's energy users, regulators, policymakers and citizens as they look at Minnesota's long-term energy and environmental needs. Copies of the reports are available on the Minnesota Department of Agriculture's website (www.mda.state.mn.us) or may be obtained by contacting the project manager.

Project completed June 30, 2002.

SUBD. 10 DECISIONMAKING TOOLS

GOODHUE COUNTY NATURAL RESOURCES INVENTORY AND MANAGEMENT PLAN

10(a) \$75,000 FRF/ Match

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Overall Project Outcome and Results The Goodhue County Natural Resources Inventory is a tool to be used for resource management by County, City and Township officials, developers, environmental groups and landowners. The information available in the report will be a vital planning tool for all future development in Goodhue County.

Approximately 95,000 acres were field inventoried or ground truthed by the consulting firm of Bonestroo, Rosene, Anderlik and Associates. The information gathered during the field work was documented, evaluated and noted on a GIS mapping program that will allow the information to be distributed electronically. The information is presented in narrative descriptions of the natural communities and classified using the Minnesota Department of Natural Resource's Natural Heritage Program methodology. The natural communities were given an ecological ranking from A to D; A being of high ecological quality and D being the lowest. These communities were grouped into geographic units of major watershed boundaries within the County and evaluated for Rare Feature Values, Natural Community Integrity Values and Wildlife Habitat Values.

A working/steering committee, comprised of County, City and Township officials as well as citizens interested in participating, is assembled to lead discussion on the uses and limitations of the Natural Resources Inventory. The committee will help County staff develop specific management recommendations for each geographic unit.

All of the information gathered, including the narrative, database and maps, are maintained and updated electronically to ensure current information is available to anyone desiring such knowledge.

The Goodhue County Natural Resources Inventory is an important tool in the future decision making process and educational needs of the citizens of Goodhue County.

Project completed June 30, 2001.

PUBLIC ACCESS TO MINERAL KNOWLEDGE

10(b) \$100,000 FRF

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Overall Project Outcome and Results This project accelerated the cataloging and organization of historic mineral exploration documents collected by the State of Minnesota from private mineral exploration companies over the past 100 years. The goal of the project was to put the historic documents into a more useable form and make them more easily accessible for public use. More than 12,000 documents were catalogued and organized during the course of the project, and 72,550 pages of text and 7,433 large maps were scanned and made available for access via the world wide web at <http://minarchive.dnr.state.mn.us>. In addition, Public domain rights for eight historic airborne mineral exploration surveys were acquired to compliment existing public data sets and geophysical databases. Finally, a desktop computer was purchased to improve local public access and additional disk space was purchased to hold the web site content.

Project Results Use and Dissemination All of the content from cataloging and scanning these documents is available through the web site for use by researchers and users without needing to arrange a special trip to the archives in northern Minnesota. The archive's content can also be made available through alternative formats.

Project completed June 30, 2001

UPDATING OUTMODED SOIL SURVEYS – CONTINUATION

10(c) \$500,000 TF/ Match

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Overall Project Outcome and Results This project completed the first (of a three) biennium effort to update and digitize the soil surveys in Dodge, Fillmore, Goodhue and Wabasha Counties in southeastern Minnesota. This area comprises 1.65 million acres. During this phase of the project, the quality of existing soil maps was improved to aid their update and assist in the compilation of revised soil maps. Fillmore County has been completed and Wabasha County is 75 percent complete. A descriptive legend to guide the update effort, including the collection of soils data was started. Legend development is about 20 percent complete. To aid

legend development, private sector soil scientists performed 300 transects. Some of the original soil maps were updated. About 400,000 acres have been addressed. Research and technical support for digital and field science is underway by the University of Minnesota Department of Soil, Water and Climate. Digital techniques for improving existing soil maps have been developed and are being tested.

Project Results Use and Dissemination Soil data and associated maps are used by a variety of users, both public and private. As interim products from this project are developed, they will be made available to the local soil and water conservation district for dissemination to the public. The final product, in digital form, will be available after the project is completed in June 2005.

Project completed June 30, 2001.

MINNESOTA ENVIRONMENTALLY PREFERABLE CHEMICALS PROJECT

10(e) \$150,000 TF/ Match

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The Minnesota Environmentally Preferable Chemicals Project created a network of over 3000 Minnesota businesses, unions, commodity organizations, and technical assistance groups that have the potential to aid the shift from the use and manufacture of petrochemical-based products to alternative, environmentally preferable biobased chemical products. Members received information on the benefits of using biochemicals, including a 20-page report entitled "Lubricants from Vegetable Oil" which looks at vegetable oil-based industrial and automotive lubricants and their application in a range of industry sectors, and an 8-page fact sheet called "Biobased Chemicals Benefit the Workplace" addressing worker safety and cost issues associated with using chemical products. ILSR staff also created a web page on the use, advantages, and availability of biochemicals, and provided information on specific biobased chemical products, technology advances, and policy developments in the program's quarterly newsletter ("The Carbohydrate Economy"), electronic bulletin, and main web site. Staff gave presentations on the use of biobased products at various industry meetings. Work was overseen by a steering committee established at the beginning of the project.

Project scope was reduced and completed December 31, 2000.

GIS UTILIZATION OF HISTORIC TIMBERLAND SURVEY RECORDS

10(f) \$120,000 FRF

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Overall Project Outcome and Results This project successfully converted historical environmental records into a digital, GIS format. The result was a three-CD set that contains digital images, GIS and tabular data from the 2,900 pages in the "Reports of Estimates and Appraisals of the Timber Commissioners Board, 1895-1905."

Each page contains a map and assessment indicating the extent, value and condition of timber resources on state owned lands in the northern half of Minnesota. The map notes the location of timber relative to water features, wetlands and cultural references. The digitized products can now be integrated with other GIS data sets to analyze the development of critical lands over time; to plan for the most effective replanting of native

species of timber; and to assess the human impact on the environment.

This project demonstrated how to realize the potential value of historical paper records by converting them into a digital format. It is the first step in the creation of a digital library of historical data sets that document the development of the landscape in Minnesota.

Project Results Use and Dissemination The project results were copied onto 1000 three-CD sets. The Department of Natural Resources received 200 copies, as did the Land Management Information Center. Additional sets went to advisory board members and to many others. Among those are the Georgia State Archives, which plans to use this as a model, the Map Division of the Library of Congress and the Mille Lacs Band of Ojibwe. The State Archives is developing a web site to document the project and to foster interest in the digitization of historic environmental records. LMIC will submit descriptive metadata to its GeoGateway and the Geographic Clearinghouse.

Project completed June 30, 2001.

BY-PRODUCTS APPLICATION TO AGRICULTURAL, MINELAND AND FOREST SOILS

10(g) \$350,000 TF/ Match

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U of M - Soil, Water & Climate

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RESEARCH PROJECT

The overall goal of this project was to evaluate the potential for application and co-application of municipal and industrial by-products in agriculture, forestry, and mineland reclamation with particular emphasis on beneficial use of by-products in northeastern Minnesota.

Overall Project Outcome and Results A review of literature pertaining to beneficial utilization of by-products indicated that the dominant by-products in the region include wood ash generated from paper mill companies and biosolids from municipalities. Based on chemical characterization of inorganic and organic constituents, these by-products meet existing federal and state limits for beneficial application as soil amendments. The wood ash is a potential liming amendment and potassium source while biosolids can supply organic matter and many nutrients including nitrogen and phosphorus.

A series of laboratory, greenhouse, and field studies conducted over a 3-year period suggest that application and co-application of by-products can be a sustainable management practice for the region. The by-products either increased yield of crops tested or had no effect on yield compared to conventional practices without by-product application. When applied or co-applied at agronomic rates, environmental monitoring indicated no adverse effect of amendments on available metals in soil, levels of nitrate in soil water, or plant uptake of metals. A novel by-product application trenching method was developed for mineland reclamation with hybrid poplar.

Project Results Use and Dissemination The results from this project are being used by the University of Minnesota and State Agencies to address environmental and production concerns related to by-product application. Two technical workshops, four presentations at national and regional meetings, and more than 20 related presentations and field tours were given. The audiences included scientists, by-product generators and managers, farmers, foresters, mineland reclamation professionals, extension educators, and regulatory agency employees. A literature review and preliminary forestry results can be accessed at:

<http://www.cnr.umn.edu/FR/publications/staffpapers/Staffpaper153.PDF> and

<http://www.cnr.umn.edu/FR/publications/staffpapers/Staffpaper162.pdf>

Additional results are available upon request.

Project completed June 30, 2002.

WINTER SEVERITY INDEX FOR DEER

10(h) \$60,000/ Match

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RESEARCH PROJECT

Overall Project Outcome and Results The purpose of this project was to develop an improved understanding of the relationship between winter weather severity, deer condition, and ultimately deer survival. A primary objective of the project was to evaluate the feasibility of developing an index of deer condition based on weather measurements. This index would be used to determine if and when emergency feeding should begin during a severe winter.

Over the course of 3 years (2000-2002), winter weather data were collected daily and included measurements of snow depth and impaction and minimum and maximum ambient temperature. A total of 291 deer were live trapped and body condition was determined on 96 of these deer using a deuterium-dilution technique. Additionally, deer condition was determined using a body scoring system and ultrasonography, on 24 and 13 deer respectively.

During the 3 years of the study, winter severity represented 2 different extremes, either historically mild or severe. Initial results indicate that snow depth has a greater influence than ambient temperature in determining body condition in deer. During years with deep snow, fat levels of both fawns and does were significantly lower as early as January. Creation of a deer condition index will require additional data from years when winter severity is more moderate. Funding to continue the study have been secured through DNR's Heritage Endowment Funds.

Project completed June 30, 2002.

SUBD. 11 ENVIRONMENTAL EDUCATION

UNCOMMON GROUND: AN EDUCATIONAL TELEVISION SERIES

11(a) \$400,000TF

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Uncommon Ground is a 4-part video series that chronicles the vast changes in Minnesota's landscape over the last 200 years. The series traces the history of the land from its post-glacial beginnings to the present, describing the dramatic alterations that its prairies, forests, rivers and wildlife have undergone. *Uncommon Ground* gives context to the landscape's current condition — its health, use and long-term sustainability — as

it informs debate on crucial matters of conservation and natural resource management. Viewers will gain a deeper understanding of the powerful role the land has played in shaping Minnesota's economy and its communities and how we, in turn, have shaped the land!

Uncommon Ground, a \$1.6 million dollar project, is sponsored by public and private sources. The LCMR grant for the *Uncommon Ground* project provided lead funding for Phase I of this four-year project. Private dollars totaling \$400,000 were successfully secured to match these LCMR funds. Completed videos of Episodes I and II of the 4-part video series (Phase I) are completed and available for review.

Phase II, the final phase of the project, began in the fall of 2001 and ends in the fall of 2003. In the same manner as Phase I, public and private matching funds are being sought for a total of \$800,000. As of January 2002, the project has secured public and private dollars totalling \$345,000, has received a \$200,000 challenge grant from the McKnight Foundation and needs a total of \$255,000 to complete project funding. In this final phase of the project, Episodes III and IV will be produced, companion educational outreach materials will be developed, and the entire series will be broadcast statewide.

Uncommon Ground will be aired on Twin Cities Public Television and other public television stations across Minnesota in 2003. The series' major usefulness, however, will lie in the years that follow. *Uncommon Ground* will be viewed and used by a wide and varied audience that includes the general public, decision-makers, natural resource professionals, middle school students, higher education students in public policy, natural resource and conservation biology program staff, and individuals and institutions involved with local and regional land-use issues.

Funding continued in 2002-2004.

KARST EDUCATION FOR SOUTHEASTERN MINNESOTA

11(b) \$120,000 TF

Bea Hoffman

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Overall Project Outcome and Results A traveling exhibit and a learning trunk were developed by the Science Museum of Minnesota. Visitors to "Karst - A Special Landscape that Needs Special Care" learn about the close connections between land use and ground water quality in southeastern Minnesota's unique and sensitive karst landscape. Karst terrain is typical of areas underlain by carbonate rocks such as limestone or dolomite which crack and dissolve near the bedrock surface. Typical karst features resulting from this cracking and solution are sinkholes, caves, springs, and disappearing streams, all of which provide pathways for substances moving from the land surface to the ground water. It is hoped that viewers of the exhibit will increase their understanding of why special care is needed when making land use decisions in this sensitive landscape.

The exhibit consists of an entry panel with the sound of dripping water, panels on "What is Karst", potential threats to ground water quality, solutions to preventing contamination, and local karst case studies. Map overlays, an interactive faucet demonstration, an interactive ball maze game, and a computer with related web site information, are also part of the exhibit. By October 2001, the exhibit will have been seen by students and the general public at 10 locations throughout the region. It will be housed on a semi-permanent basis at Eagle Bluff Environmental Learning Center but will continue to be available for travel to other locations.

A stand-alone Karst Learning Trunk was also developed. The traveling trunks are complete with curriculum guides, videos, a mini karst exhibit, maps, and hands-on activities designed for classroom use. Nine of these trunks are available throughout the region.

Three workshops for teachers and water quality staff were held at various locations throughout the region.

Approximately 90 people attended these workshops. Teachers received an introduction to karst geology, worked with trunk materials, toured the karst exhibit, and worked with local geologic atlas maps.

Project completed June 30, 2001.

MINNESOTA WOLF PUBLIC EDUCATION

11(c) \$100,000 TF/ Match

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Overall Project Outcome and Results The International Wolf Center educates the public about the wolf and the controversies surrounding its survival. With this appropriation this objective was accomplished in three ways: through a curriculum, teacher workshops and a traveling exhibit.

The two-part curriculum entitled "Gray Wolves Gray Matter" includes an activity guide and web-based project. It focuses on the wolf's biology and the economic and political issues affecting its continued survival. The activity guide is organized into five modules and contains 22 lessons for students grade 6-12. The web-based curriculum is a workbook style project that follows the same modules, and but allows students explore each content area in more depth. The lessons and on-line project can engage students with different learning levels and styles.

Five teacher workshops took place throughout Minnesota in June 2001 throughout the state. Seventy educators attended these 6-hour workshops. Participants thoroughly examined the activity guide and web-based curricula, and tried some lessons. Many commented on its possibilities for interdisciplinary studies and cluster courses.

The traveling exhibit consists of a five-paneled wall display featuring images of the wolf and the controversies affecting its management. Participants may express their own reactions to the wolf, learn about the history of the wolf management, and vote on solutions for the most important wolf management issue for the future.

The \$100,000 project grant was matched with \$15,500 of non state money.

The curriculum is currently available for classroom use. All 750 copies of the activity guide have been distributed. The web-based curricula is available on our web site: www.wolf.org.

The traveling exhibit is available for shipment to selected schools and other facilities throughout Minnesota.

Project completed June 30, 2002.

BEAR CENTER

11(d) \$20,000 FRF

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A grant was given to the Big Bear Country Education Center in Northome for a business plan. As a result of the grant, Big Bear Country, Inc. hired consultants to conduct the business plan and marketing study and an

engineering consultant to produce the facility pre-design.

Project results have been distributed to Big Bear Country, Inc. Members and have been available to individual upon request. In addition, area entrepreneurs have requested project results.

ACCESSIBLE OUTDOOR RECREATION

11(e) \$400,000 TF

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Overall Project Outcome and Results There were four project results involving to increase the inclusion of people with disabilities within outdoor recreation.

1. An assessment of the inclusion of people with disabilities in Minnesota's outdoor service spectrum was conducted, and found that one-third of the responding organizations said that they were making no special provisions to facilitate participation of people with disabilities and funding, training and distribution of information were frequently cited as barriers to accessibility.
2. Community events in Minnesota, community organizers were trained and inclusive activities were offered at community events. 764 individuals were trained in 28 programs on the topics of Disability Awareness, Universal Programming and Marketing. 16,343 people participated in inclusive activities at 64 community events. Activities included canoeing and winter activities.
3. 58 state parks and forests were surveyed for accessibility and utilization of Universal Design Principles. Campsites, fishing piers, picnic areas, playgrounds, parking areas, restrooms and water sources were evaluated. The data is posted on the Minnesota Guide to Universal Access in the Outdoors (<http://www.wildernessinquiry.org/mnparks/>). In May 2002, this web page received 1,048 page views in 856 visitor sessions.
4. A web-based clearinghouse of inclusive outdoor recreation (www.accessoutdoors.org) was developed. The website contains the following primary categories of information:
 - Programs
 - Places
 - Products
 - Publications/Research
 - Training/Services
 - Organizations

There are currently 80 organizations listed on www.accessoutdoors.org. In May of 2002, the site received 14,714 hits in 1,163 visitor sessions.

Project Results Use and Dissemination Reports on project activities were disseminated through:

<http://www.accessoutdoors.org/accessible.cfm>

<http://www.wildernessinquiry.org>

<http://www.wildernessinquiry.org/mnparks/index.html>

www.accessoutdoors.org

The public was notified of www.accessoutdoors.org through mailings sent to 4,400 individuals and organizations and search engine registration.

Project completed June 30, 2002.

SCIENCE OUTREACH AND INTEGRATED LEARNING ON SOIL

11(f) \$250,000 TF/ Match

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This appropriation is to develop a SOILS Experiment Center as well as demonstration plots to increase the awareness of soil science and soil health. These will be located in the Science Parks area of the museum's new riverfront facility. The SOILS Experiment Center will be a 1,400-square foot greenhouse, laboratory, exhibit, and classroom space. The facility will reflect knowledge about sustainable building design, construction, and operation. It will house exhibits about soil science and soil health as well as information about the St. Croix Watershed Research Station's work on fingerprinting sediment sources in agricultural watersheds. The test plots will highlight ways in which people personally can protect and improve the health of their soils. With both the SOILS Experiment Center and the test plots, 8th grade students will be trained to serve as interpreters as part of the Science Museum's existing Lab Partners program. This appropriation must be matched by at least \$100,000 of nonstate money.

Project due to be completed by June 30, 2004.

TEACHER TRAINING IN INTERDISCIPLINARY ENVIRONMENTAL EDUCATION

11(g) \$60,000 TF

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This appropriation funded the creation of an interdisciplinary environmental education training workshop for K-12 teachers, and the workshop fees for up to 200 Minnesota teachers. A total of 188 Minnesota teachers participated in the four five day summer workshops, and two weekend workshops held at the Audubon Center of the Northwoods, Sandstone, MN. The focus of the workshops was to give teachers tools for integrating interdisciplinary environmental education lessons and activities in to their classroom curriculum. They participated in a wide variety of sessions, ranging from water quality and wetland monitoring to art and drama activities on the Mississippi River. Feedback from the teachers indicate that many of them have taken the activities and ideas from the workshops and used them to alter existing curriculum and/or create new curriculum focusing on the environment.

Information is being disseminated in several ways. Each teacher received a participant list of people attending their workshop, including e-mail addresses. This has allowed the teachers to stay in touch and share ideas. The Audubon Center has created a special section of its web page to post information for teachers including materials from people who presented at the workshops, as well as current environmental education resources, and educational opportunities related to environment for teachers. The web page is undergoing a redesign into front page, and will continue to be updated regularly. In addition, Minnesota Audubon is disseminating information to teachers and students through the network of 14 Audubon chapters in Minnesota through various education projects including Audubon Adventures curriculum.

Project completed June 30, 2001.

DEVELOPMENT AND REHABILITATION OF RECREATIONAL SHOOTING RANGES

11(h) \$350,000 FRF/ Match

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This project provided matching grant funds to local shooting range operations open for public use. Both new and existing ranges were given grants to improve the safe operation of a given range, to address accessibility improvements, address environmental concerns or to conduct utility upgrades pertaining to the safe operation of each range.

Twenty eight grants were used by local shooting sports organizations throughout the state. These improvements have helped to increase the capacity of each participating range to provide a safe shooting environment for users. Grant funds are also intended to help in the education of both youth participating in Firearm Safety program training, and provide individuals using these facilities a venue within which to improve their safe use of firearms, either prior to hunting or in competitive shooting.

Project completed June 30, 2001.

YOUTH OUTDOOR ENVIRONMENTAL EDUCATION PROGRAM

11(i) \$125,000 FRF

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Overall Project Outcome and Results The key objective of the program was to develop an outdoor education program for youth-at-risk in Dakota County. The program built an extensive team challenge/ropes course which included a high ropes course, low ropes course, low initiatives, and a climbing wall. The following percentages display the primary participants in the program: alternative schools (34%); Community Corrections (30%); park and recreation groups (13%); schools/peer mentor programs (8.2%); Social Services (6.7%); staff training (6%); and treatment programs (1.8%). There was a total of 1,282 youth served. Many of those youth were part of on-going programs. The total number of contact hours with youth was 3,240 hours. The contact hours are derived by multiplying the number of youth involved during each program and the length of time of the program.

The outdoor education program for youth-at-risk gave youth in Dakota County a unique opportunity that they would never had without this program. The program gave youth a safe, fun, adventurous outdoor experience in a Dakota County Park setting. Through these experiences participants learned to work cooperatively as a group, trust team members and self, develop effective group interaction skills, and gain a greater appreciation and awareness of the environment.

Project completed June 30, 2001.

TWIN CITIES ENVIRONMENTAL SERVICE LEARNING- CONTINUATION

11(j) \$40,000 TF/Match
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The Twin Cities Environmental Service-Learning project provided teacher training to urban teachers to carry out environmental service learning projects and provided minigrants to students to carry out those projects. 41 teachers at 20 schools in Minneapolis and St. Paul participated, involving 1,900 5-8th grade students. Over \$4,000 was distributed directly to schools for students to participate in environmental issue investigations in their neighborhoods that included community tours for site investigations, photo documentation of environmental successes and challenges in their neighborhoods, and data collection. Over \$11,000 was disbursed to students for their projects that addressed environmental issues at the local level. These issues included buckthorn removal in Battle Creek Regional Park; wetland restoration at Ames Lake; prevention of point source pollution into a school ground wetland; public awareness around the revitalization and redevelopment of St. Paul's Iris Park; native plantings at Ames Lake, on University Ave, at Battle Creek Middle School, and at Battle Creek Regional Park; public education about visual pollution; water quality and storm sewer runoff; and storm drain stenciling in Highland Park neighborhood. Over 50 organizations and individuals assisted students and teachers with their projects providing expertise and support.

This project helped fill a need where most environmental education programs do not go: a program that provides the necessary knowledge related to issues, tools to adequately analyze issues, and skills to help resolve issues. These ingredients are proven links to success in promoting environmental behavior.

This project will be continued in Twin Cities schools by Eco Education and continue to reach more schools. Most of the schools involved in these two years will sustain the effort, with some support from Eco Education. Presentations were made about this project at government agencies, Minnesota environmental education conferences, and a St. Paul service-learning conference.

Project completed June 30, 2001.

WITHDRAWN: MINNESOTA WHITETAIL DEER RESOURCE CENTER EXHIBITS

11(k) \$400,000 FRF/ Match
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This appropriation was to construct exhibits on white-tailed deer in Minnesota. The project cancelled on December 31, 1999.

SUSTAINABILITY FORUMS

11(l) \$200,000 TF
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Overall Project Outcome and Results Sustainability Forums were held in four locations in Minnesota (Red Wing, Willmar, Duluth, and Winona). Each forum consisted of three one-day workshops featuring community sustainability principles, practices, and processes. Objectives were to increase citizen knowledge and awareness of community sustainability principles, improve communication between citizens and local government leaders, and enhance opportunities for citizen leadership in the development and implementation of community sustainability action plans.

331 individuals were involved as planners, sponsors, and/or attendees. They included a broad spectrum of community interests and expertise including elected officials, residents of all ages, and representatives of government agencies, educational institutions, businesses, and organizations.

The workshops combined 60% instructor-directed and 40% participant-directed exercises. Less than 20% of the total Forum meeting time was devoted to formal lecture presentations. Workshop exercises encouraged participants to consider innovative approaches to community development issues and to apply sustainability principles and processes to all aspects of their professional and civic lives.

Project Results Use and Dissemination The forums brought together individuals with differing, and often opposing, viewpoints and introduced a common concept and process through which they could better identify and work toward the communities' best long-term interests. Decision-makers and residents worked in cooperation to advance their mutual understanding of community development.

A detailed narrative report of the Sustainability Forums Project was written and is available upon request.

Project completed June 30, 2001.

MINNESOTA RIVER WATERSHED ECOLOGY AND HISTORY EXHIBITS

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Overall Project Outcome and Results and Use Dissemination The Minnesota River Watershed Ecology and History Exhibit (*know as the River Table*) has been placed in the exhibit hall of the Joseph R. Brown Minnesota River Center. It was developed by *the Science Museum of Minnesota* to provide students, teachers, policy makers, tourists and residents with a *hands on* exhibit that encourages exploration of the 12,000 year history of the Minnesota River Basin and its ecological and cultural stories and features.

The core exhibit is a 14' by 8', 32 " high, topographically correct raised relief map carved out of a hard fiberboard and painted with water and vegetation features in accordance with USGS maps. In the future, overlay maps will be able to highlight various features of the twelve major watersheds of the River Basin including indicators for reduced point and non-point pollution sources. Sixty fiber optic lights illuminate the location of human settlements from 9,000 years ago to today. These lights are activated when visitors press multicolored story telling buttons. A storybook mounted on the *River Table* tells about the *U.S.-Dakota War of 1862* while another describes flooding on the river. Wildlife and natural features are presented through the use of storyboards telling about wild rice and mussels while freestanding graphic panels provide information about fish and birds. A companion computer kiosk located near the *River Table* provides visual and audio information on eleven Minnesota River related ecological and historic topics which may be further explored on an adjacent internet connected work station.

During the 2001-2002 school year, a series of opened houses for elementary and secondary teachers will be held to develop curriculum for use with the *River Table*. In addition, meetings of study committees and public officials dealing with Minnesota River issues will be scheduled in the exhibit hall.

Project completed June 30, 2001.

AQUACULTURE, HYDOPONICS, AND GREENHOUSE RESEARCH LAB

11(o) \$100,000 FRF

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Overall Project Outcome and Results A 30 X 60 8mm Polycarbonate freestanding greenhouse was constructed at Chisago Lake High School. The greenhouse has 2 sections. The front section is 20 X 30 and houses the aquaponics tanks. Both rooms are independent from each other. The environment is controlled for light, temperature, and humidity.

The high school agri-science department experienced all phases of the greenhouse construction. The greenhouse provides a community lab for students and community members to see and experience aquaponics and aquaculture as the project evolves. Master Gardeners, community education, and others will be part of the ongoing use of the facility.

Project completed June 30, 2001.

SUBD. 12 BENCHMARKS AND INDICATORS

MEASURING CHILDREN'S EXPOSURE TO ENVIRONMENTAL HEALTH HAZARDS

12(a) \$500,000 TF

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RESEARCH PROJECT

Overall Project Outcome and Results The goal of the project was to characterize important exposure-related variables for a probability-based sample of children from the economically disadvantaged neighborhoods of Lyndale and Whittier in south Minneapolis. Data collection focused on obtaining relevant environmental samples from the children's schools, residences, and community, as well as acquiring biological samples (blood, urine) from the children themselves. We enrolled 29 children in a pilot study (31% response rate) and 204 children (153 randomly selected plus 51 of their siblings) in the main study (57% response rate). In both winter and spring 2000 we collected biological samples (blood, urine) from 76% of the children participating, obtained samples of carpet dust and indoor air for approximately 100 residences, and conducted related monitoring inside and outside the Lyndale and Whittier elementary schools. Currently, results of most chemical analyses have been received, all available data (including baseline questionnaires, time-activity logs) have been entered into an integrated database, and preliminary statistical analyses are in progress.

Findings indicate that a school-based design is a practical and affordable way to recruit and monitor children

from poor, ethnically diverse neighborhoods. The primary advantages are numerous: (1) the process of identifying households with age-eligible children is direct, simple, and relatively inexpensive; (2) contact and sociodemographic information is readily available, provided appropriate safeguards are in place to protect privacy; (3) the involvement of school personnel lends credibility to the study and increases the likelihood that children/families will volunteer to participate; (4) information available from the schools makes it easier to assess differences in responders and non-responders; and (5) the in-school collection of biological samples and testing of lung function is a convenient and effective way to monitor children's environmental health. Once enrolled the vast majority of children/families participated fully in this study, doing their best to comply with sometimes-demanding study protocols and willingly providing blood and urine samples.

Project Results Use and Dissemination A final report will be disseminated to the children, their families, and the participating schools. Two journal articles have been published and several more are being prepared for publication.

Project completed June 30, 2001.

MINNESOTA COUNTY BIOLOGICAL SURVEY- CONTINUATION

12(b) \$1,600,000 TF

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Overall Project Outcome and Results The Minnesota County Biological Survey (MCBS) is a systematic survey of rare biological features. The goal is to identify significant natural areas and to collect and interpret data on the distribution and ecology of rare plants, rare animals, and native plant communities. The Survey uses a multi-level procedure, beginning with the evaluation of existing inventory data, followed by an assessment of the quality and condition of selected areas using air photos and ground surveys. Field work also includes the collection of vegetation data and specialized surveys of selected rare species.

Since July, 1999 surveys were completed in fifteen counties: Benton, Blue Earth, Brown, Chippewa, Grant, Kanabec, Mille Lacs, Nicollet, Pine, Redwood, Renville, Sibley, Stevens, Swift and Yellow Medicine counties. Surveys were also completed in the Red River Prairie portions of Becker and Otter Tail counties. In 2000, field survey work began in Douglas, Kandiyohi, and Pope counties and air photo interpretation in McLeod and Meeker. Surveys continue in Aitkin, Carlton, and Crow Wing counties. Surveys began and continue in the North Shore subsection (portions of St. Louis, Cook and Lake counties) and in Itasca County.

Data are entered into DNR's Natural Heritage Information System that includes a Geographic Information System. New records of 1,459 locations of rare features were added to the Rare Features Database since July, 1999. Since MCBS began in 1987, surveys have been completed in 50 counties and 12,781 records have been added to the Rare Features Database by MCBS. Since 1987, MCBS has documented fourteen species of native plants and two species of amphibians not previously recorded in the state.

In cooperation with other survey and classification efforts, vegetation data on forest types were compiled and analyzed leading to the revision of the forest types in *Minnesota's Native Vegetation: A Key to Natural Communities Version 1.5*. Vegetation data used in the classification are stored in the Relevé Database that currently includes 6,505 Minnesota vegetation samples (42% of the relevés collected by MCBS).

Project Results Use and Dissemination There are now maps displaying the results of MCBS for 24 counties with the publication of maps of Stearns County and Marshall County during this project period. Map files of selected counties are available on the DNR Web site. Since 1987, MCBS has produced 56 publications, including one book, *Minnesota's St. Croix River and Anoka Sandplain: a guide to native habitats*.

Recent examples of MCBS data use: Renville and other MN River Valley counties in assessment of the mineral and rare resources associated with the rock outcrops, Sibley County Planning, Stearns County comprehensive planning/park planning, active railroad prairie rights-of-way management, prairie acquisition by Pheasants Forever and The Nature Conservancy, DNR Park management, landscape level management in the North Shore Highlands as part of the Manitou Collaborative, trail planning in NE MN and along the MN River Valley, assessments by the Northeast Landscape Committee of the Minnesota Forest Resource Council.

This particular section of the project completed June 30, 2001.

ENVIRONMENTAL INDICATORS INITIATIVE- CONTINUATION

12(c) \$400,000 TF

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Overall Project Outcome and Results Citizens want to know how well Minnesota's natural resources and environment are being managed. The Environmental Indicators Initiative, a pilot project built, tested, and applied frameworks to help natural resource managers achieve the following results:

- 1) Indicators that document natural resource status and trends;
- 2) Indicators that link natural resource activities to natural resource outcomes;
- 3) Targets developed for indicators that enable us to forecast and measure program results;
- 4) Indicators and targets integrated into DNR management plans and programs;
- 5) A scientifically credible and comprehensive picture of the state's natural resources and the effects of DNR management (see DNR's *Natural Resources Stewardship 2001: Key Indicators of Progress*);
- 6) Inter-agency coordination on developing common natural resource and environmental goals and associated performance indicators.

Project Results Use and Dissemination All efforts fostered the growth of a network of citizens, resource professionals and policy makers using indicators in natural resource learning and decision making. EII-designed frameworks and indicators are now incorporated into DNR standard operations. Lessons learned during the pilot project allowed DNR and partners to refine indicator development and move forward with application of those frameworks which best enhance our ability to use indicators to forecast and measure environmental results. The LCMR pilot project and continuing DNR work laid an important foundation for contributing to a broader effort recently established by the Governor's Office of Results Management to strengthen accountability and responsiveness to citizens by measuring and reporting results. DNR is sharing best-practices learned through the last six years of developing indicators and applying frameworks that promote the use of indicators in decision-making aimed at achieving environmental and natural resource results.

Project completed June 30, 2001.

DAKOTA COUNTY WETLAND HEALTH MONITORING PROGRAM

12(d) \$160,000 TF

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The Dakota County Wetland Health Evaluation Project (WHEP) is a joint research and educational project sponsored by the Dakota County Environmental Education Program (DCEEP) the Minnesota Pollution Control Agency (MPCA) and the Cities of Dakota County. The goals of the project were to:

- Develop and refine biological monitoring methodologies to assess the biological health of wetlands
- Provide meaningful data on wetland health to local governments
- Foster public awareness of wetland value and health within Dakota County communities
- Create positive partnerships between citizens and their local government in addressing natural resource issues

Annually, volunteer monitoring teams sampled up to four wetlands between June and August for plant and macroinvertebrate communities within their city and performed a cross check of a wetland monitored by another city's team. Using sampling techniques and monitoring protocols developed by the MPCA and approved by the US Environmental Protection Agency (EPA), volunteers analyzed collected samples and completed data field sheets. Prior to sampling, volunteers attended two and a half days of training given by MPCA staff. The time commitment for volunteers was approximately 30-50 hours per year. City staff worked with each team to select monitored wetlands. Volunteers reported the annual results back to their city, either to the city council or parks commission. URS/BRW, professional consultants provided quality control, statistical analysis and reporting.

From 1999-2001, over 200 volunteers have contributed approximately 10,000 hours performing 228 wetland surveys. Each of these surveys were tallied, met quality control and quality assurance guidelines and were reported to city and county staff and scientists at the MPCA. MPCA scientists combined this citizen data with their own research to refine the Indexes of Biological Integrity for depressional wetlands in Minnesota. This research has contributed to the methods for wetland bioassessment methods published by the US EPA.

Project completed June 30, 2002.

PREDICTING WATER AND FOREST RESOURCES HEALTH AND SUSTAINABILITY

12(e) \$300,000 TF

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RESEARCH PROJECT

Overall Project Outcome and Results A decision support model (SUSTAIN) that can be used by resource managers to predict future forest ecosystem sustainability was developed. Existing databases were used for forest birds, amphibians, aquatic insects and native plant communities and indicators of sustainability and health for northern Minnesota forests were created. The model quantifies health for a forest stand and predicts sustainability at the landscape level. Indicator response (e.g., population of a bird species indicator) was calculated for; current forest condition, historical condition (based on range of natural variation (RNV)), and future conditions. The model output is interpreted in the context of whether the planned management will move the forest toward or away from sustainability (based on RNV). The model incorporates information for two ecological classification system (ECS) sections in northern Minnesota (Drift and Lake Plains and Northern Superior Uplands), 55 bird species, and 12 ecosystem types. Watershed models were developed for aquatic insects and fish but were not included in the final version of the SUSTAIN model due to computation difficulties. Indicators of amphibian health and sustainability were not included in the final model because we lack information required to predict their response to forest management.

Project Results Use and Dissemination The model will be available to local and regional land managers to aid in decisions regarding forest management activities (downloadable from web site). Training sessions for the model were attended by representatives from major landowners (USFS, DNR and St. Louis County), as well as Minnesota Center for Environmental Advocacy, and The Nature Conservancy. Staff involved with this project presented results and information about the project on approximately 12 different occasions, including scientific meetings and meetings with resource managers. We also provided information on RNV to two landscape planning groups in northern Minnesota coordinated through the Minnesota Forest Resources Council.

Project completed June 30, 2002.

POTENTIAL FOR INFANT RISK FROM NITRATE CONTAMINATION

12(f) \$200,000 FRF

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RESEARCH PROJECT

Overall Project Outcome and Results Researchers conducted interviews and measured nitrate and bacteria for 381 randomly selected suburban households with private wells (Dakota and Washington counties, Region I; approximately 27,000 household private wells) and 329 rural households (Murray and Nobles counties, Region II; approximately 3,200 household private wells).

In Region I, 24% of wells had nitrate-nitrogen levels above 3 ppm, with 5.6% above 10 ppm (representing 1,500 households). In Region II, 37% of wells were above 3 ppm nitrate-nitrogen, with 23% above 10 ppm (representing 730 households). In Region I, 19% of wells were positive for coliform (less than 1% had fecal coliform); in Region II, 66% of wells were positive for coliform (17% positive had fecal coliform). Nitrate and coliform were correlated in Region II, but not Region I. Nitrate contamination was more likely in both regions in wells drilled before the 1974 Minnesota Well Code.

Most sampled households (both regions) reported using wells for over 10 years. In both regions, 30% of household members were children, 6% under age 6. Twenty households provided childcare. In Region I, 67% of children drank tap water during the first year of life versus 31% in Region II. Thirty-four of 65 child caregivers in Region I and 10 of 49 in Region II were unaware of concern about nitrates. Ninety percent of caregivers in Region I and 55% in Region II said that health care providers never discussed nitrates.

Nitrate and bacterial contamination is worse in the rural area but more people may be at risk in the suburbs. There is less knowledge in the suburbs.

Project Results Use and Dissemination Presentations have been made to state and local government staff to inform decision-making, and to scientific groups. Information for physicians and a paper for publication are planned. Activities will increase awareness of physicians, private well owners and government officials about nitrate and bacterial contamination and potential health effects.

Project completed June 30, 2002.

ASSESSING LAKE SUPERIOR WATERS OFF THE NORTH SHORE

12(g) \$400,000 TF

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RESEARCH PROJECT

Research Results and Dissemination The Large Lakes Observatory of the University of Minnesota has established benchmark data on the phytoplankton communities, nutrient chemistry, temperature and currents in western Lake Superior based on a timeseries of measurements from moored instruments at selected stations along the north shore from Duluth to Split Rock between 1999 and 2001. A database of these results has been established at the LLO and, through publications, is being made available to the scientific community and the public.

The annual catch of fish that can be sustained by Lake Superior ultimately depends on primary production of organic matter by phytoplankton (single-celled algae and other plants) in the sunlit surface waters. Our work shows that biological productivity in Lake Superior is much more variable in space and time (both seasonally and, more interesting, inter-annually) than previously thought. This makes biological productivity difficult to quantify using ship-based methods. Our results, based on time-series measurements from moored instruments, suggest that biological productivity may be two- to three- fold higher on an annual basis than reported by previous studies. If true, this is of great significance for fisheries management. In addition, our work suggests that Lake Superior, and by inference other large temperate lakes, are net sources of CO₂ to the atmosphere, so we cannot rely on these lakes to help remediate the problem of increasing atmospheric CO₂ and global warming.

Further work is needed for rigorous assessment of biological productivity and carbon cycling in Lake Superior. An understanding of basic physical, chemical, and biological processes is needed for assessment and prediction of the lake's response to future environmental stresses. We are continuing to develop innovative and cost-effective monitoring programs to assess these key environmental parameters and anticipate receiving significant federal and funding for such work in the coming years.

Project completed by June 30, 2002.

MINNESOTA'S FOREST BIRD DIVERSITY INITIATIVE- CONTINUATION

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RESEARCH PROJECT

Overall Project Outcome and Results The project's primary goal is to develop landscape management tools to maintain Minnesota's rich diversity of forest birds. During the FY00-01 biennium the tenth and eleventh years of monitoring forest bird populations in the Chippewa National Forest and Superior National Forest, the ninth and tenth years in east-central Minnesota and the sixth and seventh years in southeastern Minnesota were completed. A major objective of this study was to analyze forest bird population trends. Most breeding bird populations in northern and east-central Minnesota were relatively stable, while 15 species had a decreasing trend and eight were increasing. In the southeast region eight species showed long-term

population declines, while eleven species increased. Most species in all regions showed considerable year-to-year variation in abundance. Another major objective was to refine and verify predictions of forest bird distribution and abundance and to create links to LANDIS. Parameterization required by LANDIS was completed for the Nashwauk Upland subsection of the Ecological Classification System. Additionally, predictions were tested using bird abundance on nine 1-square mile plots and these analyses indicated that our predictions had a high level of accuracy. The project managers are unaware of any efforts elsewhere with similar predictions that have been evaluated with independent data. Progress was made on software components of the forest planning tool to make this a useful application for land managers. This includes a module that conducts Monte Carlo simulations to make predictions of bird abundance and a module that enables reading of the output of LANDIS directly.

Project Results Use and Dissemination DNR staff continued updating the initiative's web site (<http://www.nrri.umn.edu/mnbirds>) which provides public access to data and information collected by the project. Ten presentations highlighting the project's results were given during the Biennium. Four papers were accepted or published in final form and drafts of two additional manuscripts were completed.

Project completed June 30, 2002.

FARM PONDS AS CRITICAL HABITATS FOR NATIVE AMPHIBIANS

12(i) \$250,000 TF/ Match

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RESEARCH PROJECT

Overall Project Outcome and Results Constructed farm ponds and natural wetlands in southeastern Minnesota during the spring and summer of 2000 and 2001 were studied. The objectives were to identify land management practices that sustain healthy populations of amphibians in southeastern Minnesota farm ponds and to recommend monitoring methods suitable for assessing amphibian habitat quality. Amphibian and habitat data from 40 randomly selected ponds, ten ponds in each of four surrounding land-use classes: row crop agriculture, grazed grassland, ungrazed grassland, and natural wetlands were collected. 10 species of amphibians at the ponds were identified. Surveys indicated that at least five fish, six snake, two turtle, 18 mammal, and 100 bird species were associated with the study ponds. No differences were found in amphibian species richness among the pond types, and very few frogs had malformations. In a mesocosm study, there were no differences in amphibian larval survival between agricultural and natural wetlands. The highest amphibian reproductive success was found in ponds with no fish, low amounts of vegetation, and low concentrations of nitrogen. Ponds used for watering cattle had elevated concentrations of nitrogen and higher turbidity, indicating lower quality habitat for amphibians. Constructed farm ponds designed to serve the needs of farmers can be managed to provide valuable aquatic breeding habitat for amphibians in this region. Important management actions include fencing cattle away from the pond, maintaining a wide grass buffer strip around the pond to trap sediment and nutrients, and avoiding fish introductions.

Project Results Use and Dissemination 2,500 amphibian larvae and egg field guides are being distributed to wildlife biologists. State and federal agriculture and natural resources agencies are receiving 10,000 USGS Fact Sheets and 2,000 posters containing practical advice on how to manage farm ponds to benefit wildlife.

Project completed June 30, 2002.

IMPROVED FUNGUS COLLECTION AND DATABASE

12(j) \$70,000 TF

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Overall Project Outcome and Results A centralized database for the fungi of Minnesota has been produced as a result of consolidation of the two University of Minnesota fungal collections. It is accessible at <http://fungi.umn.edu> or <http://www.fungi.umn.edu>. This database provides information on the distribution, ecology, and history of the fungi of the state for use in agriculture, forestry, and recreation management. The web site includes a non-technical general introduction to the fungi, illustrations of mushrooms and plant pathogens, a history of the collection and the state of knowledge of the fungi of Minnesota, and a taxonomic outline for the specialist. The database is searchable in multiple ways, including by plant host and habitat, and it can produce reports that can be sorted by up to three fields.

Approximately 45,000 specimens were processed and moved from the Dept. of Plant Pathology to new herbarium cases in the University of Minnesota Herbarium. A dedicated computer with the software program "Specify" for data entry was set up, and 6700 Minnesota fungal specimens have been entered into the database. Six of seven cases of Minnesota fungi have been processed into archival mounting for long term preservation. Entry of the remaining specimen data and specimen processing is continuing. Consolidation of the fungal collections has multiple benefits, including assisting in obtaining fungi for research in the state, fungal identification, and teaching.

Project Results Use and Dissemination The new database is also accessible through the Bell Museum of Natural History and University of Minnesota web sites. It was used at the North American Mycological Society of America meeting in Collegeville, July 5-8, to find sites for mushroom collection. The database will be advertised to professional mycologists in *Inoculum*, the newsletter of the Mycological Society of America.

Project completed June 30, 2001.

SUBD. 13 CRITICAL LANDS OR HABITATS

SUSTAINABLE WOODLANDS AND PRAIRIES ON PRIVATE LANDS- CONTINUATION

13(a) \$450,000 TF

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The Department of Natural Resources, Minnesota Forestry Association, and The Nature Conservancy worked together to:

- develop stewardship plans for 170 private landowners covering 17,000 acres of forests and brushlands;
- develop prairie stewardship plans for 9 landowners involving 1,250 acres; and
- implement projects on a cost-share basis with private landowners who had forest stewardship plans, including tree seeding on 152 acres, planting over 2 million trees on 3,490 acres, grass seeding and prescribed burns on 206 acres, and numerous other restoration projects.

Project completed June 30, 2002.

NATIONAL PRAIRIE PASSAGE- LINKING ISOLATED PRAIRIE PRESERVES

13(b) \$150,000 TF/ Match

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Overall Project Outcome and Results The National Prairie Passage is a concept that was proposed in the early 1980's as a scenic country drive where people could travel and enjoy prairie wildflowers growing along roadsides. Since then, the concept of the Prairie Passage has grown in scope. In Minnesota, we envision the Prairie Passage to be the creation of the network of tall grass prairie preserves that are connected by corridors of prairie along roadsides or other rights-of-way. At a national level, the Prairie Passage extends from Canada through Texas. Within this framework, communities, local units of government, states and the federal government will be able to partner to promote a network of scenic drives leading to various points of interest relating to both the cultural and natural resource of the tall grass prairie in North America. The project will benefit the prairie ecosystem by linking isolated preserves with corridors of prairie, thus reversing some of the existing fragmentation of the prairie landscape. Wildlife will benefit from increased high quality grassland habitat that continuous linkage can provide. Local communities will benefit by being able to promote local tourism based on cultural and natural resources of the tall grass prairie. Road authorities will benefit from planting and managing prairie along roads, which should decrease their maintenance costs and herbicide usage. Local growers and producers of prairie plants and seeds will benefit from their products being used for restoring the prairie landscape.

A sign featuring prairie coneflower was created to mark Prairie Passage routes and designated Prairie Passage sites in the six partnering Prairie Passage states. A 535-mile route through western Minnesota was selected as Minnesota's Prairie Passage Route. Thirty-six natural, historical and cultural areas were selected as Prairie Passage sites. The route and sites were selected with public involvement. Four hundred and eighty acres of land in Blue Mounds and Camden State Parks, Black Rush Lake Waterfowl Production Area and the adjacent Highway 23 and 75 corridors was seeded with native prairie grasses and wildflowers. Seed totaling 23,281 pounds, was harvested from local prairies for use in the restorations. An additional 9,845 pounds of seed was purchased from local native seed producers to complete the restoration plantings. The plantings have been periodically mowed to increase the success of the restorations and prevent noxious weed problems. A series of three posters depicting tallgrass prairie plants, animals and cultures were developed and are being distributed throughout the southwest part of the state. Four informational kiosks were developed for placement at two wayside rests and at Blue Mounds and Camden State Parks. A self-guided Prairie Restoration Interpretive Trail was created for Camden State Park. An Explore Southwestern Minnesota's Prairie Passage brochure was created for distribution at Minnesota Office of Tourism/MnDOT Travel Information Centers, convention visitor bureaus, state parks, museums, and historic sites. A general Prairie Passage brochure was created for use in the six partnering Prairie Passage states. Each state printed it's own supply of brochures. A Guide to Minnesota's Prairie Passage Route and Sites was created for distribution throughout Minnesota's tourism outlets. Six public meetings were held; eighteen presentations were given at conferences, workshops, and meetings. Prairie Passage poster displays were presented at three state and national conferences.

Project completed June 30, 2002.

GREENING THE METRO MISSISSIPPI-MINNESOTA RIVER VALLEYS

13(c) \$800,000 TF/ Match

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Great River Greening, along with ten cooperators, completed private and public habitat restoration projects on approximately 1,500 acres in the metro Mississippi/Minnesota River valleys, involving more than 1,500 citizen volunteers. These sites vary in their quality, but through the restoration process, their ecological value for buffering, connecting, and hosting natural remnants has increased greatly. Many of the sites are critical for enhancing some of the last large native plant remnants in the metro river corridor.

The funded sites range from such high quality natural areas as the Pine Bend Bluffs (Flint Hills Resources Natural Area and Ordway Natural History Area), where restoration has enhanced large mosaics of native plant communities; to the important connecting sites of Highwood Park Reserve, West Side Bluff, and Mississippi River Gorge, which host important rare plants or native remnants and have great potential; to the urban setting of Shepard Road, one of the largest natural plantings on a highly developed riverfront.

Other results include completing a land cover inventory of more than 109,000 acres, for which collaborators contributed more than \$50,000 non-state funds. Landowner outreach was particularly successful, resulting not only in the above projects, but also in a database of future restoration projects. The cost-share and match from partners and landowners exceeded what was expected for a total of \$589,957.

In addition to several research papers to disseminate the results, the Greening website includes extensive information (including maps) about the Big Rivers Partnership and each of the BRP projects and links to restoration research resources for land managers and the public.

Project completed June 30, 2002.

RESTORING THE GREATER PRAIRIE CHICKEN TO SOUTHWESTERN MINNESOTA

13(d) \$60,000 TF

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In an effort to re-establish a greater prairie chicken (*Tympanuchus cupido pinnatus*) population in vacant grassland habitat in southwestern Minnesota 126 birds (84 cocks, 36 hens, 6 young of the year) were translocated from northwestern Minnesota 1999-2001. Birds for translocation were initially captured on booming grounds during the breeding season radio-marked and released in place. A portion were recaptured by night lighting during July-September. The birds were released at six different release sites in the vicinity of the Lac qui Parle Wildlife Management Area. Fifty-three birds (46 cocks, 7 hens) were translocated in 1999 and 60 (25 cocks, 29 hens, 6 young of the year) in 2000. Thirteen cocks were translocated during May and June 2001. All were radio-marked to monitor general movements, document survival and mortality factors. Two booming grounds were located in 2000, one with six cocks and one with four. In 2001, these two booming grounds each had five cocks. No new booming grounds were established as a result of the releases in 2000. Efforts to establish five booming grounds failed as birds moved from the two new 2000 release sites to the areas with the two established booming grounds. Seven nests were located, one in 2000 and six in 2001. Four of the seven hatched and one nest contained eight ring-necked pheasant eggs. Survival of translocated radio-marked birds from release to following breeding season (8-10 months) was 35.5%. Predation by raptors appeared to be the main mortality factor. Future releases will concentrate on supplementing existing booming grounds and establishing new ones 10 to 15 miles away. The long-term goal is to link the ranges of prairie chicken populations in Minnesota with those in South Dakota and North Dakota.

Project completed June 30, 2001.

THE PRAIRIE HERITAGE FUND

13(e) \$500,000 TF/ Match
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Overall Project Outcome and Results The goal of this project was to protect, preserve and enhance native prairie and wetland ecosystems in Minnesota. Less than 1% of Minnesota's original 18 million acres of Tall Grass Prairie exists today. Nearly 1/3 of Minnesota's endangered and threatened plant and animal species inhabit the prairie ecosystem. Existing prairie relics are the repositories of the plant and animal communities that charted the course of anthropological history in Minnesota. The PHF has preserved and restored small prairie and wetland remnants. Acquisition and enhancement of remnant tracts of the prairie ecosystem protect and enhance Minnesota's endangered and threatened natural communities and ensures Minnesota's prairie legacy.

PHF: Through the 1997 appropriation, Pheasants Forever acquired 2,197 acres of native remnant prairie and associated wetland and upland habitats throughout the prairie region of Minnesota. A total of 19 projects were completed in 11 counties. In addition, 80 acres of prairie habitat were restored. This appropriation was matched with \$742,647 of non-state monies and an additional \$383,600 in non-match dollars.

PHF - continuation: Through the 1999 appropriation, Pheasants Forever acquired 1,486 acres of native remnant prairie and associated wetland and upland habitats throughout the prairie region of Minnesota. A total of 11 projects were completed in 8 counties. In addition, 40 acres of prairie habitat were restored. This appropriation was matched with \$630,544 in non-state monies.

Pheasants Forever was able to leverage federal dollars from the North American Wetlands Conservation Act on tracts that qualified. PF was thus able to stretch trust fund dollars and add value to this project.

Each tract acquired through the Prairie Heritage Fund has been enrolled into Minnesota's Wildlife Management Area System and is open to public hunting, trapping, bird watching, and other recreational pursuits consistent with the goals of the Wildlife Management Area System.

Project completed June 30, 2001.

PUBLIC BOAT ACCESS AND FISHING PIERS

13(f) \$1,310,000 TF/FRF
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This project increased access to Minnesota's lakes and rivers by providing public boat access, fishing piers and shoreline access. Specifically, DNR worked with local governments, angling clubs, and other groups to construct 22 fishing piers in 15 counties statewide. In addition, DNR developed 3 boat access sites, one each in Wright, Koochiching and Cass Counties. Finally, this project acquired land for 10 public boat access sites in six counties. Acquisitions were based on willing sellers and the availability of land suitable for public access.

Project completed June 30, 2002.

ARBORETUM LAND ACQUISITION AND WETLAND RESTORATION – CONTINUATION

13(g) \$700,000 TF/ Match

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Overall Project Outcome and Results The objective of the Arboretum's land purchase is to protect its watershed from development. During this phase, the Arboretum purchased 30 acres at a total cost of \$1,253,993 (\$627,315 from the LCMR and \$626,678 private match). There are now 137 acres left to acquire.

Arboretum research and education programs are recognized internationally, and over 225,000 people visit annually. A major part of the visitor experience is the ambience of woodland, prairie, wetlands, gardens, and model landscapes, all set in prime land in the western metro area.

Control of all lands within the roadways surrounding the Arboretum core will protect water quality and native plant habitat, and preserve the visitor experience. This land includes over 90% of the Arboretum's watershed.

Project completed June 30, 2002.

NATIVE PRAIRIE PRESCRIBED BURNS

13(h) \$400,000 TF

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Overall Project Outcome and Results The goal of this project was to increase prairie burning to a level commensurate with habitat needs in three targeted areas: Kittson County Tallgrass Aspen Parkland, Glacial Lake Agassiz Beach Ridges, and the Lac Qui Parle area. Area Wildlife offices were provided seasonal personnel and specialized equipment to prepare fire management plans, establish fire breaks, work with landowners, carry out burns, and assist in tree removal, mowing, and other grassland management activities to maximize habitat benefits of the burn effort.

Result 1: Conduct prescribed burns on 12,000 ac. of Tallgrass Aspen Parkland in Kittson Co. — This was a cooperative project between DNR and The Nature Conservancy. DNR and TNC pooled crews and equipment and coordinated burns in implementing this effort. Outcome: 33 burns/15,780 acres

Result 2: Conduct prescribed burns on 9,000 ac. in the Glacial Lake Agassiz Beach Ridges — This was an expanded burn initiative in the Fergus Falls, Detroit Lakes, and Crookston DNR Area Wildlife offices. A fire/grassland management assistant supported the effort and worked with the area managers preparing burn units and implementing grassland management activities. Outcome: 74 burns/14,833 acres

Result 3. Conduct prescribed burns on 3000 acres in the Lac Qui Parle area — This activity fielded an additional burn crew and seasonal staff focused specifically on Lac Qui Parle area prairies. Burning was coordinated with TNC and FWS crews. The effort coincided with the Prairie Chicken Re-introduction project. Outcome: 29 burns/2,850 acres

Project Results Use and Dissemination By providing targeted, accelerated funding, prescribed burning was

doubled or tripled in the affected work areas. The project demonstrated that given sufficient resources, DNR Area Wildlife Offices — in coordination with other agencies and adjacent landowners — can carry out prescribed burning at a level necessary to meet prairie habitat needs. This project provides a base for developing future burning and grassland management project requests.

Project completed June 30, 2001.

IMPLEMENT THE CHISAGO AND WASHINGTON COUNTIES GREEN CORRIDOR PROJECT- CONTINUATION

13(i) \$400,000 TF/ Match

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Overall Project Results The Green Corridor implementation project established the State's first Purchase of Development Rights (PDR) and Transfer of Development Rights (TDR) programs and through the pilot phase of the project permanently protected 142 acres of land. The total allocation of funds was \$400,000. Of which \$304,000 was directed toward land protection. The project leveraged an additional \$864,400 (\$300,000 required local match) to purchase conservation easements.

Washington County established its PDR program in February 2000. During the first phase of this voluntary program 12 landowners applied for participation representing 657 acres of land with an estimated value of \$4,629,300. The County Board, upon recommendations of a citizen advisory committee, narrowed the field to the top four properties and protected 142 acres of land. A total of \$1.2 million was spent to purchase conservation easements and to acquire fee title for three of the four properties (102 acres). To ensure the ongoing success of the program, the County Commissioners are seeking permanent funding through the County budget process.

Chisago County adopted a TDR ordinance in May 2001 and is currently working to identify and complete development right transfers. The TDR ordinance represents a unique opportunity for landowners and citizens to proactively address growth and development without compromising private property rights. TDR is voluntary and in Chisago County will focus on accommodating new growth with the preservation of critical natural resources. This project represents a cooperation among county, city and local officials as well as landowners, developers and citizens. Chisago County also had an opportunity to establish a PDR program, but after running into unforeseen difficulties and tight timeline constraints relinquished the \$150,000 earmarked for PDR to Washington County. Washington County used the additional dollars to complete the land transaction with the fourth property owner.

Project Results Use and Dissemination The results of this project are action oriented, attempting to implement land conservation on the ground. Other interested communities can use the information gained to implement their own programs without re-inventing the wheel. Several communities are already utilizing the information available to explore the feasibility of TDR and PDR in their communities. Copies of the ordinances, policy and procedure documents as well as general advice are available from each county or any of the project partners.

Project completed June 30, 2001

RIM SHORELAND STABILIZATION

13(j) \$350,000 TF/ Match

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Overall Project Outcome and Results Two shoreland stabilization projects were completed with this appropriation: Lake Winnibigoshish and Lac Qui Parle. The Lake Winnibigoshish project stabilized 1.25 miles of highly erodable shoreline on the SW side of the lake. This project was one of 16 different sites needing stabilized. The design incorporated gaps in the riprap to accommodate traditional swimming areas and included an aggregate surface in various reaches to facilitate foot travel. This project has had a number of cooperators including US Forest Service, National Forest Foundation, Private landowners, summer home permittees, Leech Lake Band of Ojibwe, Natural Resources Conservation Service, Cass County, and others.

The Lac Qui Parle project was done in two phases: Clay Banks and LQP State Park sites. The Clay Banks site stabilized 2,700 feet of shoreline. Field stone was used to provide a more natural look since it was adjacent to a Wildlife Management Area. Wildlife then converted the upland area into prairie after the completion of the project. The Lac qui Parle Lake Association, Lac qui Parle Watershed Project Association, and Minn-Kota Sportmens Club also donated \$15,250 toward a walleye spawning reef that was constructed along 300 feet of the project. Spring assessment netting revealed numerous walleye eggs on the reef.

The LQP State Park site phase only included the purchase of 2,420 cubic yards of riprap. This rock will be installed in 2002 with other DNR funds. When installed 1,400 feet of shoreline will be stabilized. This project phase will complete the stabilization of the highest priority eroded sites, however numerous other areas of erosion exist, and future projects may be proposed.

Both lakes are an important fishery to the State of Minnesota. Severe erosion has covered many walleye spawning areas. This and other completed projects has slowed or eliminated the introduction of sediment and natural spawning areas are being reestablished. This along with other management activities helps stabilize and improve the fishery.

Project completed June 30, 2002.

ENHANCING CANADA GOOSE HUNTING OPPORTUNITIES FOR RECREATION AND MANAGEMENT PURPOSES

13(k) \$340,000 FRF
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Overall Project Outcome and Results This appropriation was for work with waterfowl conservation organizations to secure leases for goose forage areas and to increase public goose hunting opportunities. The project addressed the growing number of Canada geese and lack of suitable areas for public hunting. It provided 140 annual forage leases, improved hunting blinds on public land, and assistance to local governments to improve public hunting for Canada geese and help reduce local nuisance complaints.

The project acquired 34 five-acre one-year forage leases on private land adjacent to public hunting areas in 2000. A change in project administration allowed enrollment of 106 (911 acres) private land leases by the Minnesota Waterfowl Association (MWA) for both forage and public hunting in 2001. The leases were marked by signs, identified in news releases, and announced on the Waterfowler.com website. Follow up landowner questionnaires in 2001 indicated that 652 individuals hunted 683 days on the sites and killed 1539 geese.

DNR improved 105 hunting blinds and constructed 12 new hunting blinds within the controlled hunting zones of Roseau River, Lac qui Parle, and Talcot Lake Wildlife Management Areas. MWA collaborated with six local units of government to conduct special goose hunts. MWA also hosted a special meeting with communities offering special hunts to share experiences and collaborate on opportunities and challenges. A special tour was conducted in western Minnesota provided for frank and open discussion of issues such as distribution of harvest and crop depredation by local populations of geese. Analysis of blood samples of adult metro area geese found only 1.6% had lead levels above background, allaying any fears concerning consumption safety. This information was provided to the department of Health.

Project completed June 30, 2001.

NONGAME WILDLIFE MATCH ACCOUNT

13(l) \$470,000 TF

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Overall Project Outcome and Results The Nongame Wildlife Program staff has carried out over 65 different wildlife conservation projects that included research, habitat management, information and education, and planning activities: planting of 6 lakescaping sites, development of 5 bald eagle management plans, common loon surveys on 600 lakes, hawk and owl surveys in northeast Minnesota, a wood turtle survey on the St. Louis River, a survey for northern Goshawks across northern Minnesota, habitat management of a common tern nesting colony on Interstate Island, coordinating efforts of 200 volunteers for the Loon Watcher program, radio-tracking of Blanding's turtles in Sherburne County, completing surveys on red-shouldered hawks and trumpeter swans, carrying out a shorebird management workshop for 30 natural resource professionals, surveying the Straight, Cedar, Zumbro and Cannon Rivers for wood turtles and monitored Blanding's turtle populations at the Weaver Dunes. Habitat was improved for endangered Karner Blue butterflies on the Whitewater WMA. Henslow's sparrow populations were monitored at Great River Bluff State Park, and two landowner workshops were held in southeast Minnesota to help landowners cope with timber rattlesnakes.

Educational efforts included preparation of bald eagle management plans for homeowners with nesting eagles, technical assistance to homeowners with wildlife problems (over 1200 inquiries), involving over 600 Minnesotans with loon surveys, and responding to over 200 requests for audio-visual educational materials.

Results Use and Dissemination Technical assistance was given to homeowners with wildlife problems (over 1200 inquiries); involving over 600 Minnesotans with loon surveys, and responding to over 200 requests for audio-visual materials. In summary, this initiative involved over 65 conservation projects and sponsorship of 35 workshops for a total of 831 participants. This information has been disseminated through final reports that have been filed with the Research Unit of the Nongame Wildlife Program, and documented with accounts on Venture North filming from WDSE-TV in Duluth.

Project completed June 30, 2001.

WILDLIFE HABITAT ACQUISITION AND DEVELOPMENT – CHUB LAKE

13(m) \$300,000 TF/ Match

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This appropriation is to acquire and protect land and to make capital improvements in the Chub Lake natural area. The project will acquire and improve a 192-acre natural area comprised of high quality oak forest, planted grasslands, lakeshore, wetlands and the outlet for Chub Creek. The improvements would include ecological restoration. The appropriation must be matched by at least \$300,000 of nonstate money.

Appropriation is available until expended.

SUBD. 14 NATIVE SPECIES PLANTING

MINNESOTA RELEAF MATCHING GRANT PROGRAM – CONTINUATION

14(a) \$850,000 TF/FRF

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Overall Projects Outcome and Results Through the Minnesota ReLeaf Local Grants Program, a total of 111 community forestry grant projects were funded, including 58 for tree planting, 38 for forest health and 15 for community tree inventory projects. On average, each \$1.00 of state funds was matched by \$1.72 of local cash and in-kind services.

This overmatch indicates increasing competition and demand for state support and reflects increased local investment and technical capacity to manage this resource.

Among the forest health projects, greater emphasis on education helped significantly increase homeowner participation and their willingness to share in oak wilt control costs. Education and preventative practices need even greater emphasis, as well as making funds available to replant infection centers.

Project Results Use and Dissemination Experience gained from ReLeaf projects is helping develop:

1. a web-based Tree Planting 101 curriculum for training volunteers and Tree Care Advisors (<http://www.cnr.umn.edu/FR/extension/TreePlanting101/101intro.htm>),
2. research findings for more effective oak wilt control,
3. a Community Tree Inventory Decision Model to guide cities considering this vital step toward management, and
4. revised state disaster response policies to better address community forestry needs.

All of these new tools are or will be available via the DNR web page (www.dnr.state.mn.us).

Project completed June 30, 2001.

LANDSCAPING FOR WILDLIFE AND NONPOINT SOURCE POLLUTION PREVENTION

14(b) \$150,000 TF/ Match

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Overall Project Outcome and Results This project expanded native habitats in the east metro area to invite wildlife and reduce nonpoint source pollution through residential landscaping using workshops and public education that promoted action. Native habitats provide food, shelter and diversity for wildlife; and reduce nonpoint source pollution in area lakes, streams and rivers. This project provided 18 introductory workshops, 12 follow-up landscaping workshops, low-cost planting material to 216 households and broad public education to over 130,000 individuals.

Four hundred eight introductory workshop participants learned the value of landscaping with native species to attract wildlife to a metropolitan environment, positive impacts on water quality because of reduced need for chemicals and decreased runoff, and benefits of reestablishing ecosystem functions in a built environment. Two hundred sixteen of the participant households used the professionally designed landscape plans to incorporate native plants into their landscapes and obtained plant material on a cost-share basis. One hundred seventy-two participants in the follow-up workshops gained knowledge about the care, maintenance and propagation of prairie and woodland landscapes.

Broad public education activities taught residents that what they do in their own yards directly impacts wildlife and the water quality of area lakes, streams and rivers. Approximately 130,000 households were reached through community newspapers, city newsletters and organizational newsletters.

Project Results Use and Dissemination The landscape plans and/or workshop materials have been used by other organizations, such as Ramsey Washington Metro Watershed District, Washington County Soil and Water Conservation District, Carpenter Nature Center, Maplewood Nature Center and Friends of the Mississippi River, in their education programs. The Department of Natural Resources may put the landscape plans on their website (plans from a previous LCMR project are on the website).

The workshop was taped and has been broadcast on east metro cable access stations.

Project completed June 30, 2001.

LAKESCAPING FOR WILDLIFE AND WATER QUALITY INITIATIVE

14(c) \$140,000

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Overall Project Outcome and Results The Lakescaping for Wildlife and Water Quality Initiative involved promotion of naturalizing lake shore property with native plants both on the upland and in the water. These concepts had been previously published in the DNR book "Lakescaping for Wildlife and Water Quality." The purpose of this project was to help accelerate public acceptance of this concept through a combination of workshops for lakeshore owners and creation of buffer zone demonstration sites.

A total of 14 workshops were carried out for 470 people. There were typically 8 presentors at each workshop from DNR Divisions of Waters, Ecological Services, Enforcement, and Fisheries as well as from other organizations and agencies. Many of the participants were subsequently involved with promotion of the lakescaping concept back at their own lake associations and within their own counties. The demand for this kind of stewardship information for lakeshore management has been growing exponentially.

There were 14 lakescaping for wildlife demonstration sites planted over the past two years. Most of these were on private land and involved a 3-1 public to private match. A total of \$3,000 were available for each site. All plantings involved use of local origin native plants. The plantings typically involved from 12 to 15 volunteers, including Master Gardeners.

Project Results Use and Dissemination The lakescaping project on North Long Lake near Brainerd was filmed by WDSE Public Television from Duluth and aired this fall throughout the Midwest as part of the

"Venture North" series and the site at Big Carnelian Lake was also featured on the Environmental Journal. Project sites are also featured on the new Lakescaping CD-Rom that is under production in the DNR.

Project completed June 30, 2001.

DEVELOPMENT AND ASSESSMENT OF OAK WILT BIOLOGICAL CONTROL TECHNOLOGIES - CONTINUATION

14(d) \$200,000 TF

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Web Page Address: www.plpa.agri.umn.edu/

RESEARCH PROJECT

Efficacy of the biocontrol fungus, *Glaciocladium roseum* (GR), on the availability of viable oak wilt (OW) spores for overland spread of oak wilt was determined. Of twelve GR isolates that eliminated oak wilt spores on GR treated lab cultures of the OW fungus, three were further tested in field trials. Two of these isolates yielded significant reductions (14 to 20%) in incidence of OW fungus isolation from spore-mat producing trees following GR spray treatment compared to non-treated trees during two spring trials. Two models were developed to predict the critical time of spore mat production using regression and mixed effects techniques. The models indicate that the number of mats and timing of their production are influenced by tree size and cambial condition and a variety of environmental variables including late winter and early spring temperature and precipitation. Sampling of OW mats and flight behavioral studies showed that the two principal beetle vectors of OW, *Colopterus truncatus* and *Carpophilus sayi*, likely have one generation per year. *Colopterus truncatus* flies between early April and early July; a large proportion of the population (15%) carry OW spores in mid-May. Aggregation pheromones to monitor the flight activities of both insect species are now commercially available to land managers, and in order to limit the overland spread of oak wilt, pruning and other management activities that wound oaks should be avoided during the flight period. Protocols utilizing GPS and GIS technologies were developed to evaluate effectiveness of root graft barrier (RGB) line placement on underground spread of OW and to compare effects of several line placement models on the remaining oak resource using computer generated maps. For 39 residential sites with RGB lines in Ham Lake, actual use of the French Model resulted in an 80% success rate while use of two other models would have theoretically resulted in a higher success rate, but many additional trees would have been sacrificed. Thus, "trade-offs" should be considered in selecting the appropriate model for use.

Project completed June 30, 2002.

RESTORING ECOLOGICAL HEALTH TO ST. PAUL'S MISSISSIPPI RIVER BLUFFS

14(e) \$200,000 TF

Cynthia Schwie

Friends of the Parks and Trails of St. Paul and Ramsey County

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Web Page Address: www.friendsoftheparks.org/MRBR.html

Overall Project Outcome and Results The goal of this grant was to complete a resource inventory of 5 1/2 miles of the Mississippi River bluffs, remove exotic invasive plants, educate residents about exotic invasive plants, and develop a management plan for ongoing maintenance. The comprehensive inventory details land cover, natural community remnants, plant surveys, eroding bluff locations, socio-cultural features, work crew

accessibility, and buckthorn and honeysuckle densities. Over the course of three years, 156 acres of the bluff had exotic invasive plants removed. Educating residents about exotics included 22-buckthorn identification and removal events, thirteen informational presentations to project area district councils, the St. Paul City Council and the St. Paul Park Commission, and three educational brochures. Additional education included two Environmental Journal cable television segments, 29 newspaper articles, roughly 2,800 hits on the web site www.friendsoftheparks.org/MRBR.html and weed wrenches that are available for residents to use without a fee at a rental shop in the project area. Volunteers were a large part of the project and numbered over 500 and included residents, and University of Minnesota and University of St. Thomas students who participated with inventory and removal. Finally, the management plan was developed in cooperation with the partners in this project. The executive summary is available online at the above web site. One positive outcome resulted in the saving of several thousand dollars due to the resilience of the river bluff to recover after exotic invasive plant removal occurred. Originally, funds were allocated for plant material however, numerous native plants germinated after the invasives were removed, thereby eliminating the necessity to reseed and replant.

Project Results Use and Dissemination The information gained from this project has been published in the form of a management plan. The City of St. Paul is using the information collected to continue with the restoration work begun on this project.

Project completed June 30, 2002.

SUBD. 15 NATIVE FISH

MUSSEL RESOURCE SURVEY

15(a) \$400,000 TF

Mike Davis

MN DNR

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Overall Project Outcome and Results Surveys of Minnesota's river systems were the focus of this project. Altogether, 886 sites were sampled in 32 rivers, 64 tributaries and 12 lakes. Surveys were completed on 28 rivers. Forty river systems remain incomplete. Field work began July 28, 1999 and continued through June 28, 2001.

Of Minnesota's 47 previously known mussel species, 12 were not collected during this effort. Although historic ranges were sampled for six of these, they were not found. A species new to Minnesota, *Ligumia subrostrata* (pondmussel), was discovered in the Missouri River drainage.

Rivers within the St. Croix and Lake Superior drainages retain their historic complement of mussel species. Tributaries of the Minnesota River have lost about 50% of theirs. River basins predominantly devoted to row crops have the poorest mussel populations and species richness. Notable exceptions are Otter Creek in Mower County, which retains its historic species and is the only stream in Minnesota's Southern tier of counties supporting the state Threatened *Actinonaias ligamentina* (mucket), and Rose Creek, also in Mower County, which supports a healthy population of *Elliptio dilatata* (spike), a Special Concern species nearly extirpated from most of its historic state range. Recovering populations of mussels were documented in Pools 1-3 of the Mississippi River. This information can be used to understand historic impacts and gauge the future success of watershed restoration work.

Project Results Use and Dissemination A poster, *Mussels of Minnesota*, has been produced and 3,000 copies distributed. An article in the *Minnesota Volunteer* appeared in the July/August 2000 edition. Information about this project and the mussels of Minnesota can be found on the DNR website. Two

thousand lots of shells have been deposited in the Bell Museum of Natural History creating a permanent record of mussel distribution in the state. Data collected is being managed in the DNR Natural Heritage Information System.

Project completed June 30, 2001.

FRESHWATER MUSSEL RESOURCES IN THE ST. CROIX RIVER

15(b) \$58,000 TF

Daniel J. Hornbach

Mark Hove

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RESEARCH PROJECT

Overall Project Outcome and Results The purpose of this project was to address conservation and management needs of one of the most threatened group of organisms in Minnesota, native freshwater mussels. Project objectives included completing a mussel relocation and refugia study begun in 1997 in association with the University of Minnesota, and review the status of one of the most important mussel communities in Minnesota, that in the St. Croix River.

Refugia may become important conservation tools in protecting native mussels from invasive species such as zebra mussels. We completed monitoring of a refuge project begun in 1997 designed to provide information on the long-term impact of mussel relocations and thus provide insight into the efficacy of this conservation measure. We collected, measured, and weighed each mussel from reference and relocation sites at Wild River State Park. Survival rates among the three mussel species of interest was relatively high emphasizing the importance of handling mussels carefully (e.g. using the protocol described in this report) during relocation and providing the mussels with high quality habitat.

The distribution of various mussel species in the St. Croix River have been fairly well established, however, the long-term stability of these populations has not been examined. Between 1999 and 2000 we quantitatively resampled seven locations in the St. Croix River that we have periodically sampled since 1990. Analysis of these 10 years of data shows that select locations downstream of the dam at Taylors Falls, Minnesota had significantly lower juvenile mussel densities and an increase in fine sediments. Previous studies found neither increased sedimentation nor lack of juvenile recruitment above the dam at Taylors Falls. This suggests that increased sedimentation below the dam may be influencing mussel recruitment or juvenile mussel survival.

Project Results Use and Dissemination Project results were shared with resource professionals and are posted on the Macalester College web site (<http://www.macalester.edu/~hornbach>).

Project completed June 30, 2001.

SUBD. 16 EXOTIC SPECIES

BIOLOGICAL CONTROL OF EURASIAN WATERMILFOIL AND PURPLE LOOSESTRIFE – CONTINUATION

16(a) \$150,000 TF

Luke C. Skinner

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RESEARCH PROJECT

Overall Project Results Long-term, intensive study of five Minnesota lakes documented declines in Eurasian watermilfoil in two lakes that were clearly attributable to weevils. Declines occurred in lakes that appear to have low predation on weevils by sunfish. Populations of weevils reach maximum levels in milfoil growing in large expanses or in shallow sites. Short-term survey of an additional five bays or lakes discovered no declines in milfoil that could be attributed to potential control agents.

Field observations and controlled experiments indicated that predation by sunfish can limit populations of weevils and other herbivores. Populations of weevils did not appear to be limited by plant genotype, sediment on which plants were grown, over-winter mortality, over-winter habitat, parasites, or parasitoids. Modeling of weevil populations suggest that longevity of adults and female reproduction are key determinants of both density of populations and their potential to suppress milfoil.

To facilitate biological control purple loosestrife (*Lythrum salicaria*) a mass rearing program of the root weevil, *Hylobius transversovittatus* was undertaken. The root weevil proved challenging to rear and although several hundred adults were successfully reared. The effort required to rear this insect is excessive and we conclude that resources could be better spent on other aspects of the purple loosestrife biological control program. *Hylobius* larvae alone are able with stress crowns of purple loosestrife after two years of feeding. Concurrent *Galerucella* spp. feeding did not reduce *Hylobius* larval activity, as measured by root and crown starch levels. Number of seed capsules was consistently reduced on plants with *N. marmoratus* activity compared with control plants at one of two field sites. Results indicate that *N. marmoratus* is established at both study sites and is consistently reducing purple loosestrife seed production at one site.

Project Results Use and Dissemination The results will be published in peer-reviewed scientific journals, in special publications and newsletters. Results also will be presented at national, regional and state scientific meetings, as well as to resource managers who will use the results of this project.

Project completed June 30, 2002.

EVALUATE ESTABLISHMENT, IMPACT OF LEAFY SPURGE BIOCONTROL AGENTS

16(b) \$140,000 TF
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Research was conducted to assess the establishment and control success of *Aphthona* flea beetles introduced to control leafy spurge, *Euphorbia esula* L. Leafy spurge is a Eurasian perennial plant that seriously impacts native plants, wildlife, and grazing land for cattle and horses. Since 1989, five species of flea beetles, *Aphthona* spp., were released in Minnesota to control leafy spurge. Some of the species, however, have had difficulty establishing and have not contributed to control success. Factors that may affect insect establishment include soil type, soil moisture, leafy spurge density, leafy spurge biotype, vegetation type, litter cover, release quantity, and interspecific competition.

The results suggest that *A. lacertosa* is the most effective species in controlling leafy spurge in Minnesota. *Aphthona lacertosa* established at 100% of the release sites and significantly reduced leafy spurge by 63% across all sites studied. *Aphthona nigriscutis* established at 73% of the study sites, but at significantly lower densities than *A. lacertosa*. *Aphthona nigriscutis* most likely contributed to the control success at sites where

both species occurred. Other introduced *Aphthona* species are difficult to locate in Minnesota and contributed little to the overall control success occurring statewide. Correlations between biotic/abiotic factors and flea beetle density were not clearly evident. Only soil texture seemed to affect *A. lacertosa* densities, which may not have biological significance. Early indications showed that interspecific competition between *A. lacertosa* and *A. nigriscutis* was not affecting flea beetles populations. Small release quantities (<500 beetles) may have contributed to lack of establishment on early releases made in Minnesota. Currently it is recommended that >1,000 beetles should be released at new leafy spurge infestations. Phenology models predicting peak emergence of *A. lacertosa* and *A. nigriscutis* were developed to provide information to resource managers on when to collect beetles for redistribution.

Project completed June 30, 2002.

RESTORING NATIVE VEGETATION IN PARKS AND NATURE CENTERS

16(c) \$260,000 FRF

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Overall Project Outcome and Results This project enhanced approximately 750 acres of prairie, oak savanna, and oak woodland habitat in Anoka, Ramsey, and Washington counties. The work consisted of cutting and burning woody invasive species, prescribed burns, and some seeding in eight parks and nature centers.

Of the 750 acres targeted prescribed burns were conducted on approximately 210 acres, invasive trees, brush and slash were removed from virtually all of the 750 acres, and seeding has been completed on fifty acres. Project work took place at Afton and William O'Brien state parks, Bunker Hills Regional Park, Macalester's Natural History Area, and Dodge, Maplewood, Springbrook, and Tamarack nature centers.

Various entities provided work crews for this project. Ramsey County Sentence to Service crews supplied 1,727 hours and Minnesota Correctional facilities at Lino Lakes and Faribault provided 8,720 hours under the Institutional Community Work Crew program. As a side benefit individual crewmembers gained pre-release work experience. St. Paul Audubon volunteers provided 505 hours of service

All of the parks and nature centers have incorporated the educational aspect of the restoration efforts into their programs. Besides the restoration of native vegetation, the project results will enhance the aesthetic and educational experience for the thousands of school children and members of the general public.

Project completed June 30, 2001.

Send comments regarding this site to:
lcmr@commissions.leg.state.mn.us

Updated: 01/06/03 (ss)



IV. Implementation

“recommendations to implement successful projects and programs into a state agency’s standard operations...”

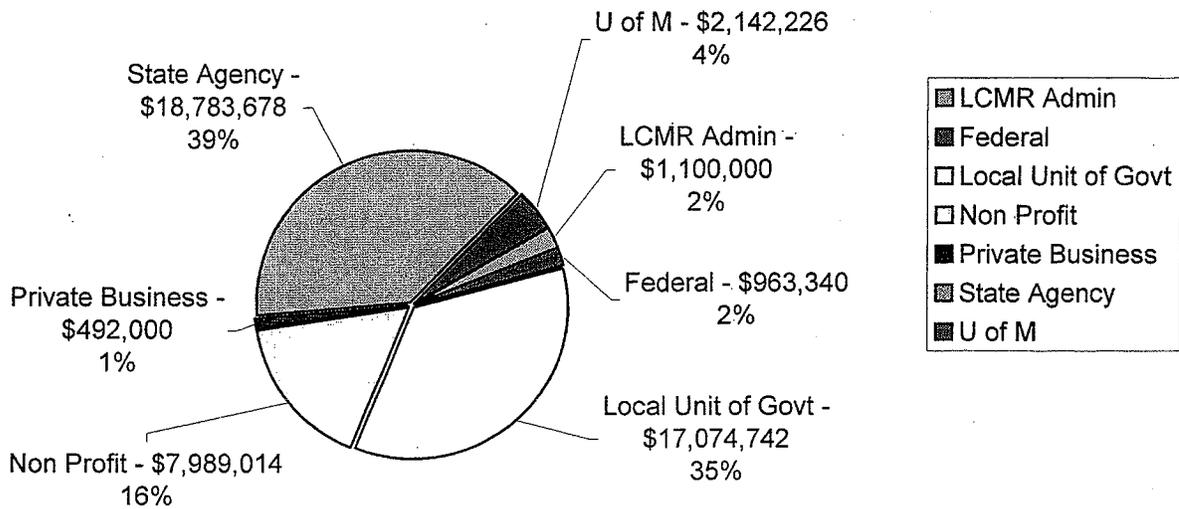
RECOMMENDATIONS: The LCMR will be revising the Strategic Plan for expenditures in the fall of 2003. At that time, this recommendation will be reviewed to reflect the assessment of recently completed projects. Incorporation into the strategic planning process and overview of Minnesota’s natural resources and environmental needs will also enable a more timely review by the state agencies for possible submission of these recommendations into the executive budget process.



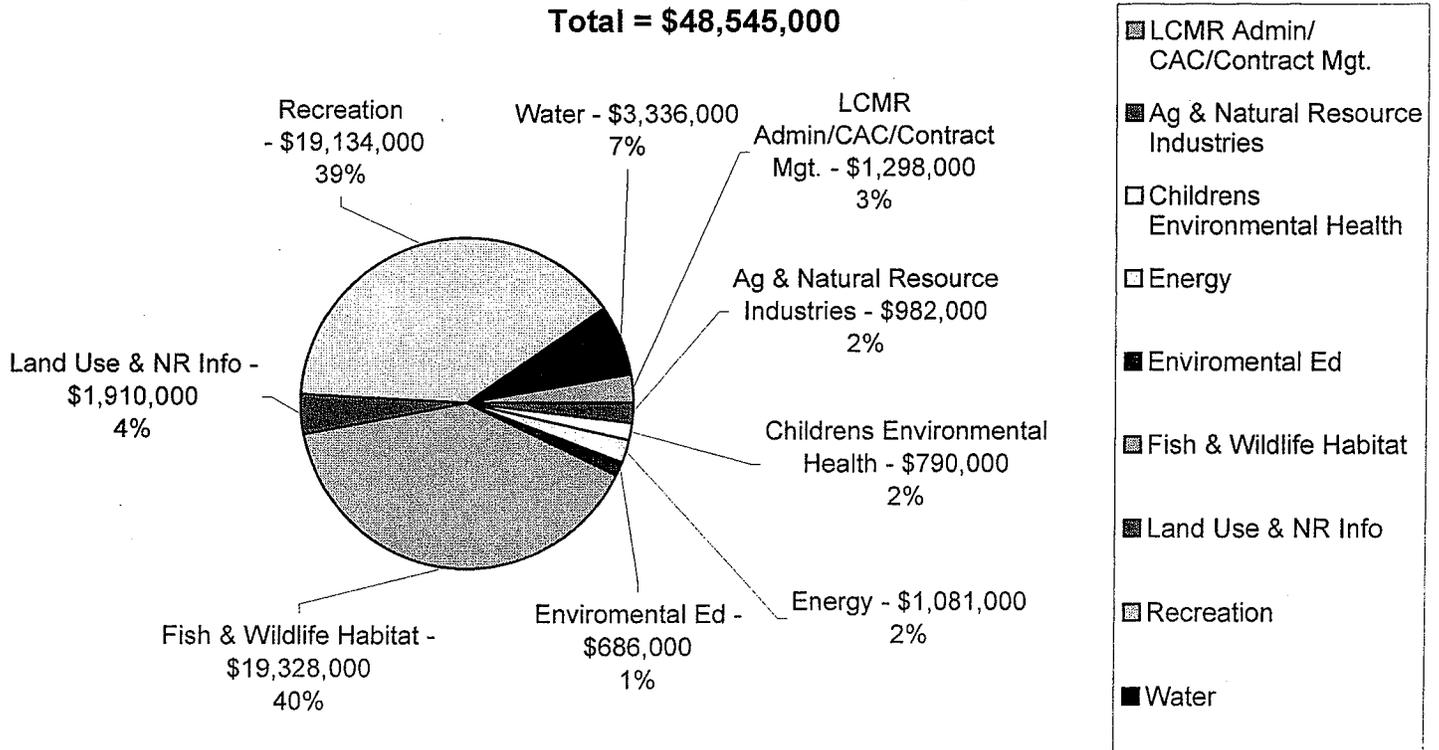
V. Recommendations

“to the extent known by the commission, descriptions of the projects anticipated to be supported by the trust fund and Minnesota future resources account during the next biennium...”

Who Receives Funding?
2003 LCMR Recommendations -- Distribution by Recipient
Total = \$48,545,000



2003 LCMR Recommendations -- Distribution by Issue Area
Total = \$48,545,000



2003 LCMR Recommended Proposals by Subdivision Number

Proposal Title	Affiliation	Final \$ Rec / Fund
<u>Administration</u>		
03a Legislative Commission on Minnesota Resources	LCMR	1,100,000 TF/FRF
03b Contract Administration	DNR	150,000 TF/FRF
3 (2 proposals funded)		Total: 1,250,000
<u>Citizen Advisory Committee for the Trust Fund</u>		
04a Citizen Advisory Committee for the Trust Fund	LCMR	48,000 TF
4 (1 proposal funded)		Total: 48,000
<u>Fish & Wildlife Habitat</u>		
05a Restoring Minnesota's Fish and Wildlife Habitat Corridors - Phase II	MN Waterfowl Association	6,882,000 TF
05b Metropolitan Area Wildlife Corridors	DNR / Trust for Public Land	8,111,000 TF/FRF
05c Restoring RIM Match	DNR	738,000 TF
05d Acquisition & Development of Scientific and Natural Areas	DNR	738,000 TF
05e Forest and Prairie Stewardship of Public & Private Lands	DNR	492,000 TF
05f Local Initiative Grants (Conservation Partners and Environmental Partnerships)	DNR	788,000 TF
05g Minnesota ReLeaf Community Forest Development and Protection	DNR / Tree Trust	788,000 FRF
05h Minnesota Ports Greening Initiative	St. Paul Port Authority	295,000 FRF
05i Developing Pheromones for Use in Carp Control	U of M	100,000 TF
05j Biological Control of European Buckthorn and Spotted Knapweed	DNR	198,000 TF
05k Resources for Redevelopment of Brownfields to Greenspaces	MN Environmental Initiative	198,000 FRF
5 (11 proposals funded)		Total: 19,328,000

Proposal Title		Affiliation	Final \$ Rec / Fund
Recreation			
06a	State Park and Recreation Area Land Acquisition	DNR	1,966,000 TF
06b	LAWCON Federal Reimbursements	DNR	2,500,000 FRF
06c	Local Initiative Grants (Parks and Natural Areas)	DNR	3,440,000 TF
06d	Metropolitan Regional Parks Acquisition, Rehabilitation and Development	Metropolitan Council	5,280,000 TF
06e	Local and Regional Trail Grant Initiative Program	DNR	492,000 TF
06f	Gitchi-Gami State Trail	DNR	1,426,000 TF
06g	Water Recreation: Boat Access, Fishing Piers & Shorefishing	DNR	1,770,000 TF
06h	Mesabi Trail	St. Louis and Lake Counties Regional Rail Authority	688,000 TF
06i	Linking Communities Design, Technology & DNR Trail Resources	U of M	246,000 FRF
06j	Ft. Ridgely Historic Site Interpretive Trail	MN Historical Society	246,000 TF
06k	Development and Rehabilitation of Minnesota Shooting Ranges	DNR	392,000 FRF
06l	Land Acquisition, Minnesota Landscape Arboretum - continuation	U of M- MN Landscape Arboretum	688,000 TF
		6 (12 proposals funded)	Total: 19,134,000

Water Resources

07a	Local Water Planning (LWP) Matching Challenge Grants	BWSR	846,000 FRF/GLPA
07b	Accelerating and Enhancing Surface Water Monitoring for Lakes & Streams	MPCA, MN Lakes Assoc., Rivers Council, MN Initiative Foundation, U of M	982,000 TF
07c	Intercommunity Groundwater Protection	Washington County	246,000 TF
07d	TAPwaters: Technical Assistance Program for Watersheds	Science Museum of Minnesota-SCWRS	198,000 TF

	Proposal Title	Affiliation	Final \$ Rec / Fund
<u>Water Resources</u>			
07e	Wastewater Phosphorus Control and Reduction Initiative	MN Environmental Science and Economic Review Board	295,000 FRF
07f	Laser Assessment of Streambank Erosion: MN River Basin	U of M	198,000 FRF
07g	Rainy River Basin Water Quality Cooperative Pilot Project	Koochiching County	392,000 FRF
07h	Maintaining Zooplankton (Daphnia) for Water Quality: Square Lake	Marine-on-St. Croix Water Mgmt Organization	32,000 FRF
07i	Wirth Lake Improvement	Bassett Creek Water Management Commission	147,000 FRF
		7 (9 proposals funded)	Total: 3,336,000

Land Use & Natural Resource Information

08a	Minnesota County Biological Survey	DNR	984,000 TF
08b	Updating Outmoded Soil Survey	BWSR	236,000 TF
08c	Mesabi Iron Range Geologic & Hydrogeologic Maps & Data Bases	U of M / DNR	246,000 TF
08d	The Laurentian Vision: Rebuilding the Mesabi Iron Range	U of M	246,000 FRF
08e	Northern Counties Land Use Management Pilot Project	Northern Counties Land Use Coordinating Board	198,000 FRF
		8 (5 proposals funded)	Total: 1,910,000

Agriculture & Natural Resource Industries

09a	Native Plants and Alternative Crops for Water Quality	Blue Earth River Basin Initiative / U of M	982,000 FRF
		9 (1 proposal funded)	Total: 982,000

Energy

10a	Community Energy Development Program	MN Dept of Commerce	786,000 FRF/OOC
10b	Advancing Utilization of Manure Methane Digester Electrical Generation	MN Dept of Agriculture	295,000 FRF
		10 (2 proposals funded)	Total: 1,081,000

Proposal Title	Affiliation	Final \$ Rec / Fund
<u>Environmental Education</u>		
11a Dodge Nature Center - Restoration Plan	Dodge Nature Center	147,000 FRF
11b Bucks and Buckthorn: Engaging Young Hunters in Restoration	Great River Greening	392,000 FRF
11c Putting Green Environmental Adventure Park: Sustainability Education	Putting Green, Inc.	147,000 FRF
11 (3 proposals funded)		Total: 686,000

Children's Environmental Health

12a Healthy Schools: Indoor Air Quality and Asthma Management	MN Dept of Health	198,000 FRF
12b Economic-based Analysis of Children's Environmental Health Risks	MN Dept of Health	100,000 FRF
12c Continuous Indoor Air Quality Monitoring in MN Schools	Schulte Associates, LLC	492,000 FRF
12 (3 proposals funded)		Total: 790,000

Sec. 14. MINNESOTA RESOURCES

Subdivision 1. Total Appropriation

Summary by Fund

Future Resources Fund	\$15,370,000
State Land and Water Conservation Account (LAWCON) in the Future Resources Fund	\$2,500,000
Environment and Natural Resources Trust Fund	\$30,100,000
Oil Overcharge Money in the Special Revenue Fund	\$519,000
Great Lakes Protection Account	\$56,000

Appropriations from the future resources fund, oil overcharge money in the special revenue fund, and great lakes protection account are available for either year of the biennium.

For appropriations from the environment and natural resources trust fund, any unencumbered balance remaining in the first year does not cancel and is available for the second year of the biennium.

Unless otherwise provided, the amounts in this section are available until June 30, 2005, when projects must be completed and final products delivered.

Subd. 2. Definitions

- (a) "Future resources fund" means the Minnesota future resources fund referred to in Minnesota Statutes, section 116P.13.
- (b) "State Land and Water Conservation Account (LAWCON)" means the State land and water conservation account in the future resources fund referred to in Minnesota Statutes, section 116P.14
- (c) "Great Lakes protection account" means the Great Lakes protection account referred to in Minnesota Statutes, section 116Q.02, subdivision 1.
- (d) "Trust fund" means the Minnesota environment and natural resources trust fund referred to in Minnesota Statutes, section 116P.02, subdivision 6.
- (e) "Oil overcharge money" means the money referred to in Minnesota Statutes, section 4.071, subdivision 2.

Subd. 3. Administration	869,000	381,000
Summary by Fund		
Future Resources Fund	488,000	-0-
Trust Fund	381,000	381,000

3(a) Legislative Commission on Minnesota Resources

\$428,000 of this appropriation is from the future resources fund and 336,000 the first year and \$336,000 the second year are from the trust fund for administration as provided in Minnesota statutes 116P.09, subdivision 5.

3(b) Contract Administration

\$60,000 of this appropriation is from the future resources fund and \$45,000 the first year and \$45,000 the second year are from the trust fund to the commissioner of natural resources for contract administration activities assigned to the commissioner in this section. This appropriation is available until June 30, 2006.

Subd. 4 Advisory Committee	24,000	24,000
Summary by Fund		
Trust Fund	24,000	24,000

Citizen Advisory Committee for the Trust Fund

\$24,000 the first year and \$24,000 the second year is from the trust fund to the legislative commission on Minnesota resources for expenses of the citizen advisory committee as provided in Minnesota statutes, section 116P.06, subdivision 5.

Subd. 5 Fish and Wildlife Habitat	14,127,000	5,201,000
Summary by Fund		
Future Resources Fund	8,926,000	-0-
Trust Fund	5,201,000	5,201,000

5(a) (A-1) 13 Restoring Minnesota's Fish and Wildlife Habitat Corridors – Phase II

\$3,441,000 the first year and \$3,441,000 the second year are from the trust fund to the commissioner of natural resources for the second biennium for acceleration of agency programs and cooperative agreements with Minnesota Waterfowl Association, Minnesota Deer Hunters Association, Ducks Unlimited, Inc., National Wild Turkey Federation, Pheasants Forever, the Nature Conservancy, Minnesota Land Trust, the Trust for Public Land, Minnesota Valley Trust, Inc., U.S. Fish and Wildlife Service, U.S. Bureau of Indian Affairs, USDA-Natural Resources Conservation Service, and the Board of Water and Soil Resources to restore and acquire fragmented landscape corridors that connect areas of quality habitat to sustain fish, wildlife, and plants. \$433,000 is for program coordination, corridor identification, and mapping, delineation and information transfer. \$1,764,000 is for restoration and management activities in wildlife management areas, wetland habitat, lakes, wild rice beds, grasslands, and fisheries habitat. \$1,770,000 is for conservation easement programs on riparian areas, big woods forests, native prairies, and wetlands. \$2,915,000 is for

habitat acquisition activities on prairies, riparian areas, and other fish and wildlife habitat corridors. As part of the required work program, criteria and priorities for planned acquisition and restoration activities must be submitted to the legislative commission on Minnesota resources for review and approval before expenditure. Expenditures are limited to the eleven project areas as defined in the work program. Land acquired with this appropriation must be sufficiently improved to meet at least minimum habitat and facility management standards as determined by the commissioner of natural resources. This appropriation may not be used for the purchase of residential structures unless expressly approved in the work program. Any land acquired in fee title by the commissioner of natural resources with money from this appropriation must be designated: (1) as an outdoor recreation unit under Minnesota Statutes, section 86A.07; or (2) as provided in Minnesota Statutes, sections 89.018, subdivision 2, paragraph (a); 97A.101; 97A.125; 97C.001; and 97C.011. The commissioner may so designate any lands acquired in less than fee title. This appropriation is available until June 30, 2006, at which time the project must be completed and final products delivered, unless an earlier date is specified in the work program.

5(b) (A-1) 14 Metropolitan Area Wildlife Corridors

\$7,645,000 is from the future resources fund to the commissioner of natural resources and \$233,000 the first year and \$233,000 the second are from the trust fund. \$4,916,000 of this appropriation is for acceleration of agency programs and cooperative agreements with the Trust for Public Land, Ducks Unlimited, Inc., Friends of the Mississippi River, Great River Greening, Minnesota Land Trust, Minnesota Valley National Wildlife Refuge Trust, Inc., Minnesota Waterfowl Association for the purposes of planning, improving, and protecting important natural areas in the metropolitan region, as defined by Minnesota Statutes, section 473.121, subdivision 2, through grants, contracted services, conservation easements, and fee acquisition and is available as follows: \$140,000 is for program planning and coordination, \$1,199,000 is for habitat restoration, and \$3,577,000 is for land acquisition and easements. \$1,966,000 of this appropriation is for an agreement with the city of Ramsey for the Trott Brook Corridor acquisition. \$1,229,000 of this appropriation is for an agreement with the Rice Creek Watershed District for Hardwood Creek acquisition and restoration. Land acquired with this appropriation must be sufficiently improved to meet at least minimum management standards as determined by the commissioner of natural resources. As part of the required work program, criteria and priorities for planned acquisition and restoration activities must be submitted to the legislative commission on Minnesota resources for review and approval before expenditure. Expenditures are limited to the identified project areas as defined in the work program. This appropriation may not be used for the purchase of residential structures unless expressly approved in the work program. Any land acquired in fee title by the commissioner of natural resources with money from this appropriation must be designated: (1) as an outdoor recreation unit under Minnesota Statutes, section 86A.07; or (2) as provided in Minnesota Statutes, sections 89.018, subdivision 2, paragraph (a); 97A.101; 97A.125; 97C.001; and

97C.011. The commissioner may so designate any lands acquired in less than fee title. This appropriation is available until June 30, 2006, at which time the project must be completed and final products delivered, unless an earlier date is specified in the work program.

5c (A-1) 08 Restoring RIM Match

\$369,000 the first year and \$369,000 the second year are from the trust fund to the commissioner of natural resources for the RIM critical habitat matching program to acquire and enhance fish, wildlife, and native plant habitat. Land acquired with this appropriation must be sufficiently improved to meet at least minimum management standards as determined by the commissioner of natural resources. Up to \$50,000 of this appropriation is for matching nongame program activities.

5(d) (A-1) 05 Acquisition and Development of Scientific and Natural Areas

\$369,000 the first year and \$369,000 the second year are from the trust fund to the commissioner of natural resources to acquire and develop lands with natural features of state ecological or geological significance in accordance with the scientific and natural area program long-range plan. Land acquired with this appropriation must be sufficiently improved to meet at least minimum management standards as determined by the commissioner of natural resources.

5(e) (A-2) 02/7 Forest and Prairie Stewardship of Public and Private Lands

\$246,000 the first year and \$246,000 the second year are from the trust fund to the commissioner of natural resources. \$197,000 of this appropriation is to develop stewardship plans for private forested lands and implement stewardship plans on a cost share basis. \$295,000 of this appropriation is to develop stewardship plans on private prairie lands and implement prairie management on public and private lands. This appropriation is available until June 30, 2006, at which time the project must be completed and final products delivered, unless an earlier date is specified in the work program.

5(f) (A-2) 03 Local Initiative Grants -Conservation Partners and Environmental Partnerships

\$394,000 the first year and \$394,000 the second year are from the trust fund to the commissioner of natural resources for matching grants of up to \$20,000 to local government and private organizations for enhancement, research and education associated with natural habitat and environmental service projects. This appropriation is available until June 30, 2006, at which time the project must be completed and final products delivered, unless an earlier date is specified in the work program.

5(g) (A-2) 11 Minnesota ReLeaf Community Forest Development and Protection

\$788,000 is from the future resources fund to the commissioner of natural resources for acceleration of the agency program and a cooperative agreement with Tree Trust to protect forests resources, develop inventory-based management plans, and to provide matching grants to communities to plant native trees. At least \$554,000 of this appropriation must be used for grants to communities. For the purposes of this paragraph, the match must be a nonstate contribution, but may be either cash or qualifying in kind. This appropriation is available until June 30, 2006, at which time the project must be completed and final products delivered, unless an earlier date is specified in the work program.

5(h) (A-1) 35 Minnesota Ports Greening Initiative

\$295,000 is from the future resources fund to the commissioner of natural resources for agreements with St. Paul Port Authority and Winona Port Authority to contract with Great River Greening to establish native plantings in the Mississippi River Corridor at the commercial port in St. Paul and to develop a restoration plan in Winona.

5(i) (A-1) 03 Developing Pheromones for Use in Carp Control

\$50,000 the first year and \$50,000 the second year are from the trust fund to the University of Minnesota is for research on new options for controlling carp. This appropriation is available until June 30, 2006, at which time the project must be completed and final products delivered, unless an earlier date is specified in the work program.

5(j) (A-1) 01 Biological Control of European Buckthorn and Spotted Knapweed

\$99,000 the first year and \$99,000 the second year are from the trust fund. Of this amount, \$54,000 the first year and \$55,000 the second year are to the commissioner of natural resources for research to evaluate potential insects for biological control of invasive European buckthorn species. \$45,000 the first year and \$44,000 the second are to the commissioner of agriculture to assess the effectiveness of spotted knapweed biological control agents. This appropriation is available until June 30, 2006, at which time the project must be completed and final products delivered, unless an earlier date is specified in the work program.

5(k) (A-1) 09 Resources for Redevelopment of Brownfields to Greenspaces

\$198,000 is from the future resources fund to the commissioner of natural resources for an agreement with Minnesota environmental initiative to identify and assess redevelopment of brownfields for recreation, habitat, and natural resource reuse.

Subd. 6. Recreation	11,136,000	7,998,000
Summary by Fund		
Future Resources Fund	638,000	-0-
Trust Fund	7,998,000	7,998,000
State Land and Conservation Account in the future resources fund	2,500,000	

6(a) (B-1) 04 State Park and Recreation Area Land Acquisition

\$983,000 the first year and \$983,000 the second year are from the trust fund to the commissioner of natural resources to acquire in-holdings for state park and recreation areas. Land acquired with this appropriation must be sufficiently improved to meet at least minimum management standards as determined by the commissioner of natural resources. This appropriation is available until June 30, 2006, at which time the project must be completed and final products delivered, unless an earlier date is specified in the work program.

6(b) (B-1) 03 LAWCON Federal Reimbursements

\$2,500,000 is from the future resources fund to the commissioner of natural resources for eligible state projects and administrative and planning activities consistent with Minnesota Statutes, section 116P.14 and the federal Land and Water Conservation Fund Act. This appropriation is contingent upon receipt of the federal obligation and remains available until June 30, 2006, at which time the project must be completed and final products delivered, unless an earlier date is specified in the work program.

6(c) (B-1) 01 Local Initiative Grants -Parks and Natural Areas

\$1,720,000 the first year and \$1,720,000 the second year are from the trust fund to the commissioner of natural resources for matching grants to local governments for acquisition and development of natural and scenic areas and local parks as provided in Minnesota Statutes 85.019, subdivisions 2 and 4a and regional parks outside of the metropolitan area. Grants may provide up to 50 percent of the nonfederal share of the project cost, except nonmetropolitan regional park grants may provide up to 60 percent of the nonfederal share of the project cost. The commission will monitor the grants for approximate balance over extended periods of time between the metropolitan area, under Minnesota Statutes, section 473.121, subdivision 2, and the nonmetropolitan area through work program oversight and periodic allocation decisions. For the purposes of this paragraph, the match must be a nonstate contribution, but may be either cash or qualifying in kind. Recipients may receive funding for more than one project in any given grant period. This appropriation is available until June 30, 2006, at which time the project must be completed and final products delivered.

6(d) (B-1) 02 Metropolitan Regional Parks Acquisition, Rehabilitation and Development

\$2,640,000 the first year and \$2,640,000 the second year are from the trust fund to the commissioner of natural resources for an agreement with the Metropolitan Council for subgrants for the acquisition, development, and rehabilitation in the metropolitan regional park system, consistent with the metropolitan council regional recreation open space capital improvement plan. This appropriation may not be used for the purchase of residential structures. This appropriation may be used to reimburse implementing agencies for acquisition of nonresidential property as expressly approved in the work program. This appropriation is available until June 30, 2006, at which time the project must be completed and final products delivered, unless an earlier date is specified in the work program. In addition, if a project financed under this program receives a federal grant, the availability of the financing from this paragraph for that project is extended to equal the period of the federal grant.

6(e) (B-1) 05 Local and Regional Trail Grant Initiative Program

\$246,000 the first year and \$246,000 the second year are from the trust fund to the commissioner of natural resources to provide matching grants to local units of government for the cost of acquisition, development, engineering services and enhancement of existing and new trail facilities. This appropriation is available until June 30, 2006, at which time the project must be completed and final products delivered, unless an earlier date is specified in the work program. In addition, if a project financed under this program receives a federal grant, the availability of the financing from this paragraph for that project is extended to equal the period of the federal grant.

6(f) (B-1)10 Gitchi-Gami State Trail

\$713,000 the first year and \$713,000 the second year are from the trust fund to the commissioner of natural resources in cooperation with the Gitchi-Gami Trail Association, for the third biennium to design and construct approximately five miles of Gitchi-Gami state trail segments. This appropriation must be matched by at least \$400,000 of nonstate money. The availability of the financing from this paragraph is extended to equal the period of any federal money received.

6(g) (B-1) 09 Water Recreation: Boat Access, Fishing Piers and Shorefishing

\$885,000 the first year and \$885,000 the second year are from the trust fund to the commissioner of natural resources to acquire and develop public water access sites statewide, to construct shore-fishing and pier sites, and to restore shorelands at public accesses. This appropriation is available until June 30, 2006, at which time the project must be completed and final products delivered, unless an earlier date is specified in the work program.

6(h) (T) 1 – Mesabi Trail

\$344,000 the first year and \$344,000 the second year are from the trust fund to the commissioner of natural resources for an agreement with St. Louis and Lake Counties Regional Rail Authority for the sixth biennium to acquire and develop segment(s) of the Mesabi Trail. If a federal grant is received, the availability of the financing from this paragraph is extended to equal the period of the federal grant.

6(i) (B-1) 20 Linking Communities Design, Technology and DNR Trail Resources

\$246,000 is from the future resources fund to the commissioner of natural resources for an agreement with the University of Minnesota to provide designs for three state trails incorporating recreation, natural and cultural features.

6(j) (B-1) 18 Ft. Ridgley Historic Site Interpretive Trail

\$123,000 the first year and \$123,000 the second year are from the trust fund to the Minnesota Historical Society to construct a trail through the original fort site and install interpretative markers. This appropriation is available until June 30, 2006, at which time the project must be completed and final products delivered, unless an earlier date is specified in the work program.

6(k) (O) 02 Development and Rehabilitation of Minnesota Shooting Ranges

\$392,000 is from the future resource fund to the commissioner of natural resources to provide technical assistance and matching cost-share grants to local recreational shooting and archery clubs for the purpose of developing or rehabilitating shooting and archery facilities for public use. Recipient facilities must be open to the general public at reasonable time and for a reasonable fee on a walk-in basis. This appropriation is available until June 30, 2006, at which time the project must be complete and final products delivered, unless an earlier date is specified in the work program.

6(l) (A-1) 20 Land Acquisition, Minnesota Landscape Arboretum

\$344,000 the first year and \$344,000 the second year are from the trust fund to the University of Minnesota for an agreement with the University of Minnesota Landscape Arboretum Foundation for the fifth biennium to acquire in-holdings within the Arboretum's boundary. This appropriation must be matched by an equal amount of nonstate money. This appropriation is available until June 30, 2006, at which time the project must be completed and final products delivered, unless an earlier date is specified in the work program.

Subd. 7 Water Resources	2,623,000	713,000
Summary by Fund		
Future Resources Fund	1,854,000	-0-
Trust Fund	713,000	713,000
Great Lakes Protection Account	56,000	

7(a) (C-1) 01 Local Water Planning Matching Challenge Grants

\$790,000 is from the future resources fund and \$56,000 is from the Great Lakes Protection Account to the board of water and soil resources to accelerate the local water planning challenge grant program under Minnesota Statutes, sections 103B.3361 to 103B.3369, through matching grants to implement high-priority activities in comprehensive water management plans, plan development guidance and regional resource assessments. For the purposes of this paragraph, the match must be a nonstate contribution, but may be either cash or qualifying in kind. This appropriation is available until June 30, 2006, at which time the project must be completed and final products delivered, unless an earlier date is specified in the work program.

7(b) (C-2) 10/26/29 Accelerating and Enhancing Surface Water Monitoring for Lakes and Streams

\$491,000 the first year and \$491,000 the second year are from the trust fund to the commissioner of the pollution control agency for acceleration of agency programs and cooperative agreements with the Minnesota lakes association, rivers council of Minnesota, the Minnesota Initiative Foundation and the University of Minnesota to accelerate monitoring efforts through assessments, citizen training and implementation grants. This appropriation is available until June 30, 2006, at which time the project must be completed and final products delivered, unless an earlier date is specified in the work program.

7(c) (C-2) 19 Intercommunity Groundwater Protection

\$123,000 the first year and \$123,000 the second year are from the trust fund to the commissioner of natural resources for an agreement with Washington County for groundwater monitoring, modeling and implementation of management strategies.

7(d) (C-2) 22 TAPwaters: Technical Assistance Program for Watersheds

\$99,000 the first year and \$99,000 the second are from the trust fund to the commissioner of natural resources for an agreement with the science museum of Minnesota to assess the St. Croix River and its tributaries to identify solutions to pollution threats. This appropriation is available until June 30, 2006, at which time the project must be completed and final products delivered, unless an earlier date is specified in the work program.

7(e) (C-4) 1 – Wastewater Phosphorus Control and Reduction Initiative

\$295,000 is from the future resources fund to the commissioner of natural resources for an agreement with Minnesota environmental science and economic review board to assess phosphorus reduction techniques at wastewater treatment plants.

7(f) (C-4) 18 Laser Assessment of Streambank Erosion: Minnesota River Basin

\$198,000 is from the future resources fund to the University of Minnesota to determine sediment and phosphorus inputs due to bank erosion along major rivers in the Minnesota River Basin.

7(g) (C-4) 19 Rainy River Basin Water Quality Cooperative Pilot Project

\$392,000 is from the future resources fund to the commissioner of natural resources for an agreement with Koochiching County to establish a water quality cooperative for the Rainy River Basin, conduct ISTS inventories and implement wastewater treatment systems to improve water quality.

7(h) (C-4) 20 Maintaining Zooplankton (Daphnia) for Water Quality: Square Lake

\$32,000 is from the future resources fund to the commissioner of natural resources for an agreement with Marine-on-St. Croix water management organization to determine whether trout predation on Daphnia significantly affects Daphnia abundance and water quality of Square Lake, Washington County. This appropriation is available until June 30, 2006, at which time the project must be completed and final products delivered, unless an earlier date is specified in the work program.

7(i) (C-4) 25 Wirth Lake Improvement

\$147,000 is from the future resources fund to the commissioner of natural resources for an agreement with Bassett Creek water management commission to implement best management practices in Wirth Lake watershed to remove pollutants from stormwater and reduce phosphorus in the lake. This appropriation must be matched by \$35,000 of nonstate money.

Subd. 8 . Land Use and Natural Resource Information	1,177,000	733,000
Summary by Fund		
Future Resources Fund	444,000	-0-
Trust Fund	733,000	733,000

8(a) (A-1) 02 Minnesota County Biological Survey

\$492,000 the first year and \$492,000 the second year are from the trust fund to the commissioner of natural resources for the ninth biennium to accelerate the survey that identifies significant natural areas and systematically collects and interprets data on the distribution and ecology of native plant communities, rare plants and rare animals.

8(b) (C-1) 02 Updating Outmoded Soil Survey

\$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 products delivered, unless an earlier date is specified in the work program.

8(c) (C-2) 03/05 Mesabi Iron Range Geologic and Hydrologic Map and Data Bases

\$123,000 the first year and \$123,000 the second year are from the trust fund. \$58,000 the first year and \$57,000 the second year of this appropriation are to the commissioner of natural resources to develop a database of hydrogeologic data across the Mesabi Iron Range. \$65,000 the first year and \$66,000 the second year are to the Minnesota geological survey at the University of Minnesota for geologic and hydrogeologic maps of the Mesabi Iron Range.

8(d) (A-2) 14 The Laurentian Vision: Rebuilding the Mesabi Iron Range

\$246,000 is from the future resources fund to the University of Minnesota to partner with local communities, mining companies and other resource interests to enable mine land reuse.

8(e) (O) 04 Northern Counties Land Use Management Pilot Project

\$198,000 is from the future resources fund to the commissioner of natural resources for an agreement with the Northern Counties Land Use Coordinating Board to resolve conflicts among county, state, federal, Canadian governmental units and private interests regarding natural resource management issues.

Subd. 9 . Agriculture and Natural Resource Industries	982,000	-0-
Summary by Fund		
Future Resources Fund	982,000	-0-

9(a) (C-5) 16 Native Plants and Alternative Crops for Water Quality

\$982,000 is from the future resources fund to the board of water and soil resources for agreements with the Blue Earth River Basin Initiative and the University of Minnesota to accelerate the use of native plants and alternative crops through easements, demonstration, research and education. This appropriation is available until June 30, 2006, at which time the project must be completed and final products delivered, unless an earlier date is specified in the work program.

Subd. 10 Energy	1,081,000	-0-
Summary by Fund		

Future Resources Fund	562,000	-0-
Oil Overcharge Money	519,000	-0-

10(a) (C-5) 02/8 Community Energy Development Program

\$519,000 is from the oil overcharge money to the commissioner of administration for transfer to the commissioner of commerce and \$267,000 is from the future resources fund to the commissioner of commerce to assist communities in identifying cost-effective energy projects and developing locally-owned wind energy projects through local wind resource assessment and financial assistance.

10(b) (C-5) 03 Advancing Utilization of Manure Methane Digester Electrical Generation

\$295,000 is from the future resources fund to the commissioner of agriculture to maximize use of manure methane digesters by identifying compatible waste streams and the feasibility of micro-turbine and fuel cell technologies.

Subd. 11 Environmental Education	686,000	-0-
Summary by Fund		
Future Resources Fund	686,000	-0-

11(a) (A-1) 26 Dodge Nature Center - Restoration Plan

\$147,000 is from the future resources fund to the commissioner of natural resources for an agreement with Dodge Nature Center to restore up to 155 acres in Mendota Heights and develop a restoration plan for up to 130 acres in West St. Paul.

11(b) (A-1) 33 Bucks and Buckthorn: Engaging Young Hunters in Restoration

\$392,000 is from the future resources fund to the commissioner of natural resources for agreements with Great River Greening, MN Deer Hunters Association and the St. Croix Watershed Research Station for a pilot program in cooperation with linking hunting and habitat restoration opportunities for youth.

11(c) (O-EE) 01 Putting Green Environmental Adventure Park: Sustainability Education

\$147,000 is from the future resources fund to the commissioner of natural resources for an agreement with Putting Green, Inc. to construct educational exhibits for up to nine putting green learning stations in New Ulm.

Subd. 12 Children's Environmental Health	790,000	-0-
Summary by Fund		
Future Resources Fund	790,000	-0-

12(a) (D-1) 02 Healthy Schools: Indoor Air Quality and Asthma Management

\$198,000 is from the future resources fund to the commissioner of health to assist school districts with developing and implementing effective indoor air quality and asthma management plans.

12(b) (D-1) 03 Economic-based Analysis of Children's Environmental Health Risks

\$100,000 is from the future resources fund to the commissioner of health to assess economic strategies for children's environmental health risks.

12(c) (D-1) 12 Continuous Indoor Air Quality Monitoring in MN Schools

\$492,000 is from the future resources fund to the commissioner of natural resources for an agreement with Schulte Associates, LLC to provide continuous, real-time indoor air quality monitoring in at least ten selected schools.

Subd. 13 Data Availability Requirements

(a) During the biennium ending June 30, 2005, data collected by the projects funded under this section that have value for planning and management of natural resource, emergency preparedness and infrastructure investments must conform to the enterprise information architecture developed by the office of technology. Spatial data must conform to geographic information system guidelines and standards outlined in that architecture and adopted by the Minnesota Geographic Data Clearinghouse at the Land Management Information Center. A description of these data must be made available online through the clearinghouse, and the data themselves must be accessible and free to the public unless made private under the Data Practices Act, Minnesota Statutes, chapter 13.

(b) To the extent practicable, summary data and results of projects funded under this section should be readily accessible on the Internet.

(c) As part of project expenditures, recipients of land acquisition appropriations must provide the information necessary to update public recreation information maps to the department of natural resources in the specified form.

Subd. 14. Project Requirements

It is a condition of acceptance of the appropriations in this section that any agency or entity receiving the appropriation must comply with Minnesota Statutes, chapter 116P, and vegetation planted must be native to Minnesota and preferably of the local ecotype unless the work program approved by the commission expressly allows the planting of species that are not native to Minnesota.

Subd. 15. Match Requirements

Unless specifically authorized, appropriations in this section that must be matched and for which the match has not been committed by December 31, 2003, are canceled, and in-kind contributions may not be counted as matching funds.

Subd. 16. Payment Conditions and Capital Equipment Expenditures

All agreements, grants, or contracts referred to in this section must be administered on a reimbursement basis. Notwithstanding Minnesota Statutes, section 16A.41, expenditures made on or after July 1, 2003, or the date the work program is approved, whichever is later, are eligible for reimbursement unless otherwise provided in this section. Payment must be made upon receiving documentation that project-eligible reimbursable amounts have been expended, except that reasonable amounts may be advanced to projects in order to accommodate cash-flow needs. The advances must be approved as part of the work program. No expenditures for capital equipment are allowed unless expressly authorized in the project work program.

Subd. 17. Purchase of Recycled and Recyclable Materials

A political subdivision, public or private corporation, or other entity that receives an appropriation in this section must use the appropriation in compliance with Minnesota Statutes, sections 16B.121 to 16B.122, requiring the purchase of recycled, repairable, and durable materials, the purchase of uncoated paper stock, and the use of soy-based ink, the same as if it were a state agency.

Subd. 18. Energy Conservation

A recipient to whom an appropriation is made in this section for a capital improvement project shall ensure that the project complies with the applicable energy conservation standards contained in law, including Minnesota Statutes, sections 216C.19 to 216C.20, and rules adopted thereunder. The recipient may use the energy planning, advocacy, and state energy office units of the department of commerce to obtain information and technical assistance on energy conservation and alternative energy development relating to the planning and construction of the capital improvement project.

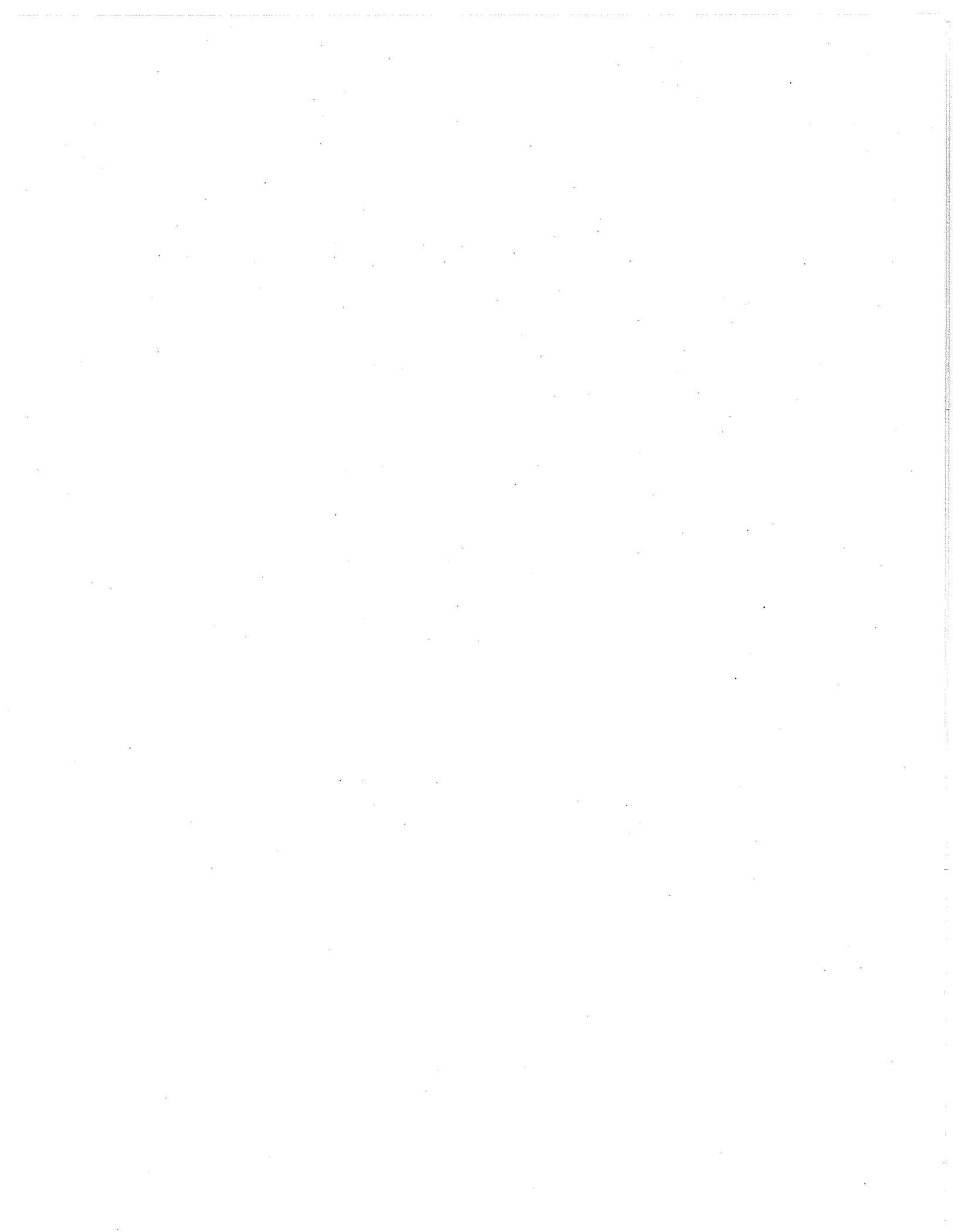
Subd. 19. Accessibility

Structural and nonstructural facilities must meet the design standards in the Americans with Disability Act (ADA) accessibility guidelines.

Subd. 20. Carryforward

- (a) The availability of the appropriations for the following projects is extended to June 30, 2004: Laws 2001, first special session, chapter 2, section 14, subdivision 4, paragraph (c), enhancing Canada Goose hunting and management; subdivision 5, paragraph (g), McQuade small craft harbor, paragraph (i), gateway trail bridge, paragraph (q) LAWCON; subdivision 6, paragraph (d), determination of fecal pollution sources in Minnesota, subdivision 7, paragraph (e), Lake Superior lakewide management plan (LaMP) and subdivision 8, paragraph (b) agricultural land preservation, paragraph (d), accelerated technology transfer for starch-based plastics; subdivision 9, improving air quality by using biodiesel in generators.
- (b) The availability of the appropriation for the following project is extended to June 30, 2005: Laws 2001, first special session, chapter 2, section 14, subdivision 7, paragraph (a), hydraulic impacts of quarries and gravel pits.

Technical changes to 116P.09, subd. 5 and 116P.13 and 116P.14 are also being proposed.



CAC Funding Recommendations: 2003 LCMR Proposals

Bill Subd. #	LCMR ID. #	Proposal Title	CAC Recom. Funding Amt.
05(a)	(A-1) 13	Restoring Minnesota's Fish and Wildlife Habitat Corridors II	\$16,065,545
05(c)	(A-1) 8	Restoring RIM Match	\$1,000,000
05(d)	(A-1) 5	Acquisition and Development of Scientific and Natural Areas	\$1,100,000
05(e)	(A-2) 2	Forest and Prairie Stewardship of Private Lands	\$1,300,000
05(i)	(A-1) 3	Developing Pheromones for Use in Carp Control	\$139,735
05(j)	(A-1) 1	Biological Control of European Buckthorn and Spotted Knapweed	\$200,000
07(b)	(C-2) 10	Accelerating and Enhancing Surface Water Monitoring- Lakes and Streams	\$1,800,000
07(b)	(C-2) 26	Building a Minnesota Citizen Water Quality Monitoring Network	\$2,000,000*
07(b)	(C-2) 29	Engaging Citizens to Help Manage Lakes and Rivers	
<i>*Note: The CAC recommended merging these two projects and encouraged strong collaboration with projects (C-2) 1 and (C-2) 10.</i>			
08(a)	(A-1) 2	Minnesota County Biological Survey	\$2,875,000
10(a)	(C-5) 2	Community Wind Development Program	\$1,300,000*
10(a)	(C-5) 8	Clean Energy Resource Teams (CERTs)	
<i>*Note: The CAC recommended merging these two projects</i>			
10(b)	(C-5) 3	Advancing Utilization of Manure Methane Digester Electrical Generation	\$650,000
4(a)		Citizen Advisory Committee Budget	\$66,150
CAC Recommendations not recommended for funding by the LCMR:			
	(C-4) 2	Environmental Fate of Emerging Contaminants in Minnesota Waters	\$803,570
	(C-2) 1	CREP and Tile Drains	\$650,000
		Citizen Advisory Committee: Special Citizen Input Project	\$50,000



VI. Revenues and Distributions

“the source and amount of all revenues collected and distributed by the commission, including all administrative and other expenses...”

Funding Source Statutory Reference:

Environment and Natural Resources Trust Fund

MN Constitution - Amendment Article 11, Sec. 14

Minnesota Future Resources Fund

MS 116P.13

Oil Overcharge Money

MS 4.071

Great Lakes Protection Account

MS 116Q.02

Appropriations from Revenue Sources available to the LCMR for Funding Recommendations

Appropriation Year	Environment and Natural Resources Trust Fund	Future Resources Fund	Oil Overcharge Money	Great Lakes Protection Account	Totals
1991 <i>Ch 254 Art. 1 Sec. 14</i>	14,960,000	16,534,000	3,500,000	0	34,994,000
1993 <i>Ch 174 Sec. 14</i>	24,600,000	14,662,000	2,012,000	0	41,274,000
1994 <i>Ch 632 Art. 2 Sec. 6</i>	1,346,000	1,404,000	0	0	2,750,000
1995 <i>Ch 229 Sec. 19, 20, 21</i>	18,019,000	15,083,000	2,055,000	130,000	35,287,000
1996 <i>Ch 407 Sec. 8</i>	1,630,000	3,258,000	0	0	4,888,000
1997 <i>Ch 216 Sec. 15</i>	22,270,000	14,668,000	150,000	120,000	37,208,000
1999 * <i>Ch 231, Sec. 16</i>	26,010,000	16,040,000	0	200,000	42,250,000
2001 ** <i>1st. Sp.Ses., Ch. 2, Sec. 14</i>	34,620,000	15,385,000	180,000	87,000	50,272,000
2002 <i>Ch. 220, Art. 8, Sec. 1 & 8</i>	316,000	0	0	0	316,000
2003 <i>Recommended</i>	30,100,000	17,870,000	519,000	56,000	48,545,000
	173,871,000	114,904,000	8,416,000	593,000	297,784,000

NOTE: Does not reflect vetoes below.

* 1999 Veto	350,000 TF	** 2001 Veto	275,000 FRF
	200,000 TF		455,000 TF
	<u>1,200,000 FRF</u>		<u>730,000</u>
	1,750,000		

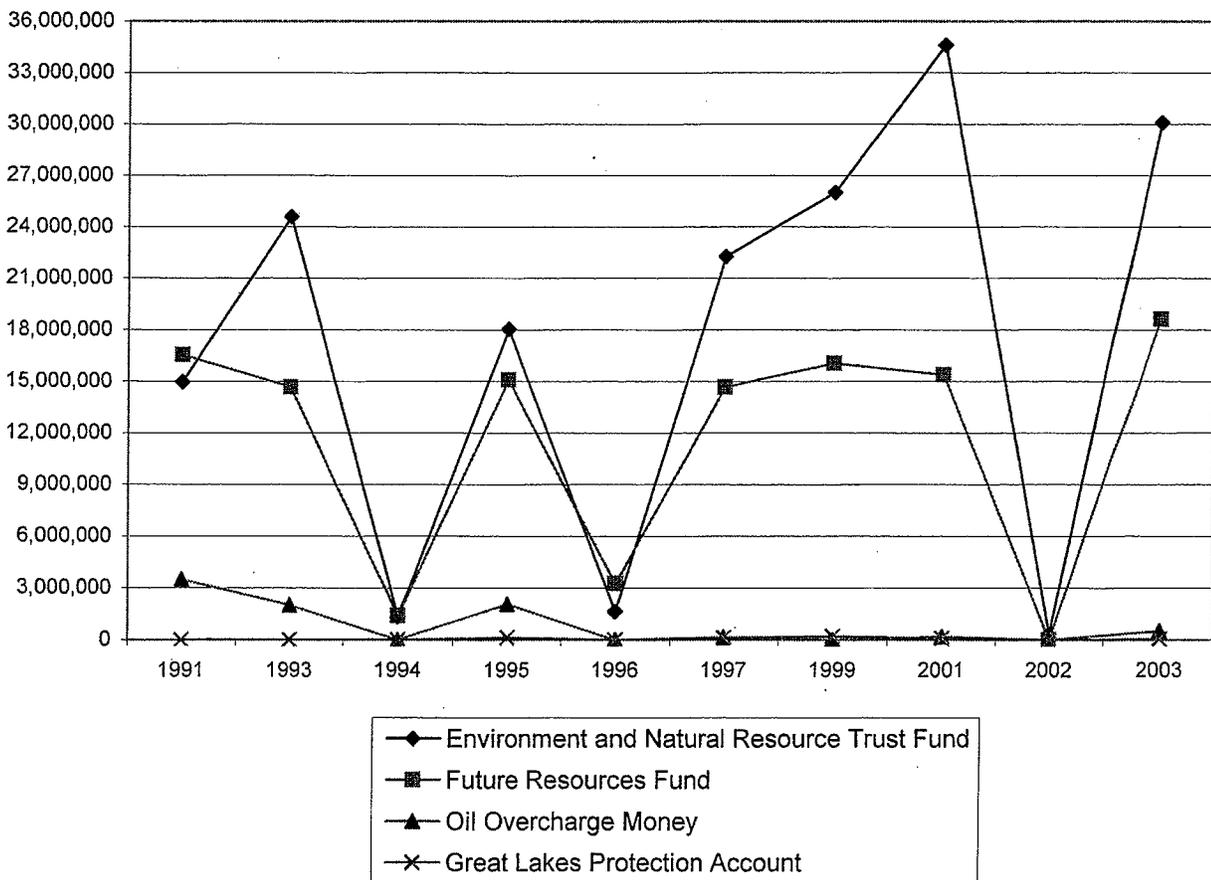
Appropriations for LCMR Administrative Expenses

Statutory reference MS 116P.09

The amounts shown here are part of the total appropriation above

Appropriation Year	Environment and Natural Resources Trust Fund	Future Resources Fund	Year Total	
1991		850,000	850,000	
1993	270,000	425,000	695,000	
1995	394,000	308,000	702,000	
1997	472,000	304,000	776,000	
1999	567,000	333,000	900,000	
2001	738,000	389,000	1,127,000	
2003	672,000	428,000	1,100,000	2.3% of the total appropriation
Total	3,113,000	3,037,000	5,050,000	

Total Recommendation - All LCMR Funds



VII. Assets and Liabilities

*“ a description of the assets
and liabilities of the trust
fund and the Minnesota
future resources fund...”*

The following documents were
supplied by the State Board of In-
vestment, and the Department of
Finance.

Environmental Trust Fund

The Environmental Trust Fund was established in 1988 by the Minnesota Legislature to provide a long-term, consistent and stable source of funding for activities that protect and enhance the environment. On June 30, 2002, the market value of the Fund was \$274 million.

By statute, the State Board of Investment (SBI) invests the assets of the Environmental Trust Fund. The Legislature funds environmental projects from a portion of the market value of the Fund.

Investment Objective

The Environmental Trust Fund's investment objective is long-term growth in order to produce a growing level of spending within the constraints of maintaining adequate portfolio quality and liquidity.

Investment Constraints

In November 1998, Minnesota voters passed a constitutional amendment to continue the mandate that 40 percent of the net proceeds from the state lottery be credited to the Fund through 2025.

The amendment also provides for spending 5.5 percent of the Fund's market value annually, beginning fiscal year 2000 and the amendment eliminates the accounting restrictions on capital gains and losses and the provision that the principal must remain inviolate.

Asset Allocation

During fiscal year 1994, the SBI introduced equities into the portfolio and moved to a targeted 50% allocation to domestic common stocks and 50% to bonds. This allocation was maintained through fiscal year 1999.

After the constitutional amendment was adopted in 1998, SBI staff

worked with the Legislative Commission on Minnesota Resources to establish an asset allocation policy that is consistent with the Commission's goals for spending and growth of the Fund.

The SBI approved a 70% stock and 30% fixed income asset allocation which was implemented July 1, 1999. The allocation positions the Fund for the best long-term growth potential while meeting the objective of the Fund to produce a growing level of spending.

Figure 37 presents the actual asset mix of the Environmental Trust Fund at the end of fiscal year 2002. The

current long term asset allocation targets for the Fund are:

Domestic Stocks	70%
Domestic Bonds	28
Cash	2

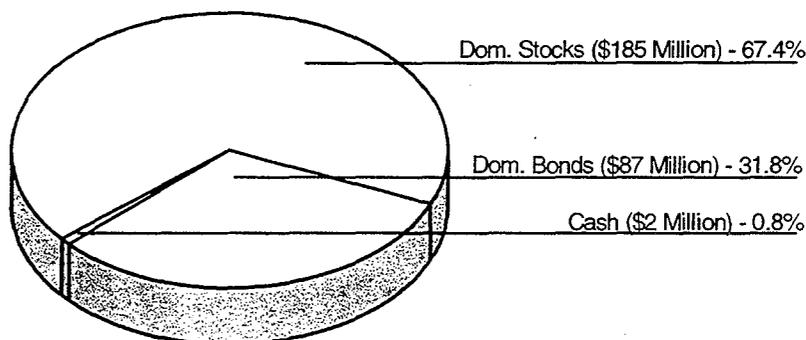
Investment Management

SBI staff manage all assets of the Environmental Trust Fund. Given the unique constraints of the Fund, management by SBI staff is considered to be the most cost effective at this time.

Stock Segment

The stock segment of the Fund is passively managed to track the performance of the S&P 500.

Figure 37. Environmental Trust Fund Asset Mix as of June 30, 2002



Note: Percentages may differ slightly due to rounding of values.

Environmental Trust Fund

Bond Segment

The bond segment is actively managed to add incremental value through sector, security and yield curve decisions and its performance is measured against the Lehman Brothers Aggregate Bond Index.

Investment Performance

During the Fiscal Year, the *stock* segment slightly trailed the S&P 500 benchmark, returning 0.2 percentage point less than the S&P 500. By investing in all of the stocks in the benchmark at their index weighting, the segment attempts to track the benchmark return on a monthly and annual basis. The portfolio is periodically rebalanced to maintain an acceptable tracking error relative to the benchmark subject to keeping trading costs at a minimum.

The *bond* segment underperformed its benchmark by 1.6 percentage points during the fiscal year.

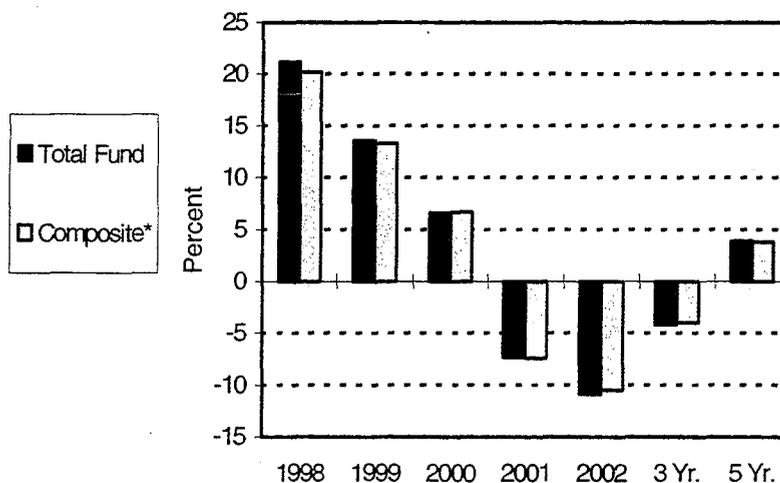
Overall, the Environmental Trust Fund provided a return of -10.9% for fiscal year 2002, underperforming its composite index by 0.4 percentage point. For the most recent three-year period, the fund trailed its composite benchmark by 0.2 percentage point. The fund experienced modest outperformance over the last five years due to the incremental value added by both the stock and bond segments. Performance results are presented in Figure 38.

Spendable Income

Spendable income generated by the Fund follows:

Fiscal Year	Millions
1997	\$6.8
1998	\$8.8
1999	\$9.7
2000	\$12.7
2001	\$12.7
2002	\$17.1

Figure 38. Environmental Trust Fund Performance FY 1998-2002



	1998	1999	2000	2001	2002	Annualized 3 Yr.	5 Yr.
Total Fund	21.2%	13.6%	6.6%	-7.3%	-10.9%	-4.2%	3.9%
Composite*	20.2	13.3	6.7	-7.4	-10.5	-4.0	3.8
Stock Segment	30.4	23.1	7.4	-14.6	-18.2	-9.1	3.8
S&P 500	30.2	22.8	7.2	-14.8	-18.0	-9.2	3.7
Bond Segment	12.1	3.7	4.7	11.2	7.0	7.6	7.7
Lehman Aggregate	10.5	3.1	4.6	11.2	8.6	8.1	7.6

* Weighted 50% S&P 500/ 48% Lehman Aggregate, and 2% 3 Month T-Bills through June 1999. Weighted 70% S&P 500/ 28% Lehman Aggregate/ and 2% 3 month T-Bill beginning July 1, 1999.

State of Minnesota
Department of Finance
12/17/02

Environment and Natural Resources Trust Fund

Fund Balance on 6/30/02	273,640,524
Maximum annual allowable spending	<u>5.5%</u>
Fiscal Year 2004	15,050,229
Fiscal Year 2005	<u>15,050,229</u>
Biennial Total	30,100,458

Minnesota Future Resources Fund

Balance Forward from FY '03	629,260 *
<u>'04-05 Forecast</u>	
Cigarette taxes	14,241,268
LAWCON Receipts (100%)	3,555,982
Less: Local Share	<u>(1,041,501)</u>
Interest	2,514,481 *
	500,000
Net Resources Available for '04-05	<u>17,885,009</u>

* Since the release of the November forecast, the LAWCON spending and receipt estimates have changed. These figures reflect the update. These changes will be incorporated into the official forecast in February.

Combined Total	<u><u>47,985,467</u></u>
----------------	--------------------------



VIII. Findings

“any findings or recommendations that are deemed proper to assist the legislature in formulating legislation..”

Technical Amendments

116P.09, Subd. 5

116P.13

116P.14

116P.09 Administration

Subd. 5. **Administrative expense.** The administrative ~~expenses of the commission shall be paid from the various funds administered by the commission as follows:~~

~~(1) Through June 30, 1993, the administrative expenses of the commission and the advisory committee shall be paid from the Minnesota future resources fund. After that time, the prorated expenses related to administration of the trust fund shall be paid from the earnings of the trust fund.~~

~~(2) After June 30, 1993, the prorated expenses related to commission administration of the trust fund may not exceed an amount equal to four percent of the projected earnings amount available for appropriation of the trust fund for the biennium.~~

116P.13 Minnesota future resources fund.

Subdivision 1. **Revenue sources.** The money in the Minnesota future resources fund consists of revenue deposited in the state land and water conservation account under section 116P.14, subdivision 2, and revenue credited

under section 297F.10, subdivision 1, paragraph (b), clause (1).

Subd. 2. **Interest.** The interest attributable to the investment of the Minnesota future resources fund must be credited to the fund.

Subd. 3. **Revenue purposes.** Revenue in the Minnesota future resources fund may be spent for purposes of natural resources acceleration and outdoor recreation, including but not limited to the development, maintenance, and operation of the state outdoor recreation system under chapter 86A and regional recreation open space systems as defined under section 473.351, subdivision 1.

HIST: 1988 c 690 art 1 s 17; 1989 c 335 art 1 s 179; 1997 c 106 art 2 s 4

Minnesota Statutes 2002, Table of Chapters

Table of contents for Chapter 116P

116P.14 Federal land and water conservation funds.

Subdivision 1. **Designated agency.** The department of natural resources is designated as the state agency to apply for, accept, receive, and disburse federal reimbursement funds and private funds, which are granted to the state of Minnesota from Section 6 of the federal Land and Water Conservation Fund Act.

Subd. 2. **State land and water conservation account; creation.** A state land and water conservation account is created in the Minnesota future resources fund. All of the money made available to the state from funds granted under subdivision 1 shall be deposited in the state land and water conservation account.

Subd. 3. **Local share.** Fifty percent of all money made available to the state from funds granted under subdivision 1 shall be distributed for projects to be acquired, developed, and maintained by local units of government, providing that any project approved is consistent with a statewide or a county or regional recreational plan and compatible with the statewide recreational plan. All money received by the commissioner for local units of government is appropriated annually to carry out the purposes for which the funds are received.

Subd. 4. **State share.** Fifty percent of the money made available to the state from funds granted under subdivision 1 shall be used for state land acquisition and development for the state outdoor recreation system under chapter 86A and the administrative expenses necessary to maintain eligibility for the federal Land and Water Conservation Fund.

HIST: 1Sp2001 c 2 s 140

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IX. Gifts and Donations

*“a list of all gifts and
donations with a value over
\$1,000...”*

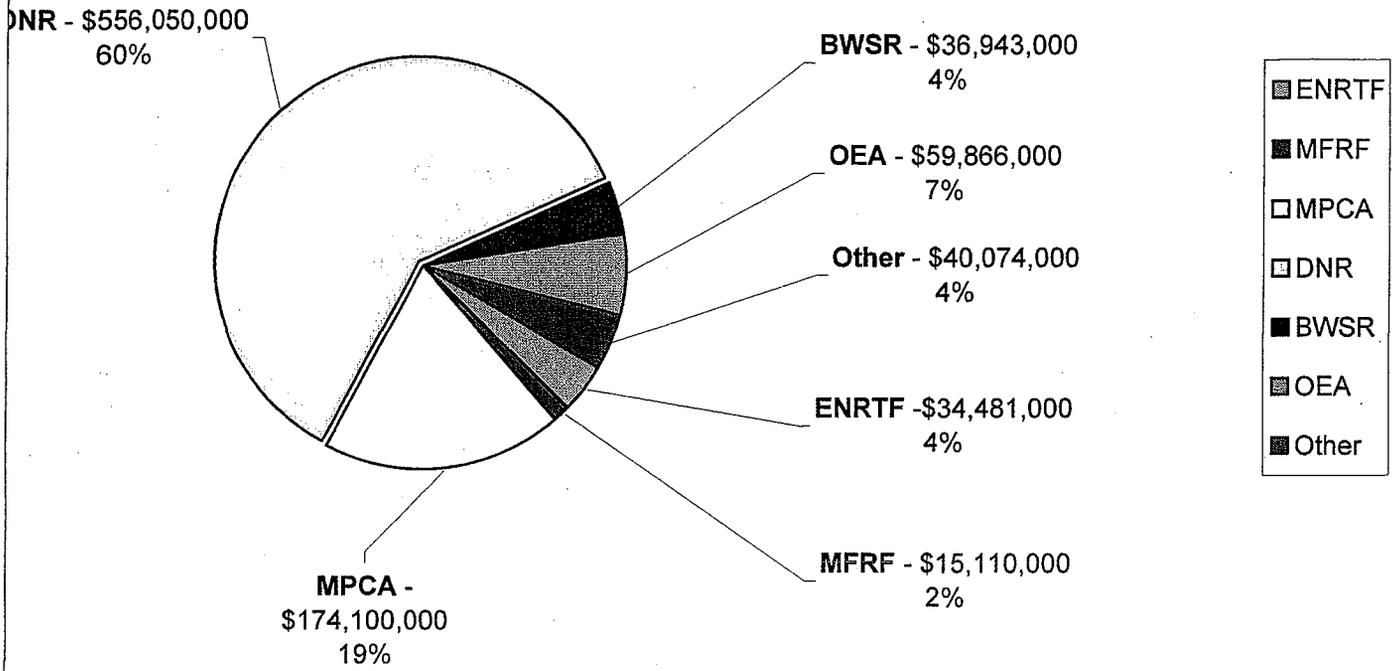
No gifts or donations were received.



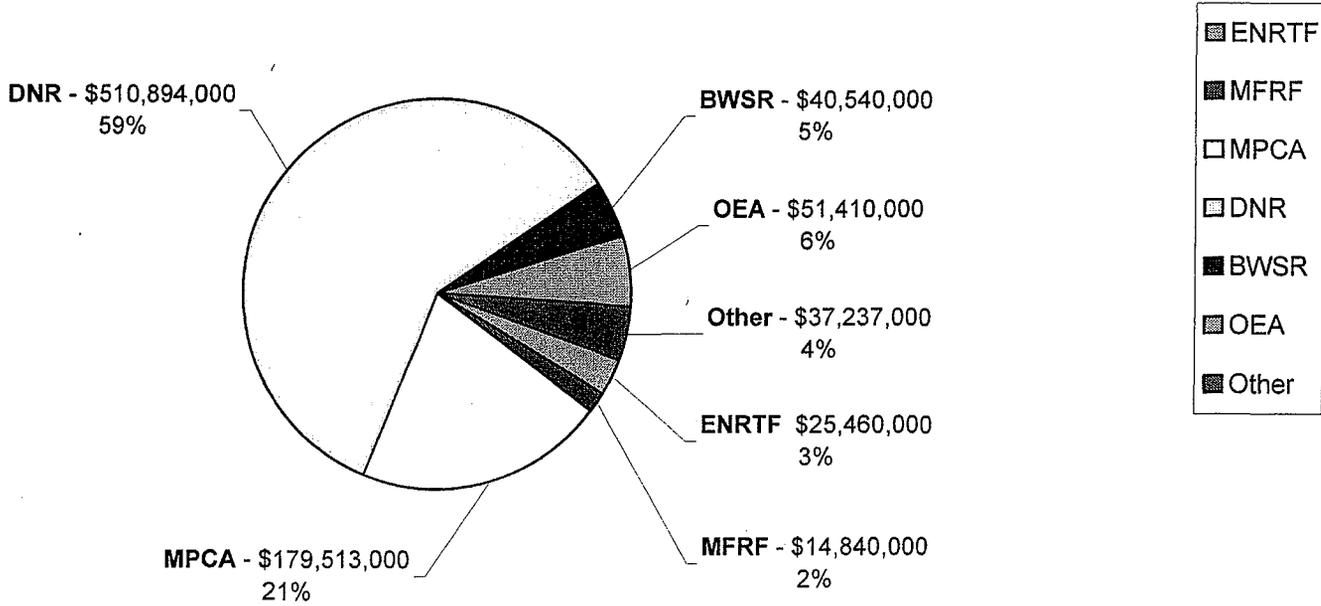
X. Environmental Spending Comparisons

“ a comparison of the amounts spent by the state for environment and natural resources activities through the most recent fiscal year...”

2001-2003 All State Environmental Appropriations



1999-2001 All State Environmental Appropriations



	2001-2003 appropriations (includes 2002 changes)	1999-2001 appropriations (includes 2000 changes)
NRTF	34,481,000	25,460,000
MFRR	15,110,000	14,840,000
MPCA	174,100,000	179,513,000
DNR	556,050,000	510,894,000
BWSR	36,943,000	40,540,000
OEA	59,866,000	51,410,000
Other	40,074,000	37,237,000
	916,624,000	859,894,000

What is "Other"?

MN Zoo	37,393,000	34,538,000
MN-WI Boundary Area Commission	71,000	371,000
Science Museum	2,535,000	2,328,000
Office of Strategic & Long Range Planning	75,000	
	40,074,000	37,237,000

Total All State Appropriations 33,677,172,000

Source: Minnesota State Senate - Fiscal Review
State Bonding not included

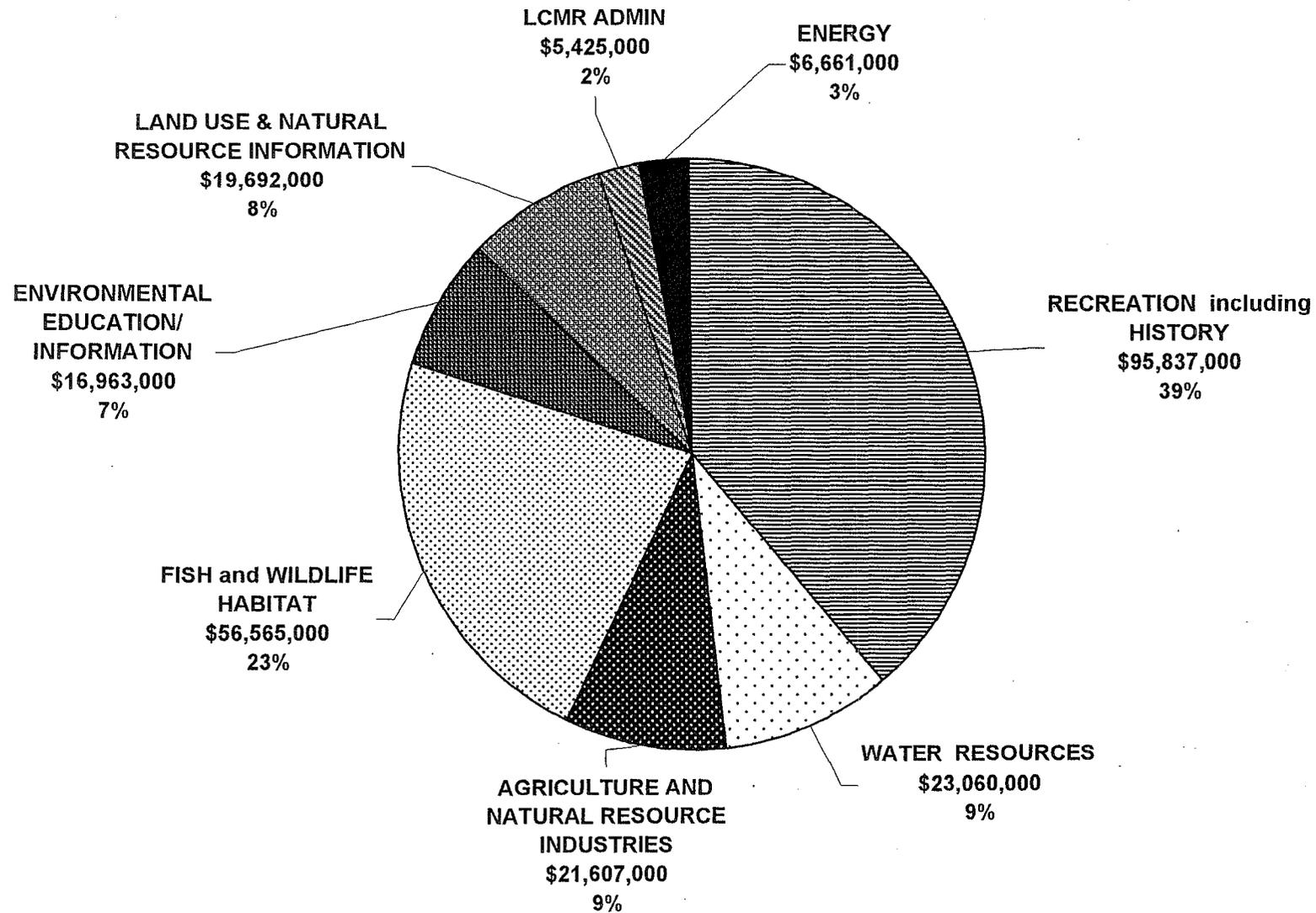


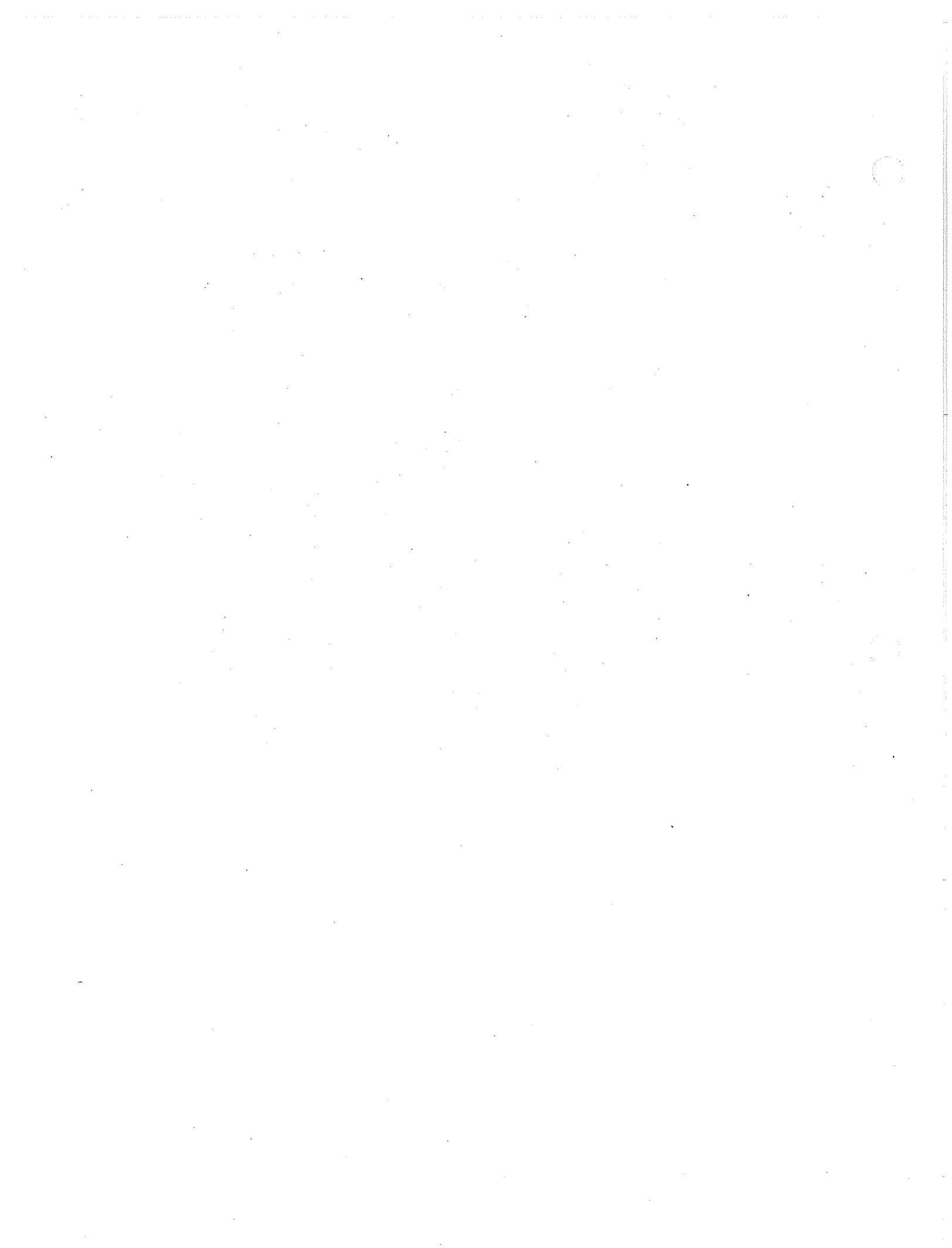
XI. Compliance Audit

“a copy of the most recent compliance audit.”

The most recent compliance audit dated October 13, 2000 was included in the January 15, 2001 biennial report. No audit has been completed since that time.

ALL FUNDING SOURCES
1991-2001 LCMR Projects
equals 100% of amount appropriated / totaling: \$246,064,000





1991- 2001 LCMR Funded Projects

Minnesota Environment and Natural Resources Trust Fund (M.S. 116P) (noted as TF)

The Minnesota Future Resources Fund (M.S. 116P.13) (noted as MFRF)

Great Lakes Protection Account (M.S. 116 Q.02) (noted as GLPA)

Oil Overcharge (Section 4.071, subdivision 2) (noted as OOC)

Year	Subd. #	Funding Source	Title	(Affiliation)	Total Amount Appropriated
Agriculture and Natural Resource Industries					
1991	06(a)	TF	Biological Control of Pests	(U of M)	650,000
1991	06(b)	MFRF	Review Levels of Pesticides at Spill Sites	(AG)	300,000
1991	06(c)	MFRF	Effective Nitrogen & Water Management for Sensitive Areas	(U of M)	300,000
1991	06(d)	TF	Conservation Reserve Easements	(BWSR)	600,000
1991	06(e)	MFRF	Native Grass and Wildflower Seed	(AG)	130,000
1991	07(a)	MFRF	MN Old-Growth Forests: Characterization and Identification	(DNR)	150,000
1991	07(b)	MFRF	Nutrient Cycling and Tree Species Suitability	(U of M)	220,000
1991	07(c)	MFRF	State Forest Land Acquisition	(DNR)	500,000
1991	07(d)	MFRF	Regeneration and Management of MN's Oak Forests	(U of M)	225,000
1991	07(e)	MFRF	Private Forest Management for Regeneration	(DNR)	200,000
1991	07(f)	MFRF	Aspen Hybrids & New Tissue Culture Tech.	(U of M)	70,000
1991	07(g)	MFRF	Aspen Decay Models for Mature Aspen Stands	(Koochiching County)	85,000
1991	07(h)	TF	Generic Environmental Impact Statement on Timber Harvesting Planning)	(MN)	400,000
1991	13(g)	OOC	Cellulose Rayons for Packaging	(Bemidji State University)	150,000
1993	03(a)	OOC	Biological Control Of Plant And Animal Pests - Continuation	(AG)	880,000
1993	03(b)	MFRF	Cover Crops In A Corn And Soybean Rotation	(U of M)	150,000
1993	03(c)	MFRF	Increasing Utilization Of Federal Cost Share Feedlot Funds	(AG)	480,000
1993	03(d)	MFRF	Demonstration Of Production Scale Waste Collection In Aquaculture (Minnesota Aquafarms, Inc.)		100,000
1993	03(e)	TF/MFRF	RIM -Conservation Reserve Easements - Continuation	(BWSR)	823,000
1993	03(f)	MFRF	Alternative Aquaculture Methods	(U of M)	230,000
1993	03(g)	MFRF	Minnesota Aquaculture Development Program	(AG)	230,000

Year Subd. #	Funding Source	Title	(Affiliation)	Total Amount Appropriated
Agriculture and Natural Resource Industries				
1993 03(h)	MFRF	Managing Agricultural Environments Of N.-Central Minnesota Sandy Soils - Continuation	(U of M)	480,000
1993 03(i)	MFRF	Nutrient Availability From Land-Applied Manure	(U of M)	280,000
1993 03(j)	MFRF	Effective Manure Mgmt. In Cons. Tillage Systems For Karst Areas of M)	(U	500,000
1993 03(k)	MFRF	Nutrient Recycling Through Plants And Animals	(U of M)	260,000
1993 03(l)	OOC	Developing Soil Specific Nitrogen Management As A BMP	(AG)	294,000
1993 05(a)	MFRF	Development Of Tree Seed Orchard Complex	(DNR)	80,000
1993 05(d)	MFRF	Developing Quality Hardwood Forests	(U of M)	210,000
1993 06(c)	MFRF	Description And Evaluation Of Minnesota Old Growth Forests - Continuation	(DNR)	250,000
1995 05(e)	MFRF	Glacial Lake Agassiz Beach Ridges: Mining and Protection	(DNR)	85,000
1995 05(h)	MFRF	Feedlot and Manure Management Practices Assistance	(AG)	200,000
1995 05(i)	MFRF	Water Quality Impacts of Feedlot Pollution Control Systems	(PCA)	300,000
1995 05(n)	TF	Forest Management to Maintain Structural and Species Diversity	(DNR)	160,000
1995 05(q)	MFRF	Sustainable Grassland Conservation and Utilization	(DNR)	125,000
1995 05(r)	MFRF	Developing, Evaluating, and Promoting Sustainable Farming Systems (Whitewater Joint Powers Board)		225,000
1995 05(s)	MFRF	Cooperatives to Promote Sustainable Agricultural Practices a (Sustainable Farming Assoc)		100,000
1995 07(h)	MFRF	Minnesota River Tile System Research - Continuation	(PCA/ U of M)	150,000
1995 07(k)	MFRF	Analysis of Lands Enrolled in the Conservation Reserve Program	(AG)	200,000
1997 06(b)	TF	Nitrate Education and Testing	(AG)	150,000
1997 07(a)	TF	Biological Control of Agricultural Pests	(U of M)	200,000
1997 07(b)	TF	Crop Management to Minimize Pesticide Inputs	(U of M)	300,000
1997 07(c)	TF	Sustainable Farming Systems	(U of M)	560,000
1997 07(d)	TF	Prairie-Grassland Landscapes	(DNR)	125,000
1997 07(e)	MFRF	Reducing Minnesota River Pollution from Lacustrine Soils	(U of M)	250,000

Year	Subd. #	Funding Source	Title	(Affiliation)	Total Amount Appropriated
Agriculture and Natural Resource Industries					
1997	07(f)	MFRF	Mercury Manometers	(AG)	250,000
1997	12(c)	MFRF	Alfalfa Biomass Production	(U of M)	200,000
1997	16(a)	TF	Sand Dunes State Forest Acquisition	(DNR)	400,000
1997	17(a)	MFRF	Sustainable Woodlands on Private Lands	(MN Forestry Association)	875,000
1997	17(c)	MFRF	Peatland Restoration	(U of M)	275,000
1997	19(a)	MFRF	Minnesota Releaf Tree Planting and Preservation Grant Program	(DNR)	300,000
1997	19(b)	TF	Restoring White Pine in the Minnesota Landscape	(U of M)	120,000
1997	20(c)	MFRF	Control of Noxious Weeds in Native Wild Rice	(Bois Forte Reservation)	100,000
1999	07(a)	TF	Green Forest Certification Project	(Institute for Agriculture and Trade Policy)	150,000
1999	07(b)	TF	Accelerated Transfer of New Forest-Research Findings	(U of M)	115,000
1999	07(d)	TF	Integrated Prairie Management	(U of M/ Clay County)	350,000
1999	07(e)	MFRF	Improved Agricultural Systems Overlying Sensitive Aquifers in Southwestern Minnesota	(AG)	200,000
1999	07(f)	TF	Diversifying Agriculture for Environmental, Economic, and Social Benefits	(U of M)	400,000
1999	07(g)	TF	Minnesota River Basin Initiative: Local Leadership	(Minnesota River Basin Joint Powers Board)	300,000
1999	07(h)	MFRF	Commercial Fertilizer Plant of Livestock Solid Waste Processing	(AquaCare International, Inc.)	400,000
1999	07(i)	MFRF	CANCELLED: Preservation of Native Wild Rice Resource	(Department of Resource Management, Leech Lake Reservation)	200,000
1999	07(j)	MFRF	Wild Rice Management Planning	(Bois Forte Band of Chippewa)	200,000
1999	07(l)	MFRF	Sustainable Aquaculture Development in Minnesota	(AG/U of M)	185,000
1999	07(m)	MFRF	Sustainable Farming Systems-Continuation	(U of M)	350,000
1999	07(n)	MFRF	Economic Analysis of Agriculture for Multiple Benefits	(Land Stewardship Project)	200,000
1999	07(o)	MFRF	Non-Wood Agricultural Fibers and Industrial Hemp for Pulp and Paper Manufacture	(U of M)	200,000
1999	07(p)	MFRF	Sustainable Livestock Systems	(U of M)	350,000

Year Subd. #	Funding Source	Title	(Affiliation)	Total Amount Appropriated
Agriculture and Natural Resource Industries				
1999 07(r)	TF	Organic Farming Training Project	(Minnesota Food Association)	350,000
1999 07(s)	MFRF	Construction and Demolition Waste Abatement Demonstration Project (The Green Institute (dba Reuse Center))		250,000
1999 10(b)	MFRF	Public Access to Mineral Knowledge	(DNR)	100,000
1999 10(e)	TF	Minnesota Environmentally Preferable Chemicals Project (Local Self-Reliance)	(Institute for)	150,000
1999 10(g)	TF	By-Products Application to Agricultural, Mineland and Forest Soils (U of M)	(U of M)	350,000
1999 14(a)	TF/MF RF	Minnesota ReLeaf Matching Grant Program-Continuation	(DNR)	850,000
1999 14(d)	TF	Development and Assessment of Oak Wilt Biological Control Technologies-Continuation	(U of M)	200,000
1999 16(b)	TF	Evaluate establishment, impact of leafy spurge biocontrol agents (U of M)	(U of M)	140,000
2001 08a	MFRF	Evaluating Timber Harvesting and Forest Management Guidelines (U of M)	(U of M)	200,000
2001 08b	TF	Agricultural Land Preservation	(Dept of AG/Dakota County)	205,000
2001 08c	MFRF	Environmental Practices on Dairy Farms	(Minnesota Milk Producers Association)	245,000
2001 08d	MFRF	Accelerated Technology Transfer for Starch-Based Plastics	(U of M)	90,000
Total for Agriculture and Natural Resource Industries:				21,607,000

Energy

1991 13(a)	MFRF	Traffic Signal Timing	(MN DOT)	1,175,000
1991 13(b)	MFRF	Waste Crumb Rubber in Roadways	(MN DOT)	100,000
1991 13(c)	OOC	Synthesis of Biodegradable Plastics	(U of M)	150,000
1991 13(d)	MFRF	Agricultural Energy Savings Information	(AURI)	150,000
1991 13(e)	OOC	Residential Urban Environmental Resource Audit (Neighborhood Energy Consortium)	(St. Paul)	150,000
1991 13(h)	MFRF	Tree and Shrub Planting for Energy	(DNR)	1,250,000
1991 13(i)	OOC	Oil Overcharge Program Administration	(ADMIN)	200,000
1991 13(j)	OOC	Evaluating Performance-Based Standards for Energy	(U of M)	75,000

Year	Subd. #	Funding Source	Title	(Affiliation)	Total Amount Appropriated
Energy					
1993	04(a)	OOC	Reducing Energy And Co 2	(Center for Energy and Environment)	230,000
1993	04(b)	MFRF	Photovoltaic Demonstration Project	(ISD 625, St. Paul Public Schools)	230,000
1993	04(c)	OOC	Operational Implications Of Alternate Transit Bus Fuels	(MTC)	78,000
1993	04(d)	OOC	The Bus, Bike Or Car Pool (B-Bop) Challenge	(Center for Energy and Environment)	150,000
1993	04(e)	OOC	Tree And Grass Production For Ethanol	(AURI)	380,000
1995	07(j)	OOC	Microbial Deterioration of Asphalt Materials and its Prevent	(Bemidji State University)	60,000
1995	08(c)	OOC	Releaf: Planting for Energy Conservation in Communities	(DNR)	400,000
1995	11(a)	OOC	CANCELLED: Inter-City Electric Vehicle Transportation Demonstration	(Minnesota Power)	150,000
1995	11(b)	OOC	Sustainable Development of Wind Energy on Family Farms	(Sustainable Resources Center)	200,000
1995	11(c)	OOC	1 Megawatt Hybrid Electrical Generation Simulation Project	(DanMar and Associates)	50,000
1995	11(d)	OOC	Avian Population Analysis for Wind Power Generation Regions	(American Wind Energy Assoc)	75,000
1995	11(e)	OOC	Energy Improvements in Public Ice Arenas	(Center for Energy and Envir)	470,000
1997	12(a)	MFRF	Sustainable Development Assistance for Municipalities through Electric Utilities	(MN Municipal Utilities Association)	240,000
1997	12(d)	MFRF	Sustainable Development of Wind Energy on Family Farms	(Sustainable Resources Center)	200,000
1997	12(h)	MFRF	Soy-Based Diesel Fuel Study	(AG)	83,000
1999	09(a)	MFRF	Ice Arena Design for Efficiency and Air Quality-Continuation	(Center for Energy and Environment)	100,000
1999	09(b)	MFRF	Promoting High Efficiency Cogeneration	(EQB MN Planning)	100,000
1999	09(c)	TF	Evaluate Biodiesel Made from Waste Fats and Oils	(Minnesota Soybean Growers Association)	125,000
2001	09	OOC	Using Biodiesel in Generators	(U of M)	90,000
Total for Energy:					6,661,000

Environmental Education/Information

Year	Subd. #	Funding Source	Title	(Affiliation)	Total Amount Appropriated
Environmental Education/Information					
1991	05(a)	TF	Statewide Environmental Education Plan	(EDUCATION)	790,000
1991	05(b)	MFRF	Teacher Training for Environmental Education	(SP Chap Nat's Audubon)	5,000
1991	05(c)	TF	Video Education Research and Demonstration Project	(Twin Cities Public TV)	100,000
1991	05(d)	TF	Integrated Resource Management Education and Training Program	(DNR)	300,000
1991	05(e)	MFRF	Continuing Education in Outdoor Recreation for Natural Resource Managers	(U of M)	125,000
1991	05(f)	TF	Environmental Exhibits Collaborative	(Science Museum of MN)	400,000
1991	05(g)	MFRF	Upper Mississippi River Environmental Education Center	(City of Winona)	600,000
1991	05(h)	MFRF	Urban Rangers Program Ed Issues	(Minneapolis Park/Rec Bd.)	100,000
1991	05(i)	MFRF	Crosby Farm Park Nature Program	(City of St. Paul)	85,000
1991	05(j)	MFRF	Youth in Natural Resources	(DNR)	250,000
1991	05(k)	MFRF	Environmental Education for Handicapped	(Vinland Nat'l Center)	130,000
1993	06(d)	MFRF	Mississippi Headwaters River Inquiry And Education Project	(Mississippi Headwater Board)	75,000
1993	07(b)	MFRF	Developing Multi-Use Urban Green Space	(Minneapolis Park and Rec Bd)	220,000
1993	07(c)	MFRF	K-12 Prairie Wetland Field Study Program - Ecology Bus	(Heron Lake ELC)	270,000
1993	07(d)	TF	The On-Line Museum: Computer And Interactive Video	(Science Museum of MN)	260,000
1993	07(e)	MFRF	CANCELLED: Environmental Education Outreach Program	(Metropolitan Waste Control Commission)	215,000
1993	07(f)	MFRF	Summer Youth History Program	(MHS)	100,000
1993	07(g)	MFRF	The Ecology Of Minnesota - Book	(U of M)	51,000
1993	07(h)	TF	Green Street: An Urban Environmental Awareness Project	(Science Museum of MN)	550,000
1993	07(i)	TF	Minnehaha Park Environmental Interpretive Center	(Minneapolis Park and Rec Bd)	300,000

Year	Subd. #	Funding Source	Title	(Affiliation)	Total Amount Appropriated
Environmental Education/Information					
1993	07(j)	MFRF	Nicollet Conservation Club Swan Lake Interpretive Room	(Nicollet Conservation Club)	18,000
1993	07(k)	MFRF	Project City Camp: Experiential Urban Environmental Education	(Pillsbury Neighborhood Services, Inc.)	130,000
1993	07(l)	MFRF	Granite Quarry Park And Interpretive Center Planning	(Stearns County Parks)	50,000
1993	07(m)	MFRF	Expanded Crosby Farm Park Nature Program - Continuation	(City of St. Paul)	91,000
1993	07(n)	MFRF	Multiple-Use Forest Management Learning Kit	(Deep Portage Conservation Reserve)	15,000
1993	07(o)	MFRF	An Outdoor Classroom To Improve Rural Environmental Education	(Faribault County ELC)	60,000
1995	06(a)	TF	Leopold Education Project Curriculum	(Pheasants Forever, Inc.)	100,000
1995	06(b)	TF	Environmental Education Teacher Training	(OEA)	500,000
1995	06(c)	TF	Sharing Environmental Education Knowledge	(OEA)	200,000
1995	06(d)	MFRF	Environmental Video Resource Library and Public Television S	(Twin Cities Public Television)	250,000
1995	06(e)	MFRF	Development, Assimilation and Distribution of Wolf Education	(International Wolf Center)	100,000
1995	06(f)	TF	Environmental Action Grants for Minnesota Schools	(St. Olaf College SNAP)	200,000
1995	06(g)	MFRF	Electronic Environmental Education Network	(U of M)	250,000
1995	06(h)	MFRF	Three Rivers Initiative	(Science Museum of MN)	750,000
1995	06(i)	OOC	Interactive Computer Exhibit on Minnesota Renewable Energy S	(Izaak Walton League)	150,000
1995	06(j)	MFRF	Trees for Teens: Training, Resources, Education, Employment	(Twin Cities Tree Trust)	75,000
1995	06(k)	MFRF	Redwood Falls School District #637 Environmental Education P	(Redwood Falls School District)	250,000
1995	06(l)	MFRF	Together Outdoors Minnesota	(Wilderness Inquiry)	575,000
1995	06(m)	MFRF	Enhanced Natural Resource Opportunities for Asian-Pacific Mi	(DNR)	150,000
1995	06(n)	MFRF	Deliver Ecological Information and Technical Assistance to L	(DNR)	100,000

Year	Subd. #	Funding Source	Title	(Affiliation)	Total Amount Appropriated
Environmental Education/Information					
1995	06(o)	MFRF	Nonpoint Source Pollution Public Education Demonstration Pro	(City of St. Paul)	100,000
1995	06(p)	MFRF	Whitetail Deer Resource Center	(MN Deer Hunters Association)	50,000
1995	06(r)	MFRF	Ney Environmental Center	(Le Sueur County)	100,000
1995	06(s)	MFRF	Lawndale Environmental Center	(Lawndale Environmental Foundation)	400,000
1995	07(i)	MFRF	Sugarloaf Site Assessment and Interpretation	(Sugarloaf Intrptv Ctr Assoc)	70,000
1997	05(e)	MFRF	White Oak Learning Center Environmental Awareness Through History	(White Oak Society, Inc)	120,000
1997	08(b)	MFRF	Pollution Prevention Training Program for Industrial Employees	(U of M)	200,000
1997	10(a)	MFRF	Comparative Risks of Multiple Chemical Exposures	(HEALTH)	150,000
1997	13(a)	TF	School Nature Area Project (SNAP)	(St. Olaf College)	250,000
1997	13(b)	MFRF	Watershed Science: Integrated Research and Education Program	(Science Museum of Minnesota)	500,000
1997	13(c)	TF	Minnesota Frog Watch	(Hamline University, Center for Global Environmental Education)	300,000
1997	13(d)	MFRF	Environmental Service Learning Projects in Minneapolis Schools	(Eco Education)	100,000
1997	13(e)	TF	Partners in Accessible Recreation & Environmental Responsibility	(Wilderness Inquiry)	550,000
1997	13(f)	TF	Environmental Service Learning	(Stowe Environmental Elementary School)	100,000
1997	13(g)	TF	State Wolf Management: Electronically Moderating the Public Discussion	(International Wolf Center)	100,000
1997	13(i)	TF	Electronic Environmental Education Raptor Network	(U of M)	222,000
1997	13(j)	MFRF	Greenprint Success	(Ramsey County Parks and Recreation Department)	136,000
1997	13(k)	MFRF	St. Paul and Minneapolis Regional Park Urban Interpretation Program	(St. Paul Parks and Recreation)	200,000
1997	17(f)	MFRF	Point Douglas Bluffland Acquisition (cancelled)	(Carpenter St. Croix Valley Nature Center)	125,000
1999	05(c)	MFRF	Gibbs Farm Museum Interpretation	(Ramsey County Historical Society)	150,000

Year	Subd. #	Funding Source	Title	(Affiliation)	Total Amount Appropriated
Environmental Education/Information					
1999	05(e)	MFRF	Old Wadena Historic Site Development (Environmental Learning Project)	(Wah De Nah Historic and)	25,000
1999	11(a)	TF	Uncommon Ground: An Educational Television Series	(U of M)	400,000
1999	11(b)	TF	Karst Education for Southeastern Minnesota (Water Resources Board)	(Southeast Minnesota)	120,000
1999	11(c)	TF	Minnesota Wolf Public Education	(International Wolf Center)	100,000
1999	11(d)	MFRF	Bear Center	(DNR)	20,000
1999	11(e)	TF	Accessible Outdoor Recreation	(Wilderness Inquiry)	400,000
1999	11(f)	TF	Science Outreach and Integrated Learning on Soil (of MN)	(Science Museum)	250,000
1999	11(g)	TF	Teacher Training in Interdisciplinary Environmental Education (Audubon Center of the North Woods)		60,000
1999	11(i)	MFRF	Youth Outdoor Environmental Education Program	(Dakota County)	125,000
1999	11(j)	TF	Twin Cities Environmental Service Learning-Continuation (Education)	(Eco)	40,000
1999	11(k)	MFRF	(Withdrawn) Minnesota Whitetail Deer Resource Center Exhibits (Minnesota Deer Hunter's Association)		400,000
1999	11(m)	MFRF	Minnesota River Watershed Ecology and History Exhibit	(Joseph R. Brown Heritage Society)	90,000
1999	11(o)	MFRF	Aquaculture, Hydroponics, and Greenhouse Research Lab (Lakes High School)	(Chisago)	100,000
2001	10b	TF	WaterScapes: Outdoor Non-Point Source Pollution Education (Science Museum of Minnesota)		265,000
2001	10c	TF	Sustainable Inner-City Communities through Environmental Literacy (Sabathani Community Center)		500,000
2001	10d	MFRF	Integrated Pest Management in Schools	(Dept of AG)	180,000
2001	10e	TF	Burn, Plant and Learn: Restoring Upland Habitats (Minnesota)	(Science Museum of)	230,000
2001	10f	MFRF	Connecting with Wildlife at the Minnesota Zoo	(Minnesota Zoo)	230,000
2001	10g	MFRF	Project Green Start: Environmental Education (Museum)	(Minnesota Children's)	340,000
2001	10h	MFRF	Raptor Propagation: Student Education	(Stillwater Area High School)	35,000

Year	Subd. #	Funding Source	Title	(Affiliation)	Total Amount Appropriated
Environmental Education/Information					
2001	10i	MFRF	Hennepin Parks Farm Education District)	(Suburban Hennepin Regional Park	100,000
2001	10j	MFRF	Residential Environmental Education for Youth	(Camp Courage)	90,000
2002	Subd.	TF	Uncommon Ground: An Educational Television Series	(U of M)	254,000
Total for Environmental Education/Information:					17,217,000

Fish and Wildlife Habitat					
1991	08(a)	MFRF	Pilot Fish Pond Complex for Fisheries Develop. Lake Reservation)	(Leech	250,000
1991	08(b)	MFRF	Aquaculture Facility Purchase and Development and Transgenic Gamefish Growth Studies	(U of M)	1,200,000
1991	08(c)	MFRF	Cooperative Urban Aquatic Education Program	(DNR)	340,000
1991	08(d)	MFRF	Catch and Release	(DNR)	35,000
1991	08(e)	MFRF	Metro Lakes Fishing Opportunity Study	(DNR)	75,000
1991	08(f)	MFRF	Lake Minnetonka Bass Tracking	(DNR)	85,000
1991	08(g)	MFRF	Stocking Survey	(DNR)	35,000
1991	09(a)	TF	Insecticide Impact on Wetland and Upland Wildlife	(DNR/ U of M)	650,000
1991	09(b)	TF	Biological Control of Eurasian Watermilfoil	(DNR/ U of M)	100,000
1991	09(c)	MFRF	Microbial/Genetic Strategies for Mosquito Control	(U of M)	150,000
1991	09(d)	TF	Minnesota County Biological Survey	(DNR)	1,000,000
1991	09(e)	TF	Computerized Data Base for the Plants of MN	(U of M)	130,000
1991	09(f)	TF	Aquatic Invertebrate Assessment Archive	(PCA)	130,000
1991	09(g)	TF	CANCELLED: Wetlands Forum	(DNR)	40,000
1991	09(h)	TF	Easement Acquisition on Restored Wetlands U.S. Fish & Wildlife)	(Isaak Walton League/	400,000
1991	09(i)	MFRF	Swan and Heron Lake Area Projects	(DNR)	1,000,000
1991	09(j)	MFRF	Wildlife Oriented Recreation Facilities Sandstone Unit Wildlife, Rice Lake NRW)	(U.S. Fish &	9,000
1991	09(k)	MFRF	Acquisition and Development of Scientific and Natural Areas	(DNR)	300,000

Year	Subd. #	Funding Source	Title	(Affiliation)	Total Amount Appropriated
Fish and Wildlife Habitat					
1991	09(l)	MFRF	Black Bear Research in East Central MN	(U of M)	100,000
1991	09(m)	MFRF	Partnership for Accelerated Wild Turkey Management	(Nat'l Wild Turkey Fed)	50,000
1991	09(n)	TF	Restore Thomas Sadler Roberts Bird Sanctuary	(Minneapolis Park/Rec BD)	50,000
1991	09(o)	TF	Effects/Changes in Forest Ecosystem on Biodiversity of MN Northern Forest Birds	(DNR)	300,000
1991	09(p)	MFRF	Establish Northern Raptor Rehabilitation and Educational Facility	(U of M)	75,000
1991	09(q)	MFRF	Effect of Avian Flu Virus on Growth and Reproduction Parameters in Mallard Ducks	(U of M)	16,000
1993	06(a)	TF	Minnesota County Biological Survey - Continuation	(DNR)	900,000
1993	06(b)	TF	Minnesota's Forest Bird Diversity Initiative - Continuation	(DNR/U of M)	500,000
1993	06(e)	MFRF	Anadromous Fish Monitoring	(DNR)	137,000
1993	11(d)	MFRF	Stream Flow Protection	(DNR)	280,000
1993	12(a)	TF	RIM Critical Habitat Match, Scientific & Natural Areas, Wildlife & Prairie Acquisition.	(DNR)	4,000,000
1993	12(b)	TF	RIM Wildlife Habitat Stewardship And Property Development	(DNR)	900,000
1993	12(c)	TF	RIM Statewide Fisheries Habitat Development	(DNR)	687,000
1993	12(d)	MFRF	Establishment Of Critical Winter Habitat Areas On Intensively Farmed Land	(Pheasants Forever, Inc.)	100,000
1993	12(e)	MFRF	Wild Turkey Hunting Safety/Education	(National Wild Turkey Federation)	39,000
1993	12(f)	MFRF	Niemackl Watershed Restoration	(DNR)	500,000
1993	12(g)	MFRF	Deer Critical Habitat Survey - Koochiching County	(Koochiching County)	75,000
1993	12(h)	TF	RIM-Fisheries Acquisition For Angler Access And Habitat Development	(DNR)	300,000
1993	12(j)	MFRF	Prairie Ecosystem Restoration In The Minneapolis Park System	(Minneapolis Park and Rec Bd)	60,000
1993	12(l)	TF	Biological Control Of Eurasian Watermilfoil, And Purple Loosestrife - Continuation	(DNR)	400,000

Year	Subd. #	Funding Source	Title	(Affiliation)	Total Amount Appropriated
Fish and Wildlife Habitat					
1993	12(m)	MFRF	Replacement of Eurasian Watermilfoil With Native Minnesota Plants (White Bear Lake Conservation District)		40,000
1993	12(n)	MFRF	Integrated Control Of Purple Loosestrife	(AG)	90,000
1993	12(o)	TF	Ecological Impacts Of Releasing Genetically Engineered Fishes	(U of M)	175,000
1995	05(o)	TF	Accelerated Native Grass and Forbs on Road Rights-of-Way (Interagency Roadside Cmtte)		150,000
1995	06(q)	MFRF	Gordon Gullion Chair in Forest Wildlife Research and Education	(U of M)	350,000
1995	07(c)	TF	Minnesota County Biological Survey-Continuation	(DNR)	900,000
1995	07(d)	TF	Forest Bird Diversity Initiative - Continuation	(DNR/ U of M)	400,000
1995	08(a)	MFRF	Urban Wildlife Habitat Program	(St. Paul Nghbrhd Energy Cons)	150,000
1995	08(f)	TF	Wetland Restoration and Enhancement to Create Community Amenity (U of M)		200,000
1995	09(a)	MFRF	Statewide Experimental Fishing Regulations	(DNR)	650,000
1995	09(b)	TF	RIM - Accelerate Fisheries Acquisition for Angler Access	(DNR)	300,000
1995	09(c)1	MFRF	RIM - Accelerate Fisheries Habitat. Development. Hatchery Rehab. & (DNR)		1,000,000
1995	10(a)	TF/MF RF	RIM - Accelerate Wildlife Acquisition	(DNR)	650,000
1995	10(b)	TF	RIM - Accelerate Critical Habitat Match Program	(DNR)	250,000
1995	10(c)	MFRF	RIM - Accelerate Wildlife Habitat Stewardship	(DNR)	450,000
1995	10(d)	MFRF	Biomass Production, Management and Restoration of Brushland (UMD/MN Sharp-tailed Grouse Soc)		200,000
1995	10(e)	MFRF	Turn in Poachers Youth Activity Book	(TIP, Inc. (Turn in Poachers))	50,000
1995	13(a)	TF/MF RF	Biological Control of Eurasian Watermilfoil and Purple Loose	(DNR)	300,000
1995	13(b)	MFRF	Biological Control of Overland Spread of Oak Wilt	(U of M)	90,000
1995	13(c)	TF	Beneficial Fungal Inoculum-Prairie & Wetland Reclamation	(U of M)	100,000
1996	1996	MFRF	Investigation of Deformed Frogs in Minnesota	(PCA/Hamline)	151,000

Year	Subd. #	Funding Source	Title	(Affiliation)	Total Amount Appropriated
Fish and Wildlife Habitat					
1996	1996	TF/MF RF	RIM-Accelerate Critical Habitat Match Program	(DNR)	750,000
1996	1996	MFRF	Niemackl Watershed Improvement	(DNR)	200,000
1996	1996	MFRF	Assessment of Wetland Acquisition	(BWSR)	15,000
1996	1996	MFRF	Greenway Corridors and Natural Areas Project	(DNR)	50,000
1997	09(h)	MFRF	Trout Habitat Preservation Using Alternative Watershed Management Practices	(Washington County SWCD)	250,000
1997	10(c)	MFRF	Wolf Management Plan	(DNR)	100,000
1997	13(h)	MFRF	Catch and Release	(Rainy Lake Sportfishing Club)	20,000
1997	14(b)	TF	Minnesota's Forest Bird Diversity Initiative - Continuation	(DNR/ U of M)	350,000
1997	14(d)	TF	Stream Habitat Protection - Continuation	(DNR)	225,000
1997	14(f)	TF	Loons: Indicators of Mercury in the Environment	(U of M)	230,000
1997	15(a)	MFRF	Improved Decisions for Walleye Stocking and Special Regulations of M)	(U	245,000
1997	15(b)	TF	Minnesota Rare Mussel Conservation	(U of M)	91,000
1997	17(d)	TF	Prairie Heritage Fund	(Pheasants Forever, Inc)	500,000
1997	17(h)	MFRF	Savanna Restoration for Sharptail Grouse	(MN Sharp-tailed Grouse Society)	30,000
1997	17(i)	TF	RIM - Critical Habitat Acquisition and Enhancement	(DNR)	630,000
1997	17(j)	TF	RIM - Wildlife Habitat Stewardship	(DNR)	400,000
1997	17(k)	TF	RIM - Scientific and Natural Area Acquisition	(DNR)	200,000
1997	17(l)	TF	RIM - Wildlife Habitat Acquisition	(DNR)	500,000
1997	17(m)	TF	RIM - Accelerate Fisheries Acquisition	(DNR)	567,000
1997	17(n)	TF	Minnesota County Biological Survey- Continuation	(DNR)	1,200,000
1997	17(q)	TF	RIM - Fisheries Statewide Hatchery Rehabilitation	(DNR)	400,000
1997	19(d)	MFRF	Prairie and Oak Savanna Restoration	(St. Paul Audubon Society)	50,000
1997	20(a)	MFRF	Ballast Water Technology Demonstration for Exotic Species Control	(DNR)	250,000

Year Subd. #	Funding Source	Title	(Affiliation)	Total Amount Appropriated
Fish and Wildlife Habitat				
1997 20(b)	TF	Biological Control of Eurasian Watermilfoil and Purple Loosestrife - Continuation	(DNR)	150,000
1999 07(q)	MFRF	Forest Wildlife Biologist for Ruffed Grouse	(The Ruffed Grouse Society, Inc)	1,000,000
1999 10(h)	TF	Winter Severity Index for Deer	(DNR/ Minnesota Deer Hunter's Association)	60,000
1999 12(b)	TF	Minnesota County Biological Survey -Continuation	(DNR)	1,600,000
1999 12(h)	TF	Minnesota's Forest Bird Diversity Initiative-Continuation	(DNR/ U of M)	350,000
1999 12(i)	TF	Farm Ponds as Critical Habitats for Native Amphibians (USGS/Biological Resources Div, Upper Midwest Environmental Sciences Center)		250,000
1999 13(a)	TF	Sustainable Woodlands and Prairies on Private Lands-Continuation (MN Forestry Association/Nature Conservancy)		450,000
1999 13(b)	TF	National Prairie Passage-Linking Isolated Prairie Preserves	(MN DOT)	150,000
1999 13(c)	TF	Greening the Metro Mississippi-Minnesota River Valleys	(Great River Greening)	800,000
1999 13(d)	TF	Restoring the Greater Prairie Chicken to Southwestern Minnesota (The Minnesota Prairie Chicken Society)		60,000
1999 13(e)	TF	The Prairie Heritage Fund -Continuation	(Pheasants Forever, Inc.)	500,000
1999 13(h)	TF	Native Prairie Prescribed Burns	(DNR)	400,000
1999 13(i)	TF	Implement the Chisago and Washington Counties Green Corridor Project-Continuation	(1000 Friends of Minnesota)	400,000
1999 13(j)	TF	RIM Shoreland Stabilization	(DNR)	350,000
1999 13(k)	MFRF	Enhancing Canada Goose Hunting Opportunities for Recreation and Management Purposes	(DNR)	340,000
1999 13(l)	TF	Nongame Wildlife Match Account	(DNR)	470,000
1999 13(m)	TF	Wildlife Habitat Acquisition and Development - Chub Lake	(DNR)	300,000
1999 14(b)	TF	Landscaping for Wildlife and Nonpoint Source Pollution Prevention	(St. Paul Neighborhood Energy Consortium)	150,000
1999 14(c)	TF	Lakescaping for Wildlife and Water Quality Initiative	(DNR)	140,000
1999 14(e)	TF	Restoring Ecological Health to St. Paul's Mississippi River Bluffs (Friends of the Parks & Trails of St. Paul & Ramsey County)		200,000

Year	Subd. #	Funding Source	Title	(Affiliation)	Total Amount Appropriated
Fish and Wildlife Habitat					
1999	15(a)	TF	Mussel Resource Survey	(DNR)	400,000
1999	15(b)	TF	Freshwater Mussel Resources in the St. Croix River	(Macalester College)	58,000
1999	16(a)	TF	Biological Control of Eurasian Watermilfoil and Purple Loosestrife-Continuation	(U of M)	150,000
1999	16(c)	MFRF	Restoring Native Vegetation in Parks and Nature Centers	(St. Paul Audubon Society)	260,000
2001	04a	TF	Forest and Prairie Stewardship of Private Lands	(DNR)	545,000
2001	04b	MFRF	State Fish Hatchery Rehabilitation	(DNR)	145,000
2001	04c	MFRF	Enhancing Canada Goose Hunting and Management	(Minnesota Waterfowl Association)	340,000
2001	04d	TF	Biological Control of Eurasian Watermilfoil and Purple Loosestrife-Continuation	(DNR)	90,000
2001	04e	TF	Restoring Minnesota's Fish and Wildlife Habitat Corridors	(MN Waterfowl Association)	11,745,000
2001	04f	MFRF	Engineering Support for Public Lands Waterfowl Projects	(Ducks Unlimited, Inc.)	275,000
2001	04g	TF	Metro Greenways	(DNR)	2,730,000
2001	04h	TF	Acquisition of Lands as Scientific and Natural Areas	(DNR)	455,000
2001	04i	TF	Big Rivers Partnership: Helping Communities to Restore Habitat	(Great River Greening)	910,000
2001	04j	MFRF	Acquisition and Restoration of Eagle Creek's Last Private Land	(City of Savage)	910,000
2001	04k	MFRF	Neighborhood Wilds Program	(DNR)	135,000
Total for Fish and Wildlife Habitat:					56,565,000

Land Use and Natural Resource Information

1991	03(f)	TF	Mississippi River Valley Blufflands Initiative	(DNR)	150,000
1991	03(j)	MFRF	Historic Records Database	(MHS)	180,000
1991	10(a)	TF	Base Maps for the 90's	(MN Planning)	1,900,000
1991	10(b)	MFRF	Accelerated Soil Survey	(U of M)	1,270,000
1991	10(c)	TF	Statewide National Wetlands Inventory, Protected Waters Inventory, Watershed Map Digitization	(DNR)	750,000

Year	Subd. #	Funding Source	Title	(Affiliation)	Total Amount Appropriated
Land Use and Natural Resource Information					
1991	10(d)	MFRF	Statewide Land Use Update of MN	(The International Coalition)	338,000
1991	10(e)	MFRF	Local Geographic Information System Program	(The International Coalition)	143,000
1991	10(f)	MFRF	GIS Control Point Inventory	(MN Planning)	175,000
1991	10(g)	MFRF	Land Use and Design Strategies to Enhance Environment Quality of M)	(U of M)	100,000
1991	10(h)	MFRF	Model Residential Land Use Guidelines	(U of M)	150,000
1991	11	MFRF	Subsurface Greenstone Belts in SW MN	(U of M)	120,000
1991	12(a)	MFRF	Remediation of Soils Contaminated with SemiVolatiles by Co-Composting with Leaves	(Mpls Com Dev Agency)	135,000
1991	12(b)	MFRF	Land Spreading of Yard Waste	(U of M)	100,000
1991	13(f)	OOC	Means for Producing Lignin-Based Plastic	(U of M)	100,000
1993	07(a)	MFRF	Quantify Pesticide And Fertilizer Runoff From Golf Courses	(Suburban Hennepin Regional Park Dist)	49,000
1993	08(a)	TF	Base Maps For 1990'S - Continuation	(LMIC)	710,000
1993	08(b)	MFRF	Rural County Use Of Napp Flight	(Houston County Surveyor's Office)	90,000
1993	08(c)	MFRF	Recreational Resource Planning In The Metro Mississippi Corridor	(U of M)	175,000
1993	09(a)	MFRF	Mitigating Concrete Aggregate Problems In Minnesota	(U of M)	179,000
1995	05(d)	TF/MFRF	Blufflands Landscape	(Blufflands Alliance)	630,000
1995	05(l)	TF	Pathways to Sustainable Development	(MN Planning/ EQB)	200,000
1995	05(p)	MFRF	Accelerate Landscape Management Activities in Whitewater Water	(DNR)	60,000
1995	05(t)	OOC	Recycled Biosolids Product used to Reclaim Disturbed Areas	(N-Viro Minnesota)	200,000
1995	07(a)	TF	Environmental Indicators Initiative	(DNR)	350,000
1995	07(e)	TF	Base Maps for 1990's - Final Phase - Continuation	(LMIC)	600,000
1995	07(f)	MFRF	Completion of Statewide Land Use Update - Continuation	(Association of MN Counties)	380,000
1995	07(g)	MFRF	Fillmore County Soil Survey Update	(Fillmore County)	65,000

Year	Subd. #	Funding Source	Title	(Affiliation)	Total Amount Appropriated
Land Use and Natural Resource Information					
1996	1996	MFRF	Public Internet Access to Data and Information	(DNR/PCA)	360,000
1997	05(b)	TF	Protecting Rural Historic Landscapes in High Development Areas (MHS)		80,000
1997	06(e)	TF	Red River Valley Planning and Management	(PCA)	375,000
1997	08(a)	TF	Toxic Emissions from Fire Training	(FIRE/EMS Center-Metropolitan State Univ)	65,000
1997	09(a)	MFRF	Grants to Local Governments to Assist Natural Resource Decision-Making	(BWSR)	150,000
1997	09(b)	MFRF	Evaluation of Urban Growth Economic and Environmental Costs and Benefits	(Minnesotans for Energy-Efficient Economy)	275,000
1997	09(c)	MFRF	Reinventing the Agricultural Land Preservation Program	(AG)	100,000
1997	09(d)	TF	New Models for Land-Use Planning	(1000 Friends of Minnesota)	530,000
1997	09(e)	MFRF	North Minneapolis Upper River Master Plan	(Minneapolis Park and Recreation Board)	300,000
1997	10(e)	TF	Land Use Development and Natural Resource Protection Model	(City of Winona)	400,000
1997	10(f)	MFRF	Statewide Digital Soil Database-Phase 1	(BWSR)	145,000
1997	10(g)	TF	Fillmore County Soils Survey Update	(Fillmore County)	65,000
1997	11(a)	MFRF	Foundations to Integrated Access to Environmental Information	(DNR)	650,000
1997	11(b)	MFRF	Public Access to Archaeological Knowledge	(Institute for MN Archaeology (IMA))	200,000
1997	12(g)	MFRF	Economics for Lasting Progress	(MN Planning)	250,000
1997	14(a)	TF	Environmental Indicators Initiative- Continuation	(DNR)	250,000
1999	07(k)	TF	Mesabi Iron Range, Water and Mineral Resource Planning	(DNR/U of M)	650,000
1999	08(a)	MFRF	Resources for Redevelopment: A Community Property Investigation Program	(Minnesota Environmental Initiative)	100,000
1999	08(b)	TF	Tools and Training for Community-Based Planning	(MN Planning)	450,000
1999	08(c)	TF	Protecting Dakota County Farmland and Natural Areas	(Dakota County)	200,000
1999	08(d)	MFRF	Urban Corridor Design	(U of M)	400,000

Year Subd. #	Funding Source	Title	(Affiliation)	Total Amount Appropriated
Land Use and Natural Resource Information				
1999 08(e)	TF	Conservation-Based Development Program	(Funds Turned Back)	150,000
		(Minnesota Land Trust)		
1999 08(g)	MFRF	Blufflands Implementation	(Winona County)	33,000
1999 10(a)	MFRF	Goodhue County Natural Resources Inventory and Management Plan		75,000
		(Goodhue County)		
1999 10(c)	TF	Updating Outmoded Soil Surveys-Continuation	(Minnesota Board of Water and Soil Resources)	500,000
1999 10(f)	MFRF	GIS Utilization of Historic Timberland Survey Records	(MHS)	120,000
1999 11(l)	TF	Sustainability Forums	(MN Div., Izaak Walton League of America)	200,000
1999 12(a)	TF	Measuring Children's Exposures to Environmental Health Hazards	(U of M)	500,000
1999 12(c)	TF	Environmental Indicators Initiative-Continuation	(DNR)	400,000
1999 12(d)	TF	Dakota County Wetland Health Monitoring Program	(Dakota County)	160,000
1999 12(e)	TF	Predicting Water and Forest Resources Health and Sustainability	(U of M)	300,000
1999 12(f)	MFRF	Potential for Infant Risk from Nitrate Contamination	(HEALTH)	200,000
1999 12(j)	TF	Improved Minnesota Fungus Collection and Database	(U of M)	70,000
2001 07a	TF	Hydraulic Impacts of Quarries and Gravel Pits	(DNR)	320,000
2001 07b	MFRF	GIS Management in Koochiching County	(Koochiching County)	70,000
2001 07c	TF	Updating Outmoded Soil Surveys-Continuation	(Board of Water and Soil Resources)	500,000
2001 07d	TF	County Biological Survey-Continuation	(DNR)	800,000
Total for Land Use and Natural Resource Information:				19,692,000

LCMR Administration

1991	MFRF	LCMR Administration	(LCMR)	850,000
1993	TF/MF RF	LCMR Administration	(LCMR)	695,000
1995	TF/MF RF	LCMR Administration	(LCMR)	702,000
1997	TF/MF RF	LCMR Administration	(LCMR)	776,000

Year	Subd. #	Funding Source	Title	(Affiliation)	Total Amount Appropriated
LCMR Administration					
1999		TF/MF RF	LCMR Administration	(LCMR)	867,000
2001	03a	TF/MF RF	Legislative Commission on Minnesota Resources	(LCMR)	1,065,000
2001	03b	TF/MF RF	Pass Through Administration	(DNR)	150,000
2001	03c	MFRF	LAWCON administration	(DNR)	320,000
Total for LCMR Administration:					5,425,000

Recreation, including History

1991	03(a)	MFRF	Off-highway Vehicle Recreation Area	(DNR)	75,000
1991	03(b)	MFRF	Superior Hiking Trail	(DNR)	400,000
1991	03(d)	MFRF	Access to Lakes and Rivers	(DNR)	1,000,000
1991	03(e)	TF	Land and Water Resource Management Lower St. Croix Riverway (MN-WI Boundary Area)		360,000
1991	03(g)	MFRF	Rec. of Recreational Systems and Environ. Resources	(U of M)	200,000
991	03(h)	MFRF	Preservation of Historic Shipwrecks	(MHS)	100,000
1991	03(i)	MFRF	L&WCF Administration	(DNR)	84,000
1991	03(k)	MFRF	Fur Trade Research and Planning	(MHS)	250,000
1991	03(l)	MFRF	Mystery Cave Resource Evaluation	(DNR)	150,000
1991	03(m)	TF	Rails to Trails Acquisition and Development	(DNR)	1,000,000
1991	06(f)	MFRF	Community Gardening Program	(MN Horticultural Scty)	110,000
1993	05(b)	MFRF	Como Park Replanting Program	(City of St. Paul)	93,000
1993	05(c)	MFRF	Reforestation In Ramsey County Parks And Open Space (Ramsey County Parks and Rec Dept)	(Ramsey County Parks and Rec Dept)	50,000
1993	06(f)	MFRF	L & Wcf Administration - Continuation	(DNR)	80,000
1993	10(a)	TF	State Park Betterment	(DNR)	3,000,000
1993	10(b)	TF	Americans With Disabilities Act: Retrofitting Regional Parks (Metropolitan Council)		220,000
1993	10(c)	TF	Trail Linkages, Metropolitan Regional Network	(Metropolitan Council)	2,327,000

Year	Subd. #	Funding Source	Title	(Affiliation)	Total Amount Appropriated
Recreation, including History					
1993	10(d)	TF/MF RF	Initiate Gateway Segment Of The Willard Munger State Trail Into Downtown St Paul	(DNR)	254,000
1993	10(e)	TF	Birch Lake Regional Bikeway/Walkway	(City of White Bear Lake)	450,000
1993	10(f)	TF	Cedar Lake Trail Development	(Minneapolis Park and Rec Bd)	610,000
1993	10(g)	TF	State Trail Development - Continuation	(DNR)	2,327,000
1993	10(h)	TF	Shingle Creek Trail Improvements	(Minneapolis Park and Rec Bd)	130,000
1993	10(i)	TF	Lilydale/Harriet Island Regional Park Trail	(City of St. Paul)	246,000
1993	10(j)	TF	Como Park East Lakeshore Reclamation	(City of St. Paul)	163,000
1993	10(k)	TF	Acquisition Of Palace Restaurant Site On Mississippi River (Minneapolis Park and Rec Bd)		325,000
1993	10(l)	TF	Access To Lakes And Rivers-Continuation	(DNR)	1,000,000
1993	10(m)	TF	Saint Louis River Land Acquisition	(DNR)	1,000,000
1993	10(n)	MFRF	Lake Minnetonka Water Access Acquisition	(DNR)	944,000
1993	10(o)	MFRF	Lake Superior Safe Harbors- Continuation	(DNR)	1,000,000
1993	10(p)	MFRF	Cooperative Trails Grant Program	(DNR)	800,000
1993	10(q)	MFRF	Agassiz Recreational Trails (A.R.T.) Cons. Dist)	(Norman County Soil and Water)	650,000
1993	10(r)	MFRF	Mesabi Trail Acquisition, Planning And Development Counties Reg Rail Auth)	(St. Louis & Lake)	700,000
1993	10(s)	MFRF	Recreational Programming: Inclusiveness For Persons With Disabilities	(Vinland Center)	160,000
1993	10(t)	MFRF	Enhanced Recreational Opportunities For Southeast Asian Ethnic Communities	(DNR)	300,000
1993	10(u)	MFRF	Urban Community Gardening Program - Continuation Resources Center)	(Sustainable)	110,000
1993	10(v)	MFRF	National Register Grants Program	(MHS)	165,000
1993	10(w)	MFRF	Historical Research And Planning For Traverse Des Sioux	(MHS)	68,000
1993	10(x)	MFRF	Peninsula Point Two Rivers Historical Park	(City of Anoka)	435,000
1993	12(k)	MFRF	Theodore Wirth Park Tamarack Bog Preservation Project Parks)	(People for)	40,000

Year	Subd. #	Funding Source	Title	(Affiliation)	Total Amount Appropriated
Recreation, including History					
1994	1994	MFRF	Lake Minnetonka Water Access Acquisition	(DNR)	154,000
1994	1994	MFRF	Silver Bay Harbor	(DNR)	1,000,000
1994	1994	TF	Lake Minnetonka Water Access Acquisition	(DNR)	696,000
1994	1994	MFRF	Local Recreation Grants	(DNR)	250,000
1994	1994	TF	State Park Betterment	(DNR)	650,000
1995	04(a)	TF	Metropolitan Regional Park System	(Metropolitan Council)	3,950,000
1995	04(b)	TF	State Park and Recreation Area Acquisition(Upper Sioux)	(DNR)	3,150,000
1995	04(c)	TF	State Trail Rehabilitation and Acquisition	(DNR)	250,000
1995	04(d)	TF	Water Access	(DNR)	600,000
1995	04(e)	MFRF	Local Grants	(DNR)	1,800,000
1995	04(f)	MFRF	Minneapolis Park and Trail Connections(Funding Withdrawn)	(Mpls Park & Rec Board)	141,000
1995	04(g)1	OOO	Local Share for ISTE A Federal Projects	(Chisago Co. SL&LC RegRailAuth)	150,000
1995	04(g)2	OOO	Local Share for ISTE A Federal Projects	(St. Louis and Lake Counties Reg. Rail Auth)	150,000
1995	04(h)	MFRF	Pine Point Park Rest Station	(Washington County)	100,000
1995	04(i)	MFRF	Interactive Multi-Media Computer Information System	(Explore Lake County)	45,000
1995	04(j)	MFRF	Upper Sioux Agency State Park	(DNR)	200,000
1995	04(k)	MFRF	Grain Belt Mississippi Riverfront Development	(Mpls Park & Rec Board)	500,000
1995	04(l)	MFRF	Wildcat Regional Park	(DNR)	40,000
1995	08(b)	MFRF	Gardening Program - Statewide	(Sustainable Resources Center)	300,000
1995	08(h)	MFRF	Arboretum Boundary Land Acquisition	(U of M)	680,000
1995	12(a)	MFRF	Restore Historic Mississippi River Mill Site	(Crown Hydro Company)	120,000
1995	12(b)	MFRF	Pond-Dakota Mission Restoration	(City of Bloomington)	270,000
1995	12(c)	MFRF	Joseph R. Brown Interpretive Center Restoration Project	(Sibley County Hist Society)	75,000

Year	Subd. #	Funding Source	Title	(Affiliation)	Total Amount Appropriated
Recreation, including History					
1995	12(d)	MFRF	Heritage Trails	(MHS)	200,000
1995	12(e)	MFRF	Restoration of Historic Elba Fire Tower	(DNR/Elba Booster Club)	73,000
1995	12(f)	MFRF	Managing Minnesota Shipwrecks	(MHS)	100,000
1995	12(g)	MFRF	Lac Qui Parle Mission Historic Trail	(MHS)	181,000
1995	20(a)	TF	State Park and Recreation Area Acquisition	(DNR)	1,120,000
1995	20(b)	TF	Metropolitan Regional Parks and Trails Acquisition	(Metropolitan Council)	1,120,000
1995	20sec	TF	Cannon Valley Trail Repair	(Cannon Valley Joint Powers Bd)	175,000
1996	03(a)	MFRF	Metropolitan Regional Park System	(Metropolitan Council)	1,000,000
1996	1996	MFRF	Chippewa County Regional Trail	(Montevideo)	410,000
1996	1996	TF	State Park and Recreation Area Acquisition	(DNR)	1,000,000
1996	1996	MFRF	Local Grants	(DNR)	895,000
1997	03	MFRF	Pickwick Mill	(Pickwick Mill, Inc)	150,000
1997	04(a)	TF	State Park and Recreation Area Acquisition, Development, Betterment and Rehabilitation	(DNR)	3,500,000
1997	04(b)	TF	Metropolitan Regional Park System	(Metropolitan Council)	3,500,000
1997	04(c)	MFRF	Local Initiatives Grants Program	(DNR)	2,900,000
1997	04(d)	MFRF	Border to Border Trail Study	(DNR)	100,000
1997	05(a)	MFRF	Ft. Snelling State Park - Upper Bluff Utilization and AYH Hostel	(AYH)	250,000
1997	05(c)	MFRF	Jeffers Petroglyphs Environmental Assessment and Prairie Restoration	(MHS)	125,000
1997	05(d)	TF	Development of Birch Coulee State Historic Site	(MHS)	253,000
1997	05(f)	MFRF	Historical and Cultural Museum on Vermilion Lake Indian Reservation (Bois Forte Reservation)		100,000
1997	05(g)	MFRF	Native American Perspective of the Historic North Shore Interpretive Center Association	(Sugarloaf)	60,000
1997	05(h)	MFRF	Soudan Underground Physics Laboratory Expansion	(U of M)	400,000
1997	12(b)	TF/OO C	Renewable Energy Demonstration and Education in State Parks (Center for Energy & Environment)		230,000

Year	Subd. #	Funding Source	Title	(Affiliation)	Total Amount Appropriated
Recreation, including History					
1997	12(e)	MFRF	Connecting People and Places through Yellow Bikes Coalition)	(Yellow Bike)	95,000
1997	12(f)	MFRF	Sustainable Gardening for Minnesota Homes and Communities (Sustainable Resources Center)		400,000
1997	16(b)	TF	Arboretum Land Acquisition	(U of M)	450,000
1997	17(g)	MFRF	Minnesota Point Protection	(Park Point Community Club)	75,000
1997	17(o)	TF	Fishing Pier and Public Shore Access	(DNR)	355,000
1997	17(p)	TF	Public Boat Access	(DNR)	350,000
1997	18(a)	MFRF	Mesabi Trail Land Acquisition and Development (St. Louis & Lake Counties Regional Rail Authority)		600,000
1997	18(b)	MFRF	Chippewa County Regional Trail	(City of Montevideo)	400,000
1997	19(c)	TF	Oak Savanna Restoration in St. Paul Regional Parks (City of Saint Paul, Division of Parks and Recreation)		200,000
1999	04(a)	TF/MF RF	Local Initiatives Grants Program	(DNR)	5,117,000
1999	04(b)	MFRF	Mesabi Trail Land Acquisition and Development-Continuation (St. Louis and Lake Ct. Regional Rail Authority)		1,000,000
1999	04(c)	MFRF	Kabetogama to Ash River Community Trail System (Kabetogamma Lake Association)		100,000
1999	04(d)	MFRF	Mesabi Trail Connection	(East Range Joint Powers Board)	80,000
1999	04(e)	MFRF	Dakota County Bikeway Mapping	(Dakota County)	15,000
1999	04(f)	MFRF	Mississippi Riverfront Trail and Access	(City of Hastings)	155,000
1999	04(g)	TF	Management and Restoration of Natural Plant Communities on State Trails	(DNR)	150,000
1999	04(h)	TF	Gitchi-Gami State Trail	(DNR)	550,000
1999	04(i)	TF	State Park and Recreation Area Acquisition, Development, Betterment, and Rehabilitation	(DNR)	1,000,000
1999	04(j)	TF	Ft. Snelling State Park-Upper Bluff Implementation-Continuation	(DNR)	100,000
1999	04(k)	TF	Interpretive Boat Tours of Hill Annex Mine State Park	(DNR)	60,000
999	04(l)	TF	Metropolitan Regional Parks Acquisition, Rehabilitation and Development	(Metropolitan Council)	2,000,000

Year	Subd. #	Funding Source	Title	(Affiliation)	Total Amount Appropriated
Recreation, including History					
1999	04(m)	MFRF	Como Park Maintenance	(Como Park Zoo and Conservatory)	500,000
1999	04(n)	MFRF	Luce Line Trail Connection through Wirth Park	(Minneapolis Park and Recreation Board)	300,000
1999	05(a)	MFRF	Using National Register Properties to Interpret Minnesota History	(MHS)	90,000
1999	05(b)	TF	Historic Site Land Acquisition	(MHS)	175,000
1999	05(d)	TF	Traverse des Sioux Site Development	(MHS)	250,000
1999	07(c)	TF	Minnesota Wildlife Tourism Initiative	(DNR)	250,000
1999	11(h)	MFRF	Development and Rehabilitation of Recreational Shooting Ranges	(DNR)	350,000
1999	13(f)	TF/MF RF	Public Boat Access and Fishing Piers	(DNR)	1,310,000
1999	13(g)	TF	Arboretum Land Acquisition and Wetlands Restoration-Continuation	(U of M)	700,000
1999	Sec. 3	TF	FY 99 ML 1997 Subd. 4(b) Metropolitan Regional Park System	(Metropolitan Council)	495,000
1999	Sec. 3	TF	FY 99 ML 97 Subd. 4(a) State Park and Recreation Area Acquisition	(DNR)	496,000
2001	05a	TF	Metropolitan Regional Parks Acquisition, Rehabilitation and Development	(Metropolitan Council)	5,645,000
2001	05b	TF/MF RF	Local Grants Initiative Program Outdoor Recreation Grants	(DNR)	5,080,000
2001	05c	MFRF	Regional and Local Trail Grants (Part of Local Grants Initiative)	(DNR)	1,000,000
2001	05d	TF	Outdoors for Everyone: Accessing Recreational Trails and Facilities	(Wilderness Inquiry)	230,000
2001	05e	TF	Water Recreation: Boat Access, Fishing Piers and Shorefishing	(DNR)	910,000
2001	05f	TF/MF RF	Grays Bay, Lake Minnetonka Public Water Access	(DNR/City of Minnetonka)	2,850,000
2001	05g	MFRF	McQuade Small Craft Harbor	(DNR/McQuade Joint Powers Board)	500,000
2001	05h	TF	Land Acquisition at the Minnesota Landscape Arboretum	(Minnesota Landscape Arboretum/ U of M)	730,000
2001	05i	MFRF	Gateway Trail Bridge	(DNR)	530,000

Year	Subd. #	Funding Source	Title	(Affiliation)	Total Amount Appropriated
Recreation, including History					
2001	05j	MFRF	State Trail Projects	(DNR)	910,000
.001	05k	TF	Gitchi Gami State Trail	(DNR)	1,000,000
2001	05l	MFRF	Forest History Center Interpretive Trail	(MHS)	90,000
2001	05m	MFRF	Mesabi Trail Facility	(St. Louis & Lake Ctny Reg. Rail Auth.)	190,000
2001	05n	MFRF	Regional Trailhead Building	(Itasca County Land Department)	135,000
2001	05o	MFRF	Development and Rehabilitation of Recreational Shooting Ranges	(DNR)	910,000
2001	05p	MFRF	State Park & Recreation Area Land Acquisition	(DNR)	1,726,000
2001	05q	MFRF	LAWCON	(DNR)	744,000
Total for Recreation, including History:					95,837,000

Water Resources

1991	03(c)	MFRF	Local River Planning	(DNR)	400,000
1991	04(a)	TF	Stream and Watershed Information System	(DOA InterTech/LMIC)	200,000
1991	04(b)	TF	South Central MN Surface Water Resource Atlases & Database	(Water Resources Center)	300,000
1991	04(c)	TF	Minnesota River Basin Water Quality Monitoring	(PCA)	700,000
1991	04(d)	MFRF	Waterwatch--Citizen Monitoring & Protection Program.	(PCA)	272,000
1991	04(e)	MFRF	Demo of Bio Tech for Removing Organize Chem from Aquifers and Groundwaters	(U of M)	96,000
1991	04(f)	TF	County Geologic Atlas and Groundwater Sensitivity Mapping	(DNR/ U of M)	1,400,000
1991	04(g)	MFRF	Aquifer Analysis in SE MN	(Winona Univ, Geology)	73,000
1991	04(h)	TF	Clean Water Partnership Grants to Local Units of Government	(PCA)	700,000
1991	04(i)	TF	Cannon River Watershed Grants	(BWSR)	60,000
1991	04(j)	TF	Mitigating Mercury in Northeast MN Lakes	(U of M)	300,000
1991	04(k)	MFRF	Development of Application of Aeration Technologies	(U of M)	148,000
1991	04(l)	MFRF	Lake Superior Initiative for Research	(U of M)	400,000
1991	04(m)	MFRF	Lake Mille Lacs Public Land	(DNR)	20,000

Year	Subd. #	Funding Source	Title	(Affiliation)	Total Amount Appropriated
Water Resources					
1991	04(n)	TF	Ecological Evaluation of Year Round Aeration	(DNR)	100,000
1991	04(o)	TF	Erosion Control Cost-Sharing	(BWSR)	250,000
1991	04(p)	TF	Well Sealing Cost Share Grants	(BWSR)	750,000
1993	11(a)	TF	Minnesota River Implementation-Continuation	(PCA)	1,100,000
1993	11(b)	MFRF	Local River Planning - Continuation	(DNR)	480,000
1993	11(c)	TF	Mercury Reduction In Fish	(U of M)	200,000
1993	11(e)	MFRF	South Central Minnesota Groundwater Contamination Susceptibility - Continuation	(Mankato State University)	290,000
1993	11(f)	MFRF	White Bear Lake Levels Feasibility Study (1994 Reduced From 228,000 To 175,00)	(DNR)	175,000
1993	11(g)	TF	County Geologic Atlases And Regional Hydrogeologic Assessments - Continuation	(U of M)	850,000
1993	11(h)	MFRF	Septic System Replacement For Water Related Tourism Businesses	(DTED)	500,000
1993	11(i)	MFRF	Optical Brighteners: Indicators Of Sewage Contamination Of Groundwaters	(Dakota County Environmental Mgmt Dept)	157,000
1995	05(a)	MFRF	Local River Planning - Continuation	(DNR)	140,000
1995	05(b)	TF/MF RF	Cannon River Watershed Strategic Plan: Integrated Management	(Cannon River Wtrshd Ptnship)	325,000
1995	05(c)	MFRF	Tri-County Leech Lake Watershed Project	(Leech Lake Realty)	300,000
1995	05(f)	MFRF	Atmospheric Mercury Emissions, Deposition, and Environmental	(PCA)	575,000
1995	05(g)	MFRF/ GLPA	Mercury Deposition and Lake Quality Trends	(U of M)	250,000
1995	05(j)	MFRF	Shoreland Septic Inventory and Education	(Hubbard County Env Serv Off)	145,000
1995	05(k)	MFRF	Alternative Individual Sewage Treatment Systems Development	(PCA/ U of M)	425,000
1995	05(m)	MFRF	Upper Mississippi River Protection Project	(Mississippi Headwaters Bd.)	200,000
1995	07(b)	TF	Assessing Wetland Quality With Ecological Indicators	(U of M)	275,000
1995	08(d)	MFRF	Maplewood Innovative Storm Water Management Project	(City of Maplewood)	100,000

Year	Subd. #	Funding Source	Title	(Affiliation)	Total Amount Appropriated
Water Resources					
1995	08(e)	TF	Phalen Wetland Restoration	(City of St. Paul)	115,000
995	08(g)	TF	Metropolitan Area Groundwater Model to Predict Contaminant M	(PCA)	250,000
1996	1996	MFRF	Upper Mississippi River Assessment	(DNR)	57,000
1997	02	GF	Model Water Quality Cooperatives Pilot Program (not LCMR)	(U of M)	300,000
1997	06(a)	MFRF	On-Site Sewage Treatment Alternatives and Technology Transfer (PCA/ U of M)		500,000
1997	06(c)	TF	Snake River Watershed BMP's	(Kanabec SWCD)	100,000
1997	06(d)	MFRF	Evaluation of Watershed-Based Watershed District Management Association of Watershed Districts)	(MN)	150,000
1997	06(f)	TF	Sustainable Lake Plans	(CURA, U of M)	270,000
1997	06(g)	TF	Lakeshore Restoration-Minneapolis Chain of Lakes and Recreation Board)	(Minneapolis Park and Recreation Board)	300,000
1997	06(h)	TF	Atmospheric and Nonpoint Pollution Trends in Minnesota Lakes	(PCA)	325,000
1997	09(f)	MFRF	Preventing Stormwater Runoff Problems through Watershed Land Design	(U of M)	280,000
1997	09(g)	MFRF	Miller Creek Watershed Management	(City of Hermantown)	100,000
1997	10(b)	TF	Metropolitan Area Groundwater Model	(PCA)	300,000
1997	10(d)	TF	Minnesota River Basin Natural Resource Data	(Mankato State University)	250,000
1997	14(c)	TF	Water Quality Indicators of Endocrine Disrupting Chemicals	(PCA)	250,000
1997	14(e)	MFRF	Wetland Ecosystems Monitoring	(U of M)	160,000
1997	14(g)	TF/GL PA	Training and Research Vessel for Lake Superior	(U of M)	250,000
1997	17(b)	MFRF	Cannon River Watershed: Integrated Management Watershed Partnership)	(Cannon River Watershed Partnership)	350,000
1997	17(e)	TF	Phalen Wetland Restoration: Phase II	(City of Saint Paul)	600,000
1999	06(a)	TF	On-site Sewage Treatment Alternatives- Performance, Outreach and Demonstration -Continuation	(PCA/ U of M)	550,000
1999	06(b)	TF	Identification of Sediment Sources in Agricultural Watersheds (Science Museum of MN)		350,000
1999	06(c)	MFRF	Accelerated State-Wide Local Water Plan Implementation	(BWSR)	1,000,000

Year Subd. #	Funding Source	Title	(Affiliation)	Total Amount Appropriated
Water Resources				
1999 06(d)	TF	Tracking Sources of Fecal Pollution Using DNA Techniques	(U of M)	300,000
1999 06(e)	TF	Groundwater Flow in the Prairie du Chien Aquifer	(U of M)	110,000
1999 06(f)	MFRF	Lake Minnetonka Citizens Monitoring and Education Network	(Lake Minnetonka Association)	40,000
1999 06(g)	TF	Erosion Impacts on the Cannon Valley Big Woods	(U of M)	150,000
1999 06(h)	MFRF	City of the Lakes Flood Mitigation and Flow Stream Protection	(Minneapolis Park and Recreation Board)	500,000
1999 08(f)	MFRF	Chisago Lakes Outlet Channel Project	(Chisago County)	40,000
1999 12(g)	TF/GL PA	Assessing Lake Waters Off the North Shore	(U of M)	400,000
2001 06a	MFRF	Accelerated Implementation of Local Water Plans	(Board of Water and Soil Resources)	1,365,000
2001 06c	TF	Denitrification Strategies for Minnesota's Contaminated Aquifers	(U of M)	230,000
2001 06d	MFRF	Determination of Fecal Pollution Sources in Minnesota Watersheds	(U of M)	275,000
2001 06e	MFRF	Mississippi Headwaters Board Environmental Economic Assessments	(Mississippi Headwaters Board)	100,000
2001 07e	GLPA	Lake Superior Lakewide Management Plan (LaMP)	(PCA)	87,000
Total for Water Resources:				23,060,000
Total :				246,064,000